



# Heidelberg Materials Calga Quarry

## SSD Modification Report

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*Declaration*

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## 1. Executive summary

This Modification Report assesses proposed changes to the rehabilitation phase of Calga Quarry. Specifically, it deals with the importation of recycled fill materials to achieve the approved final landform. The report provides a thorough evaluation of the strategic context, statutory compliance, environmental impacts, and justification for the modification. The following executive summary presents the key findings and recommendations from each major section of the report.

The Calga Quarry, located at 2256 Peats Ridge Road, Calga, NSW, is owned and operated by Heidelberg Materials Australia Pty Ltd (**Heidelberg**). The site has transitioned from active extraction of friable sandstone to the rehabilitation phase, with the primary objective of restoring the land to a stable, free-draining condition suitable for future agricultural use. The approved Rehabilitation and Landscape Management Plan (RLMP) outlines the requirements for site restoration, including the need for substantial quantities of fill material to achieve the final landform. The modification seeks approval to import up to 400,000 tonnes per annum of recycled engineering fill, such as Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM), to address the deficit of suitable on-site materials.

### *Regional and Local Context*

Calga Quarry is situated within the Central Coast local government area, on the Somersby Plateau. The surrounding land is predominantly rural, with a mix of agricultural activities, rural residences, and remnant native vegetation. The site is well-buffered from urban development, minimizing potential land use conflicts. The quarry's haulage route is designed to direct heavy vehicle movements away from sensitive receivers and local residential streets, further reducing community impacts.

### *Sensitive Receivers*

Key sensitive receivers include rural residential properties along Peats Ridge Road, small rural businesses, and the Australian Walkabout Wildlife Sanctuary. The site is also proximate to areas of Aboriginal cultural heritage significance and groundwater-dependent ecosystems. The modification has been assessed to ensure that these receivers are protected through robust environmental controls and ongoing monitoring.

### *Alignment with Strategic Planning Instruments*

The proposed modification aligns with local, state, and national strategies for waste reduction, resource recovery, and sustainable land use. It supports circular economy principles by diverting waste from landfill and utilizing recovered materials for beneficial reuse in rehabilitation. The modification is consistent with the Central Coast Resource Management Strategy 2020–2030, Central Coast Waste Management Strategy 2021–2026, and Our Central Coast Community Strategic Plan 2025–2035. At the state level, it advances the objectives of the NSW Waste and Sustainable Materials Strategy 2041, NSW Waste Avoidance and Resource Recovery (WARR) Strategy, NSW Waste and Circular Infrastructure Plan 2025, and NSW Circular Economy Policy and Delivery Plan. Nationally, it supports the National Waste Policy: Less Waste, More Resources and Australia's Circular Economy Framework.

### *Description of Modifications*

The modification involves the importation of approximately 953,000 cubic meters of fill to achieve the approved final landform. The fill materials will be sourced from regulated suppliers and will include VENM, ENM, and other appropriate materials approved under Resource Recovery Orders and Exemptions. The import process will utilise existing site infrastructure, with materials transported via road and placed using standard earthmoving equipment. Operational controls will be implemented to ensure compliance with environmental standards, including material classification, tracking, and independent validation.

The modification does not alter the approved development footprint, operating hours, or maximum vehicle movements. All activities will be conducted within the parameters of the existing consent, ensuring consistency with previously assessed and approved impacts.

### *Statutory Context*

The modification is sought under Section 4.55(1A) of the Environmental Planning and Assessment Act 1979, which allows for changes involving minimal environmental impact. The proposal remains substantially the same as the originally approved development, with the primary change being the source of fill material for rehabilitation. The modification complies with the Environmental Planning and Assessment Regulation 2021 and the Protection of the Environment Operations Act 1997. The existing EPA Licence (EPL 11295) remains valid, and the importation of VENM and ENM is exempt from additional licensing requirements under current regulations.

No State Environmental Planning Policies (SEPPs) have been identified as applicable to the proposed modification.

### *Engagement*

An impact scoping assessment determined that the proposed modification would not result in significant or measurable environmental or community impacts. The importation of fill will be managed under robust controls, and all imported materials will comply with regulatory standards. No increase in approved material handling limits, operational hours, or traffic movements is proposed. As a result, no formal consultation process was required. The proponent remains committed to ongoing engagement with stakeholders and regulatory authorities should any unforeseen issues arise.

### *Impact Assessment Scoping*

A comprehensive scoping assessment was undertaken to evaluate potential impacts across key environmental aspects, including air quality, noise, traffic, heritage, biodiversity, groundwater, surface water, community amenity, soil stability, and contamination. The assessment concluded that all impacts would remain at levels equal to or lower than those previously approved. Specific findings include:

**Air Quality:** The air quality impact inventory, including truck movements and material handling, are consistent with the original assessment. Existing monitoring and reporting protocols will continue.

**Noise and Vibration:** Equipment required for fill placement is less intensive than during extraction. Noise levels will remain within approved limits. Operational hours will be unchanged.

**Traffic and Transport:** Vehicle movements are unchanged, and permitted truck types remain consistent with the original consent.

**Heritage:** No change to the approved footprint or risk to heritage values.

**Biodiversity:** No expansion of the operational footprint. No predicted indirect impacts on biodiversity or groundwater-dependent ecosystems.

**Groundwater and Surface Water:** Fill materials present negligible risk to water resources. Monitoring and validation will ensure compliance with water quality standards.

**Community Impact:** No new or additional impacts on local residents or sensitive receivers. Existing amenity controls remain in place.

**Soils and contamination:** Implementation of a Fill Import Management Plan will address potential risks associated with imported materials. Only materials approved under Resource Recovery Orders and Exemptions will be imported, minimizing contamination risk.

### *Traffic Impact Assessment*

An expert assessment confirmed that the proposed heavy vehicle activities are consistent with those already approved under the existing consent. The types of trucks, maximum daily vehicle movements, and operating hours remain unchanged. Larger truck combinations may improve payload efficiency, potentially reducing the total number of vehicle movements. The road network is capable of accommodating the proposed activities without increased maintenance demand or traffic impacts. The modification will not result in any cumulative increase in traffic load or adverse impacts on road safety.

## *Surface and Groundwater impact assessment*

### **Groundwater Conditions**

Monitoring data indicate that the groundwater table generally sits below the base of the extraction pit, with minor inflows managed within the site's water management system. Regional groundwater flow is towards Cabbage Tree Creek, with the quarry acting as a local sink during extraction. Post-rehabilitation modelling predicts recovery of groundwater levels and restoration of natural flow directions.

### **Groundwater Closure Plan**

A comprehensive Groundwater Closure Plan has been developed, including a robust monitoring network and contingency strategies for early detection and remediation of impacts. Criteria for groundwater level and quality have been established to ensure protection of neighbouring landholders and groundwater-dependent ecosystems. Post-closure monitoring will continue for at least two years to confirm recovery as predicted.

### **Interaction with Emplaced Fill**

Approximately 10–11 vertical meters of fill are required across the site to achieve the final landform. Fill in the north and northeast will interact with groundwater, while fill in the central and southern areas will remain above the water table. The risk of leaching pollutants from fill materials is negligible, as only materials meeting strict contaminant thresholds will be accepted.

### **Surface Water**

Surface water will continue to be managed via existing dams and sediment basins, with overflow directed to Cabbage Tree Creek. Monitoring will ensure that fill placement does not adversely affect water quality.

## *Closing statement*

The importation of recycled fill materials is justified by the lack of sufficient on-site materials to achieve the approved rehabilitation outcomes. Alternative approaches, such as additional extraction or a do-nothing scenario, would result in greater environmental impacts or failure to meet rehabilitation objectives.

The proposed modification is consistent with the objects of the Environmental Planning and Assessment Act, promoting orderly and sustainable use of mineral resources for community benefit. The proximity of the site to sources of suitable fill in Sydney, the Central Coast, Newcastle, and the Hunter region makes the proposal commercially viable and environmentally responsible.

The proposed modification to permit the importation of recycled fill materials for rehabilitation at Calga Quarry offers significant benefits and demonstrates minimal environmental and community impact. The modification is consistent with regional, state, and national strategies for waste reduction, resource recovery, and sustainable land management.

Robust operational controls, including material classification, tracking, and independent validation, will be implemented through a Fill Import Management Plan to further reduce any residual risk. The modification does not increase the approved footprint, operating hours, or traffic movements, and maintains all existing environmental safeguards. Comprehensive impact assessments confirm that air quality, noise, traffic, water resources, biodiversity, and community amenity will remain at levels equal to or lower than those already approved.

The rehabilitation process will restore the site to a stable, free-draining landform suitable for future agricultural use, enhancing local landscape values and ecological outcomes. Given the clear alignment with strategic objectives, the proven safety of proposed materials, and the absence of significant or measurable adverse impacts, the modification represents a responsible and beneficial development. Approval of this proposal will enable timely and effective rehabilitation of Calga Quarry, delivering lasting environmental and community benefits while upholding all regulatory requirements.

## 2. Introduction

This Modification Report has been prepared to assess the impact of the proposed importation of engineering fill materials for rehabilitation of the Calga Quarry Site.

This document has been prepared in accordance with *Appendix E to the state significant development guidelines: preparing a modification report* (DPIE, 2022).

### 2.1 Applicant

The Applicant is:

Heidelberg Materials Australia Pty Ltd (**Heidelberg**).  
ABN: 90 009 679 734  
Level 14, 35 Clarence Street  
Sydney, NSW 2000

Heidelberg Materials is a global leader in building materials and solutions, headquartered in Heidelberg, Germany. Operating in over 50 countries with around 51,000 employees, the company produces cement, aggregates, and ready-mixed concrete for construction and infrastructure projects. Heidelberg Materials is committed to environmental responsibility, investing in low-carbon technologies and circular economy initiatives. In Australia, the company supplies a wide range of products to the construction sector, including cement, concrete, aggregates and other quarried materials. Heidelberg has a strong corporate emphasis on safety, quality, and sustainability.

In 2007, Heidelberg acquired Hanson PLC, which was a UK-based company with a strong presence in Australia. Following the acquisition, Hanson continued to operate under its established brand name in Australia, as a subsidiary of Heidelberg. Hanson announced in 2024 that it would rebrand as Heidelberg Materials, effective November 2024.

### 2.2 The approved development

#### 2.2.1 The Sites

The Site details are as follows.

Address	2256 Peats Ridge Road, Calga, NSW
Cadastral lot(s)	Lot 2 DP 229889
Commonly known as	Heidelberg Calga Quarry

#### 2.2.2 The status of the existing development

The Calga Quarry is owned and operated by Heidelberg. The site is located on the Somersby Plateau in the Central Coast Council Local Government Area. Calga is neighbour to the Australian Walkabout Wildlife Sanctuary and residences and businesses on RU2 Rural Landscape land use zoning. The quarry previously operated to extract and process friable sandstone material.

Sandstone extraction at the Site is no longer occurring and the Site is in the rehabilitation phase.

The quarry site, including both the original (Stage 1 and 2) and extended quarry (Stage 3), covers an area of 32.5 hectares. Of this 32.5 ha area, Stage 1 and 2 of the Calga Sand Quarry make up 13.5ha, Stage 3 is 11.8 ha, the acoustic bund wall covers an area of 2 ha with the remaining 5.2 ha to be maintained as a vegetated drainage area retained for landscaping purposes as a buffer zone to the quarry.

Figure 3 presents the sequence of extraction and rehabilitation for the quarry which is based on the indicative extraction and rehabilitation sequence, reproduced from the approved Rehabilitation and Landscape Management Plan (**RLMP**) for the Site (dated August 2006, report reference 264/30). We note that the RLMP is in the process of being updated and the 2025 version is expected to superseded the 2006 version, once approved by the Department. However, the details of rehabilitation sequencing do not materially affect this application, which seeks to achieve broad approval for the import of engineering fill material, for use in rehabilitation works as set out in the approved RLMP, as updated periodically.

The objectives of rehabilitation are to stabilise all earthworks, drainage lines and disturbed areas no longer required for quarry-related activities in order to minimise erosion and sedimentation, and to reduce the visibility of the activities from adjacent properties and the local road network.

### 2.2.3 Existing approvals

Approval	Date of issue	Description
<b>Consents</b>		
DA 94-4-2004	2005	Approved Extraction of friable sandstone (quarrying).
DA 94-4-2004 (MOD 1)	June 2012	Approved Relocation of admin centre
DA 94-4-2004 (MOD 2)	November 2015	Withdrawn Crushing system
<b>DA 94-4-2004 (MOD 3)</b>	June 2017	<b>Approved (Current consent)</b> Crushing system
DA 94-4-2004 (MOD 4)	NA	Withdrawn Glass processing
<b>EPA Licence</b>		
EPL 11295	24 July 2001	Approved scheduled activities are: Crushing, grinding or separating Other extractive activities
<b>Other approvals</b>		
WAL 17384	NA	NA
WAL 27185	NA	NA
WAL 20019	NA	NA
WAL 2541	NA	NA

Table 1: Existing planning and environmental approvals for the Site.

### 2.3 The proposed modification

Noting that extractive operations and production has ceased, the Proponent intends to modify the consent to allow import of fill material for rehabilitation.

The Concept Final Landform of the Site (approved in the RLMP) is specified as being free-draining to the southwest, approximately 15m to 25m below the pre-extraction ground level. The Concept Final Landform details silt cell rehabilitation showing a typical cell cross section, which consists of grasses underlain by topsoil, overburden/oversize capping and fines.

The quarry currently has insufficient quantities of these layers of materials to achieve the rehabilitation outcome of having a free-draining to the southwest, approximately 15 m to 25 m below the pre-extraction ground level. RW Corkery and Co assessed the quantity of cut and fill required to achieve the final landform (see Figure 9). They found that a net fill requirement of 953,000 m<sup>3</sup> exists at the Site. There is no ability to obtain this material on Site and therefore it must be imported.

The environmental assessment, Consent and RLMP do not provision for the import of fill materials to meet any net fill deficiency in the rehabilitation phase. The Environmental Impact Statement (EIS) describes the development as including: *“the production of blended products by blending washed sand with imported soils and fine aggregate materials”*. The EIS forms part of the consent by virtue of Schedule 2, Condition 2, which requires the development to be conducted generally in accordance with the EIS, mod reports and approved plans. The EIS foresaw the import of soil and aggregate materials for production, but not for rehabilitation.

There is an overarching understanding (refer the definition of ‘rehabilitation’ in the Consent and other references in the EIS and Management Plans) that the Site is to be ‘stable and non-polluting’ in its final form. Any fill imported to the Site for rehabilitation would meet these requirements. The proposed fill materials are:

- Virgin Excavated Natural Material;
- Excavated Natural Material (classified under the ENM Resource Recovery Order and Exemption 2014); and
- General or Specific Resource Recovery Order and Exemption material that is suitable for earthworks, engineering fill or similar applications.



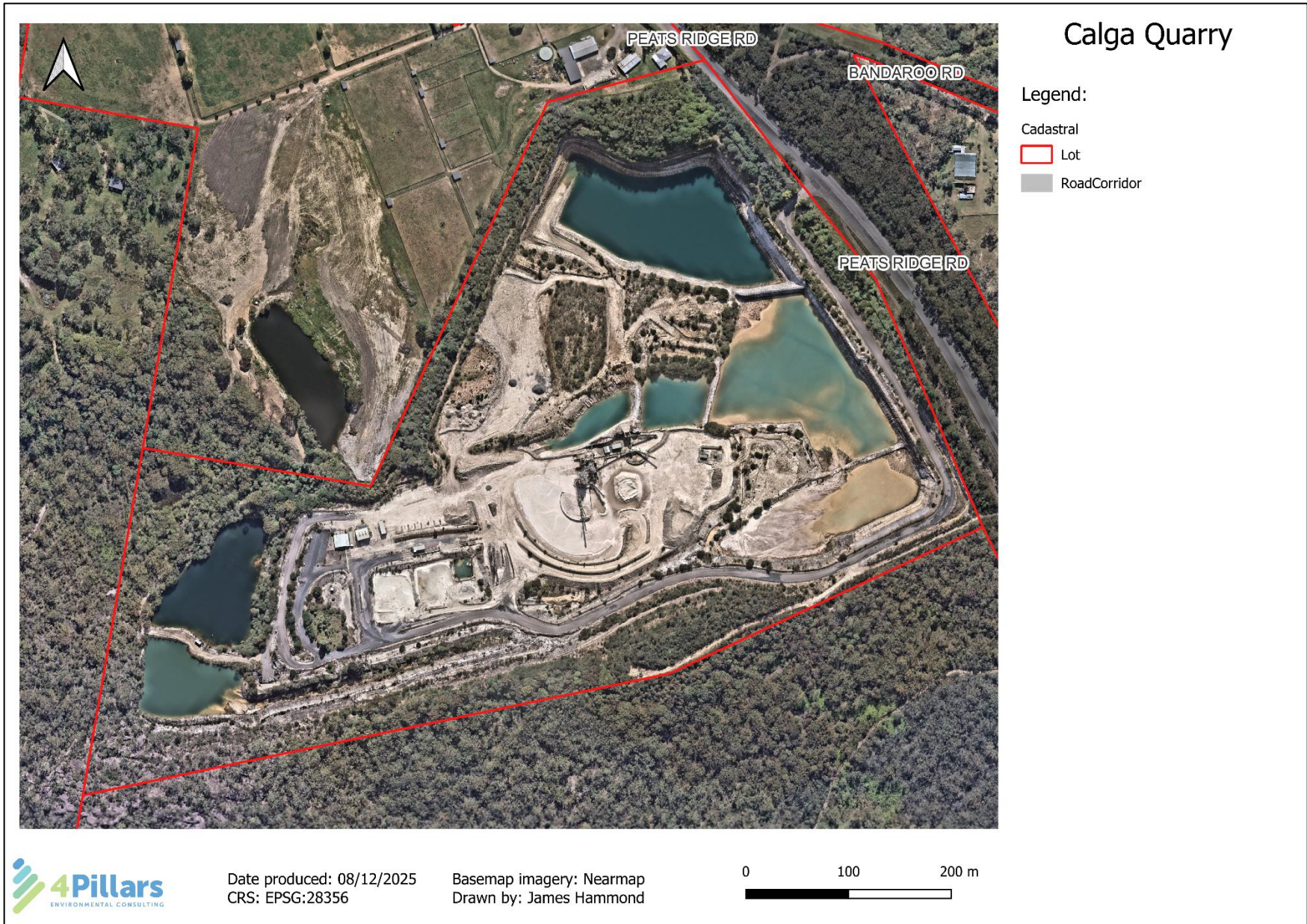


Figure 2: Site map, aerial imager dated September 2025.

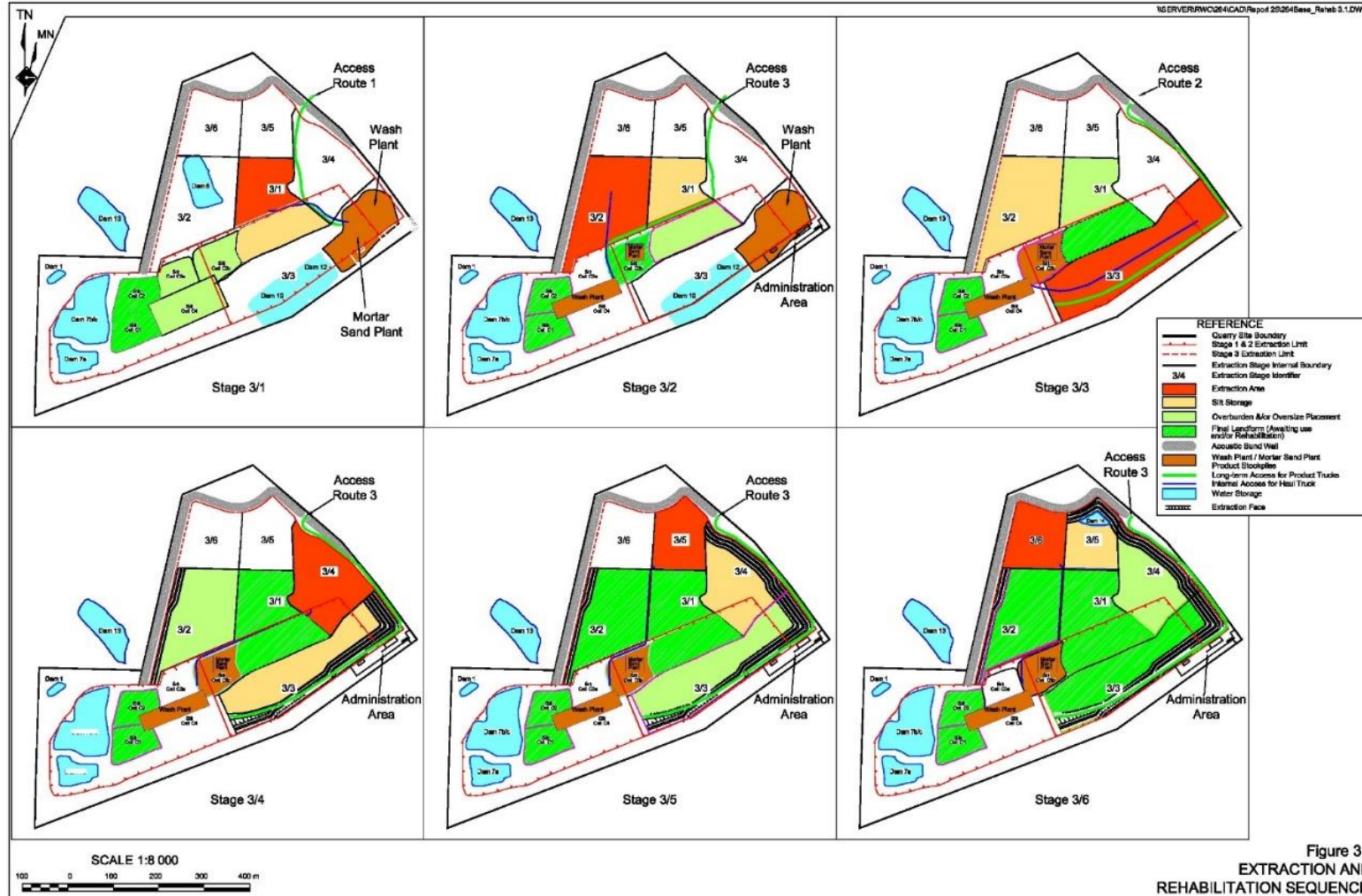


Figure 3: Rehabilitation sequence. Source: Rehabilitation and Landscape Management Plan, RW Corkery and Co, 2006.

## 3. Strategic context

### 3.1 Regional and local context

The Calga Sand Quarry is situated on Peats Ridge Road, approximately 1.7 kilometres northwest of the Calga Interchange on the M1 (formerly F3) Freeway, within the Central Coast local government area of New South Wales. The site occupies a strategic position on the Somersby Plateau, an area characterised by gently undulating terrain, sandstone outcrops, and a mix of cleared agricultural land and remnant native vegetation.

The immediate surrounds of the quarry are predominantly rural, with land used for grazing, horticulture, and small-scale agriculture. There are scattered rural residences and lifestyle properties, as well as pockets of remnant bushland. To the south and west, land is largely cleared for agricultural use, while to the north and east, larger tracts of native vegetation remain, some of which are protected for conservation purposes. The area is also notable for its Aboriginal cultural heritage, with significant sites located in proximity to the quarry, including the Calga Aboriginal Women's Site.

Peats Ridge Road provides direct access to the quarry and connects the site to the M1 Freeway, facilitating efficient transport of quarry products to the Central Coast, Sydney, and Hunter regions. The road network in the vicinity is well-developed for heavy vehicle movements, with established intersections and deceleration lanes at the quarry entrance. The majority of truck traffic from the site travels south to the M1, minimising impacts on local roads and residential areas.

The quarry site lies within the catchment of Cabbage Tree Creek, which ultimately discharges to the Hawkesbury River. While there are no natural watercourses on the site itself, stormwater is managed via a series of sediment basins and farm dams, with overflow directed towards tributaries of Cabbage Tree Creek. The area is also known for groundwater-dependent ecosystems, including sedgelands and hanging swamps, which have been considered in environmental assessments. The site's elevation and free-draining soils are important for both quarry operations and rehabilitation planning.

The built environment in the vicinity of Calga Quarry is limited, with the nearest urban centres being Somersby and Gosford, located several kilometres to the east and southeast. Industrial development in the region is sparse, with the quarry itself representing one of the few large-scale extractive operations in the area. Other industrial activities are concentrated closer to the M1 corridor and in designated industrial zones near Gosford. The quarry is well-buffered from residential and commercial development, reducing the potential for land use conflict.

The defined haulage route for Calga Quarry is Peats Ridge Road to the M1 Freeway, with truck traffic directed away from local residential streets and sensitive land uses. This route is specified in the quarry's consent conditions and environmental management plans to ensure efficient and safe transport of materials.

### 3.2 Sensitive receivers

The land surrounding Calga Quarry is predominantly zoned as RU2 Rural Landscape. Nearby sensitive receivers include rural residential properties located along Peats Ridge Road and on adjoining lots. In addition to residences, there are small rural businesses operating within the surrounding area. The Australian Walkabout Wildlife Sanctuary is also situated to the south-east of the quarry and is regarded as a sensitive environmental receiver. A map showing surrounding land uses and receivers is provided at Figure 4.

### 3.3 Alignment with strategic planning instruments

The proposed modification is consistent with local, state, and national strategies and objectives for waste reduction, resource recovery, and sustainable land use. By incorporating recovered materials into the rehabilitation process, the project supports circular economy principles, diverts waste from landfill, and reduces reliance on obtaining virgin resources, which have a better and higher use elsewhere. The paragraphs below detail the manner in which the proposed modification supports key strategic policies.

#### 3.3.1 Local

The proposed modification aligns closely with the Central Coast Resource Management Strategy 2020–2030, which promotes circular economy principles and resource recovery. By reusing safe and appropriate recovered materials for rehabilitation, the project contributes to waste minimisation and sustainable resource management within the region. It also complements the Central Coast Waste Management Strategy 2021–2026 by creating a beneficial end-use for recovered soils, reducing pressure on local waste infrastructure, and advancing landfill diversion targets. Furthermore, the approach reflects the sustainability objectives outlined in Our Central Coast Community Strategic Plan 2025–2035, contributing to responsible land use and the return of completed extractive industry sites to productive future uses.

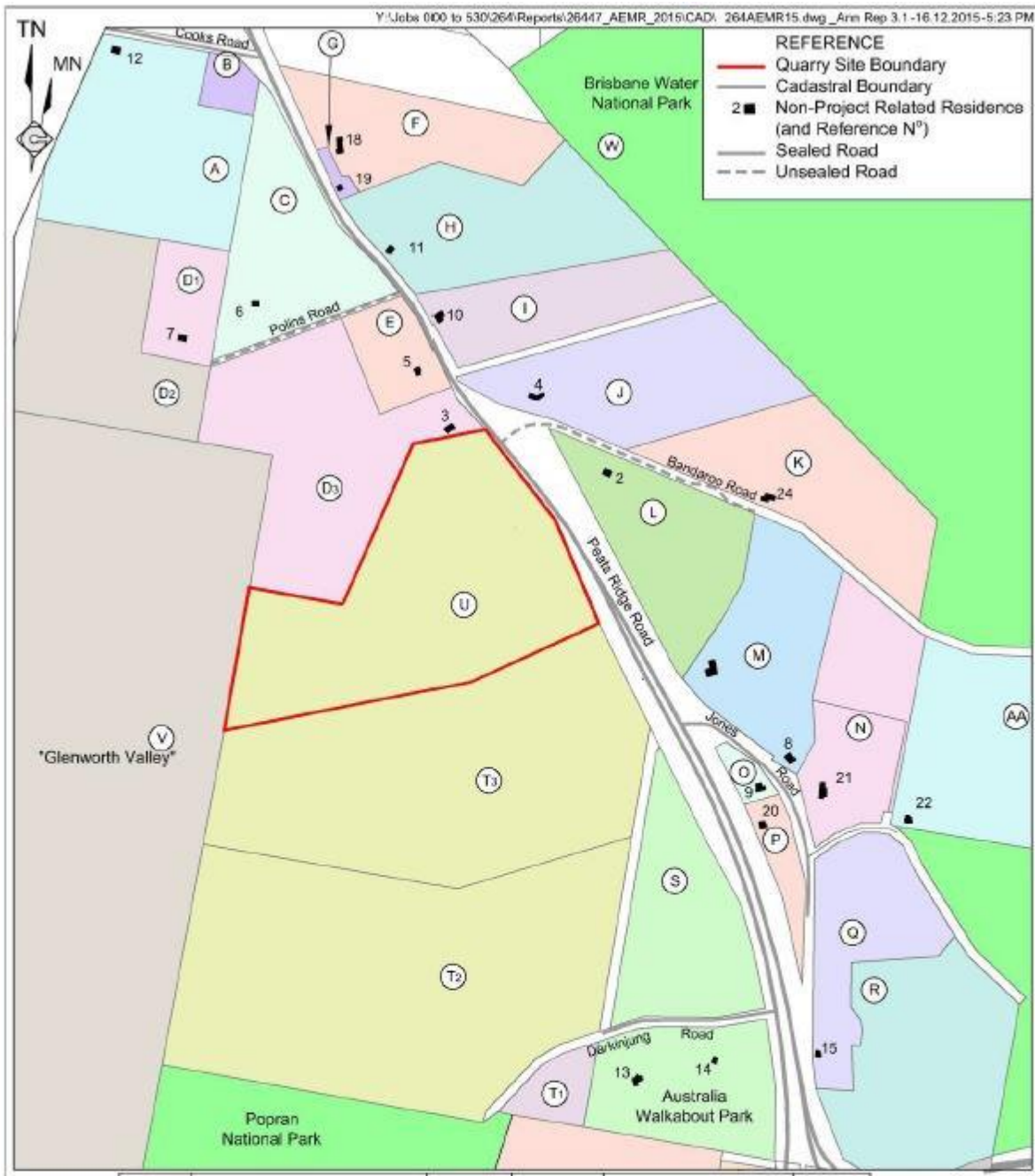
### 3.3.2 State

At the state level, the modification is consistent with the NSW Waste and Sustainable Materials Strategy 2041 (Stage 1: 2021–2027), which seeks to reduce waste to landfill and increase resource recovery. Using recycled fill in rehabilitation directly supports these goals and demonstrates leadership in circular economy practices. The proposal also advances the NSW Waste Avoidance and Resource Recovery (WARR) Strategy by diverting waste streams from landfill and incorporating them into productive use. By creating demand for recovered materials, the project aligns with the NSW Waste and Circular Infrastructure Plan 2025, which identifies the ‘waste crisis’ in the greater Sydney region and the pressing need to conserve landfill space for materials that truly require landfilling for safe disposal. The modification supports the ongoing efficient performance of the greater Sydney market for recycled products. Additionally, the modification embodies the principles of the NSW Circular Economy Policy and Delivery Plan by keeping materials in use and reducing waste generation. Compliance with the NSW Resources Regulator Rehabilitation Guidelines and Reform Program ensures the site is restored to a safe, stable, and non-polluting condition, meeting mandatory standards while delivering sustainability benefits.

### 3.3.3 National

The proposal supports the 2018 National Waste Policy: Less Waste, More Resources (Action Plan updated in 2024) by integrating recycled materials into quarry rehabilitation, reducing landfill dependency, and promoting resource recovery. This approach contributes to Australia’s 2030 targets for sustainable waste management and circular economy outcomes. It also reflects the ambition of Australia’s Circular Economy Framework (2024) to double circularity by 2035. By reusing recovered materials, the project demonstrates leadership in circular practices within the extractive industry, reducing environmental impacts and supporting national sustainability objectives.

In summary, the proposed modification will avoid the use of virgin products (making them available at a better price for a higher use) and will allow for the re-use of safe recycled materials that present a very low risk to the surrounding environment of the Site.



Property	Owner(s)	Residence Reference	Property	Owner(s)	Residence Reference
A	G.D. & D.A. Marler	12	P	D. O'Bryan	20
B	Airservices Australia	-	Q	N. Soulis	15
C	A.M. & R.A. Townsend	6	R	J.H. Hunt	-
D1	Power Pastoral Holdings Pty Ltd	7	S	C.J. Bamard	13, 14
D2	Glenworth Valley Pastoral Company	-	T1	Rocla Materials Pty Ltd	-
D3	Power Pastoral Holdings Pty Ltd	3	T2	Rocla Materials Pty Ltd	-
E	B. Kashouli	5	T3	Rocla Materials Pty Ltd	-
F	J. & A.V. Serou	18	U	Rocla Materials Pty Ltd	1
G	G.L. Gratton-Wilson	19	V	B.A. & B.J. Lawler	-
H	J. Hejje	11	W	Brisbane Water National Park	-
I	W.P. White & K.M. Eaton	10	X	Popran National Park	-
J	R.D. King	4	Y	C.J. Bamard	-
K	G.B. & L.P. Miles	24	Z	C.J. Bamard	-
L	F. & G. Rozmanec	2	AA	Tokoloshe Pty Ltd	22
M	S & N.E. Cauchi	8	AB	J.R. & S.Y. Glover	23
N	G.F. & J. Gilbertson	21	AC	M.J. Lambert	-
O	W. White	9			

SCALE 1:15 000 (A4)



**LAND OWNERSHIP AND SURROUNDING RESIDENCES**

Figure 4: Surrounding land users and receivers.

## 4. Description of modifications

The Proponent seeks to modify the Project consent to allow the import of fill for rehabilitation, as on-site material is insufficient. Approximately 953,000 m<sup>3</sup> (approximately 1,900,00 tonnes) of engineering fill—such as Virgin Excavated Natural Material and ENM—will be imported to achieve the approved final landform and ensure the site is stable and can be returned to an agricultural use (or similar).

The proposed modifications are presented in the table below.

Aspect	Approved Development	Modified Development	Substantially the Same?
Land Use	Extractive industry (production phase).	Extractive industry (rehabilitation phase).	Yes.
Footprint	Defined development footprint (Stages 1, 2 and 3)	No change.	Yes.
Scale of Operations	Extraction of up to 400,000 tpa and import of materials for blending.	Extraction - nil Import of up to 400,000 tpa of engineering fill materials.	Yes. Effectively unchanged, as up to 400,000 tonnes of rock/fill materials will be handled at the Site.
Transport Movements	Despatch within approved limits.	Import within approved limits.	Yes.
Environmental impact and Community Amenity	Operational controls on noise, dust, hours of work.	Operational controls on noise, dust, hours of work.	Yes – unchanged overall.
Operating hours	<p><b>Delivery and distribution</b> Monday to Friday: 5:00 am to 10:00 pm Saturday: 5:00 am to 4:00 pm Sunday and public holidays: Nil</p> <p><b>Extraction and processing</b> Monday to Friday: 7:00 am to 6:00 pm Saturday: 7:00 am to 4:00 pm Sunday and public holidays: Nil</p> <p><b>Maintenance activities (if inaudible at neighbouring residences)</b> 24 hours a day, 7 days a week</p>	<p><b>Delivery and distribution</b> Monday to Friday: 5:00 am to 10:00 pm Saturday: 5:00 am to 4:00 pm Sunday and public holidays: Nil</p> <p><b>Earthworks and Fill placement</b> Monday to Friday: 7:00 am to 6:00 pm Saturday: 7:00 am to 4:00 pm Sunday and public holidays: Nil</p> <p><b>Maintenance activities (if inaudible at neighbouring residences)</b> 24 hours a day, 7 days a week</p>	<p>Yes. Although the activities are slightly different (i.e. fill placement rather than sandstone extraction), the operating hours remain unchanged.</p> <p>Transport hours remain unchanged.</p>
Imported materials	VENM Sand and similar materials.	VENM; ENM (ENM RRO/E 2014); General and Specific RRO/E material approved for earthworks and fill applications.	Yes. Additional material types are proposed to be imported. However, the imported materials
Expected quarry lifespan	Approximately 25 years (2030)	Approximately 25-26 years (2030-2031)	Yes. The projected life of the quarry remains approximately 25 years and rehabilitation activities are expected to be completed around 2030-2031.

Table 2: Comparison of the existing approved Project and the proposed modifications.

## 4.1 Imported material types

The materials to be imported to the Site will be VENM and Resource Recovered Materials, that have been assessed by the NSW EPA and found to be suitable for broad re-use in earthworks and engineering fill applications. The list below is not exhaustive, but provides a summary of the recovered fill materials proposed to be received and applied to land at the Site.

### 4.1.1 Virgin Excavated Natural Material (VENM)

#### Description

VENM is defined under the Protection of the Environment Operations Act 1997 (NSW) as natural material (such as clay, gravel, sand, soil, or rock fines) that has been excavated or quarried from areas not contaminated with manufactured chemicals or process residues as a result of industrial, commercial, mining, or agricultural activities. VENM is not permitted to contain sulfidic ores or soils, asbestos, or any other waste.

#### Contaminant Levels

VENM must be free from contamination. The material must not contain detectable concentrations of reduced inorganic sulfur (RIS), asbestos, or any anthropogenic contaminants. If there is any doubt, sampling and laboratory analysis are required to confirm the absence of contaminants. Analytical results for VENM show all inorganic analytes within relevant background levels and all organic analytes below laboratory detection limits.

#### Testing Requirements

If the material's status as VENM is clear (e.g., from a greenfield site with no history of contaminating activities), no testing is required. However, if there is any uncertainty, the generator must undertake a risk-based assessment, including:

- Reviewing historical and current land use.
- Visual inspection for contamination.
- Laboratory testing for heavy metals, organics, asbestos, and sulfidic ores/soils if the site is in an area with potential acid sulfate soils or other risk factors.
- Documentation and certification that the material meets the VENM definition.

#### Risk Profile

VENM presents negligible risk to the environment and human health. It is pre-classified as general solid waste (non-putrescible) under the NSW waste framework and can be beneficially reused in a very broad range of applications, including construction, fill and rehabilitation projects.

### 4.1.2 Excavated Natural Material

#### Description

Excavated Natural Material (ENM) is naturally occurring rock and soil (including materials such as clay, gravel, sand, soil, and rock) that has been excavated from the ground and contains no more than minor amounts of other materials. ENM must not be mixed with any manufactured chemicals, process residues, or other waste materials. ENM is classified and regulated under the Excavated Natural Material Resource Recovery Order and Exemption 2014 (RRO/E).

#### Contaminant Levels

ENM is at least 98% soil, rock and natural materials. It must not contain:

- Asbestos, coal tar, or any other hazardous substances.
- No more than 0.1% by weight of man-made materials (e.g., bricks, concrete, metal, plastic, timber).
- Any chemical contamination above the limits specified in the RRO/E, which align with natural background levels for Soil materials in NSW.
- Sulfidic ores or soils that could generate acid sulfate conditions.

#### Testing Requirements

Before ENM can be supplied, it must be assessed and tested to confirm it meets the ENM Order criteria. The assessment includes:

- A site history review and visual inspection.

- Preparation of a sampling plan and collection of representative samples of the material, which must then be tested for the contaminants specified in the RRO/E. Properties tested for include heavy metals, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH) and pH/EC.
- Testing must demonstrate that all analytes are below the thresholds specified in the ENM Order 2014 and relevant EPA guidelines.
- Records of assessment and test results must be kept and made available by the generator of the material.

### **Risk Profile**

ENM presents a very low risk to the environment and human health and can be broadly beneficially reused in earthworks, construction, and rehabilitation projects.

#### *4.1.3 Treated Drilling Mud*

### **Description**

Treated drilling mud is a by-product generated from drilling/coring and non-destructive digging (excavation) operations, typically originating from the construction, infrastructure or mineral exploration sectors. After drilling, the mud is treated to remove hydrocarbons, salts, and other contaminants, resulting in a material that may be suitable for beneficial reuse. The NSW EPA regulates the reuse of treated drilling mud under the Treated Drilling Mud Order and Exemption 2014, which set out the conditions for lawful supply and application.

### **Contaminant Levels**

Treated drilling mud must comply with strict contaminant thresholds as specified in the RRO. These include limits for heavy metals (such as lead, arsenic, cadmium, chromium, and mercury), total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, xylene (BTEX), and other potential contaminants. The material must not contain asbestos or other hazardous substances.

### **Testing Requirements**

- A risk assessment and visual inspection must be conducted for each batch.
- Representative samples must be tested for all contaminants listed in the Order, including heavy metals, TPH, PAHs, BTEX, and salinity.
- All analytes must be below the maximum allowable concentrations set by the NSW EPA.
- Records of assessment and laboratory results must be maintained and made available to the EPA upon request.

### **Risk Profile**

Treated drilling mud presents a very low risk to the environment and human health and can be broadly beneficially reused in earthworks, construction, and rehabilitation projects.

#### *4.1.4 Other General and Specific Resource Recovery Orders and Exemptions*

The NSW EPA employs a rigorous, risk-based framework to assess and regulate the land application of materials under general Resource Recovery Orders and Resource Recovery Exemptions. This process is designed to ensure that the beneficial reuse of waste-derived materials, such as fill, aggregates, or organic amendments—does not pose unacceptable risks to human health or the environment, and is only permitted in environmental settings where such use is demonstrably safe.

### **Assessment Process and Principles**

The EPA's assessment begins with a detailed evaluation of the material's origin, composition, and processing methods. Proponents must provide comprehensive data on the physical and chemical characteristics of the material, including contaminant concentrations (e.g., heavy metals, organics, asbestos, and other hazardous substances). The EPA benchmarks these data against strict contaminant thresholds, which are set with reference to national and international guidelines, scientific literature, and (where possible) site-specific risk factors.

A key principle is that the material must be fit-for-purpose and not introduce contaminants at levels that could harm soil, water, ecosystems, or human health. The EPA considers the likely exposure pathways, such as leaching to groundwater, runoff to surface water, or direct contact - and the sensitivity of the receiving environment.

## Environmental Settings and Use Conditions

The RRO and RRE instruments specify the environmental settings and permissible uses for each material. For example, some orders/exemptions allow reuse in earthworks, construction, or site rehabilitation, but explicitly prohibit use in sensitive locations such as wetlands, floodplains, or areas with a high risk of contaminant migration. Some materials are permitted to be re-used in roads or engineered/cementitious mixes, but not for general earthworks or quarry/mine void rehabilitation. The EPA also sets out operational controls, such as maximum application rates, placement methods, and requirements for record-keeping and reporting.

The manner and extent to which the NSW EPA assesses and then conditions the reuse of RRO/RRE materials ensures they are safe for the receiving environments they will be reused in.

## Ongoing Compliance and Review

To meet RRO and RRE requirements and avoid restrictions, generators and receivers must comply with all conditions in the RRO and RRE, including regular testing, documentation, and notification obligations. The EPA conducts audits and may require additional information or revoke an exemption if new evidence indicates a risk. This adaptive approach ensures that only materials meeting the highest safety standards are applied to land, and that the regulatory framework remains responsive to emerging risks and scientific advances.

### 4.2 Import process and material placement

Fill materials will be received through the existing gate in road trucks, which will utilise the existing haul road to transport material down to the pit and then access the active tipping face/area, which will change over time as the Site is progressively rehabilitated. Material will be placed, pushed up and compacted with a dozer or compactor machine.

In rare circumstances, such as when wet weather prevents direct access to the fill cell by road trucks, incoming material will be tipped and temporarily stored on the pad at the bottom of the pit (adjacent to the wash plant). The material will then be loaded in quarry dump trucks and transported to the fill cell as required.

### 4.3 Import controls

The minimal risk presented by the use of recycled materials can be further reduced by implementing a set of robust and practical controls, which will ensure that the materials are:

1. Classified correctly and meet requirements of the RRO/RRE and any other relevant soil properties for the Site;
2. Compliant with the relevant administrative requirements;
3. Verified on receipt at the Site and are not mistakenly or purposely blended with other out-of-spec materials;
4. Placed in defined locations so that placement can be tracked; and
5. Independently validated where necessary to confirm they are suitable for receipt at the Site.

Controls will be specified and implemented via a Fill Import Management Plan (**FIMP**). The FIMP will, at a minimum, include procedures, forms and processes that include the following:

- i. Assessment of waste classification reports for material batches and assigning a unique import number for each batch of recycled material to be received at the Site.
- ii. Tracking imported volumes against the approved volume for each batch of material.
- iii. Periodic inspections at supplier/generator Site(s), with a checklist and photos.
- iv. Placement of materials in specific locations for each supplier, identified on a master fill plan and with placement reports.
- v. Training program and visual aids (i.e. 'cheat sheet' with descriptions and photos of complying materials) for key staff members.
- vi. Periodic verification testing of imported material, prior to placement (i.e. randomised quarantine and inspection program).
- vii. Validation sampling program for placed materials, as required, to ensure Site assessment criteria are not exceeded.
- viii. Unexpected finds protocol (what to do when staff identify suspect materials – isolate/quarantine, report, inspect/test, remove and verify etc).



Figure 5: Example images of recycled soil materials classified under fill and earthworks RRO/RRE's. Materials as labelled.

## 5. Statutory context

### 5.1 Environmental Planning and Assessment Act 1979

This modification is sought under Section 4.55(1A) of the EP&A Act.

The modification pathway is appropriate, as the proposal clearly remains substantially the same development as originally approved. The 4.55(1A) pathway is for modifications involving “no or minimal environmental impact”. We believe this pathway is appropriate for the following reasons:

- The materials proposed for import are either virgin products, or managed under the NSW EPA Resource Recovery Framework; and are therefore non-polluting;
- The environmental assessment for the Site already accounted for the import of material for blending with quarry products. As production is not occurring, the proposed fill material import is offsetting the existing approved import;
- The quarry, processing plant and other activities on the Site are not operational, so there is no cumulative impact from the proposed activity. The overall impact of the Development, even with this change, is expected to be significantly less than the operational scenario assessed and approved in the existing Consent.

**(1A) Modifications involving minimal environmental impact** A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if—

Legislative requirement	Response
(a) it is satisfied that the proposed modification is of minimal environmental impact, and	<i>Minimal environmental impacts are predicted. This will be explored in the Modification Report.</i>
(b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all), and	<i>The development remains an extractive industry operation. The Site is in a rehabilitation phase and the proposed import of fill material is strictly for the purposes of backfill and rehabilitation of the extractive void. The development as modified is substantially the same development.</i>
(c) it has notified the application in accordance with— (i) the regulations, if the regulations so require, or (ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and	<i>Notification will occur post lodgement of the modification application.</i>
(d) it has considered any submissions made concerning the proposed modification within any period prescribed by the regulations or provided by the development control plan, as the case may be. Subsections (1), (2) and (5) do not apply to such modification	<i>TBC – exhibition is not expected to occur; however, responses will be provided to any agency feedback or other submissions received.</i>

Table 3: Modification requirements.

### 5.2 Environmental Planning and Assessment Regulation 2021

Part 5 Division 1 Clause 98-99 of the Environmental Planning and Assessment Regulation 2021 defines the conditions for undertaking a modification of a development consent under ss 4.55, 4.56 and 4.57 of the EP&A Act. The modification report would be prepared in accordance with the Regulations.

Part 3 Division 5 Section 59 (6)(e-f) also requires the planning secretary to publish any modification or modification application for State Significant Development.

### 5.3 Protection of the Environment Operations Act 1997

The existing EPA Licence (11295) will be retained. The scheduled activities of ‘Crushing and Grinding’ and ‘Extractive Activities’ remain appropriate, even though the Site is in the rehabilitation phase and is no longer actively processing material won on Site.

These Scheduled Activities remain relevant as minor processing, such as rolling with compaction equipment, may be required for imported fill material. The proposed import of fill and application to land (including resource recovered materials) does not require a change to the EPL, as these activities are exempt from licensing requirements. This is based on:

- The exemption from licensing for application of VENM to land, per Clause 39(e) of Schedule 1 of the POEO Act; and
- The exemption from licensing for materials covered by a RRO/E, via the conditions of the Exemption instrument applicable to each general or specific RRO/E.

Addition of a waste table to the EPL is not essential; however, if the NSW EPA prefers to add a waste table, this could be done via an EPA-initiated licence variation, or in the next Risk-Based Licensing review or 5-yearly licence review.

### 5.4 State Environmental Planning Policies (SEPPs)

No SEPPs have been deemed as applicable to the proposed modification.

## 6. Engagement

In accordance with the Department’s established environmental assessment procedures and guidance, the need for stakeholder and community consultation is determined by the nature and scale of the predicted impacts associated with a proposed modification.

An impact scoping and high level impact assessment was conducted early in the process of preparing this Modification Report. This scoping assessment included potential impacts on air quality, noise, traffic, water resources, biodiversity, heritage, and local amenity. The assessment guided by the proposed changes to the approved development, the characteristics of the proposed fill materials, and the operational controls to be implemented.

The outcomes of the impact scoping and assessment process concluded that the proposed activity would not result in any significant or measurable environmental or community impacts. Specifically, the assessment found that:

- The importation of fill would be managed in accordance with robust environmental controls and existing site management plans.
- The volume of fill is consistent with the volume of extractive materials already approved for handling at the site, and all imported material would comply with relevant regulatory standards.
- The types of fill proposed for receipt are deemed safe for broad re-use in earthworks and engineering fill application, based on thorough risk assessment by the NSW EPA in the Resource Recovery Order and Exemption development process.
- There would be no increase in the approved material handling limit, operational hours, or traffic movements.
- No new or additional impacts on local residents, sensitive receivers, or the broader environment were identified.

Given these findings, the proposed modification represents a low-risk activity with no anticipated adverse impacts. Accordingly, no formal consultation process was undertaken in relation to this modification.

This approach is consistent with the principles of proportionality and efficiency in environmental assessment, ensuring that consultation resources are directed towards proposals where there is a reasonable likelihood of community or environmental concern. Should any unforeseen issues arise during the implementation of the modification, the Applicant remains committed to engaging with relevant stakeholders and regulatory authorities as required.

## 7. Impact assessment scoping

All potential impacts were considered in a scoping phase assessment for the proposed modification. The summary of that process and outcome for further assessment in this Modification Report is provided in the table below.

Any potential impacts that were not found to require detailed assessment are not discussed further in this report.

Environmental impact aspect	Potential impact(s)	Outcome of scoping assessment
Air quality	<ul style="list-style-type: none"> <li>Air emissions from truck movements on unsealed roads.</li> <li>Tipping and handling of fill materials.</li> </ul>	<ul style="list-style-type: none"> <li>The level of activity (truck movements) is the same scale, type and timing as the original environmental assessment. The quantities of materials handled, storage locations and expected properties of materials (i.e. fill soils) are similar to the sands and silts predicted to be handled on Site in the EIS. Therefore, the air emission inventory and modelling study remain appropriate.</li> <li>Continue monitoring and reporting on air quality throughout rehabilitation activities.</li> </ul>
Noise and vibration	<ul style="list-style-type: none"> <li>Road noise from trucks accessing the Site.</li> <li>Mobile plant placing fill material in cells.</li> <li>Compaction of material (TBC).</li> </ul>	<ul style="list-style-type: none"> <li>The level of activity (truck movements) is the same scale, type and timing as the original environmental assessment. The equipment required to place and compact the material is less than the number and type of equipment operating during extraction.</li> <li>Continue monitoring and reporting on noise throughout rehabilitation activities.</li> </ul>
Traffic and transport	<ul style="list-style-type: none"> <li>Delivery truck movements entering (laden) and exiting (unladen) the Site.</li> </ul>	<ul style="list-style-type: none"> <li>The level of activity (truck movements) is the same scale, type and timing as the original environmental assessment. The permitted truck types are the same.</li> </ul>
Heritage	<ul style="list-style-type: none"> <li>None – no change to approved quarry footprint or risk or other indirect damage to heritage values or artefacts.</li> </ul>	<ul style="list-style-type: none"> <li>Continue implementing existing heritage protection controls at the Site.</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>Noise, vibration and road strike of trucks accessing the Site.</li> </ul>	<ul style="list-style-type: none"> <li>Site is already an active quarry with existing disturbance.</li> <li>There is no proposed expansion of the footprint of operations. There are no predicted indirect impacts of the proposed filling on biodiversity, including on groundwater dependent ecosystems (GDEs).</li> <li>Continue monitoring of GDEs and water quality.</li> </ul>
Groundwater & Surface Water	<ul style="list-style-type: none"> <li>Percolation of surface waters through fill material and interaction with groundwater and surface water down-gradient.</li> </ul>	<ul style="list-style-type: none"> <li>The fill mass will interact with local groundwater (i.e. waterlogging) in the north and north-east of the Site, but this is not expected to occur in the central and southern parts of the Site.</li> <li>The level of risk of leaching of pollutants from fill materials into water resources is negligible, as the permitted gross contaminant load in the materials that would be accepted is very low.</li> <li>Ensure proposed fill materials are deemed as suitable for re-use by the NSW EPA in earthworks, engineering fill or quarry rehabilitation applications and are non-polluting.</li> </ul>
Community impact	<ul style="list-style-type: none"> <li>Amenity concerns (dust, noise, vibration, visual impact, contamination).</li> <li>Perceived health and safety risks.</li> </ul>	<ul style="list-style-type: none"> <li>Review of previous consultation records did not highlight any concerns that would be related to the proposed modification.</li> <li>The impact assessment demonstrated that there was no predicted impact from the proposed modification and that impacts for all environmental aspects remain in line (or less than) those which are already approved.</li> <li>Continue monitoring, reporting/publication and audit requirements as per the existing Consent.</li> </ul>
Soil and stability	<ul style="list-style-type: none"> <li>Potentially unstable soils (i.e. dispersive soils), high pH soils or other unsuitable materials.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of a Fill Import Management Plan (FIMP).</li> </ul>
Contamination	<ul style="list-style-type: none"> <li>Minimal risk of imported contamination through recycled and reclaimed materials.</li> </ul>	<ul style="list-style-type: none"> <li>Import of approved Resource Recovery Order/Exemption materials only, which have been subject to robust assessment by the NSW EPA.</li> <li>Implementation of a FIMP.</li> </ul>

Table 4: Impact scoping summary.

## 8. Traffic impact assessment

An expert review has been conducted by TTPP Transport Planning, in relation to the consistency of the proposed heavy vehicle activities vs those which were assessed prior to the existing consent being granted.

The expert report is provided at Appendix 2 and key information is reproduced in this section.

### 8.1 Proposed heavy vehicle movements

#### 8.1.1 Expected transport parameters

Operating hours	Delivery and distribution		Mon-Fri	5:00 am to 10:00 pm
			Sat	5:00 am to 4:00 pm
			Sunday and public holidays	Nil
Operating days	<p>The quarry is approved to operate Monday to Saturday, excluding Sundays and public holidays. Based on a typical NSW calendar year:</p> <ul style="list-style-type: none"> <li>• 52 weeks per year.</li> <li>• 260 weekdays and 52 Saturdays.</li> <li>• Up to 10 public holidays falling on weekdays or Saturdays (non-operating).</li> </ul> <p>This equates to approximately <b>302 operating days per year</b>.</p>			
Truck types and payload assumptions	Truck type	Deemed tonnage (Waste Levy Guideline) <sup>1</sup>	Estimated proportion of use based on typical NSW operations <sup>2</sup>	Notes
	Truck and dog combinations	Tandem rear axle (bogie drive) with trailer 29.1 t	~80%	Common for short- to medium-haul deliveries from construction sites; flexible and widely available.
	Semi trailer	Tipping Semi-Trailer 15 t <sup>3</sup>	~5%	Used for Sites where Truck and Dog access may not be feasible, or for local and regional deliveries.
	B-double or Truck and Quin Dog Trailer	B-double 39.3 t	~15%	Increasingly used for bulk deliveries from major urban excavation sites, especially where PBS approvals exist.
<p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. In accordance with <i>NSW EPA Waste Levy Guideline 4 – Weight Conversion Factors (2023)</i>, the material type (“sand, soil or soil-like material including clay, rock, stone or similar quarried materials”) and corresponding vehicle configurations have been referenced to determine deemed tonnages. Although we believe these tonnages are conservative, they have been adopted as the material being transported is deemed to be a waste material and falls within the remit of the NSW EPA and the NSW waste levy framework.</li> <li>2. While truck configurations may vary depending on haulage contractor availability and material source, the estimates have been provided to indicate a potential breakdown of vehicles attending Site. The estimate is based on common NSW data of construction and excavation Sites. The intent is to show a likely scenario can be compliant.</li> <li>3. A typical payload for this vehicle is approximately 28 tonnes. However, a payload of 15 t has been used, in order to maintain consistency with the standard weight conversion factor in the Waste Levy Guideline. Therefore, the resultant calculation of truck numbers will be conservative.</li> </ol>				

Table 5: Assumptions.

## 8.2 Assessed vs proposed

	Assessed	Proposed	Comments
<b>Truck types</b>	Single body tippers, semi-trailers and B-doubles	Truck and dog combinations, Semi trailers, B-doubles and quin dog trailers	No substantial change. No change in the maximum length of vehicles permitted to access the Site.
<b>Maximum daily vehicle movements</b>	M-F Movements (in + out) 100 per day. Sat Movements (in +out) 32 per day.	M-F Movements (in + out) 100 per day. Sat Movements (in +out) 32 per day.	No change
<b>Peak truck movements</b>	Maximum hourly movements - 12 per hour (peak occurring in day time hours (8:00am to Middy, Monday Friday)	Maximum hourly movements - 12 per hour (peak occurring in day time hours (8:00am to Middy, Monday Friday)	No change
<b>Truck movement hours</b>	As per table 1	As per table 1	No change

Table 6: Assessed vs proposed traffic generation parameters.

## 8.3 Consistency with current consent

### 8.3.1 Truck types and transport characteristics

In NSW, the most common vehicle types used for the transport of soils, clean fill and rock materials are standard truck and dog combinations. These vehicles are widely used across the resource recovery and extractive industries, due to their efficiency in carrying bulk soil and fill materials, compliance with road transport regulations, and ability to safely access quarry sites.

The truck types identified in the original EIS (which underpins the development consent) are single body tippers, semi-trailers and B-doubles. Accordingly, the proposed importation of up to 400,000 tonnes per annum of rehabilitation material would utilise vehicle types consistent with those already assessed and accounted for in the existing consent.

While truck configurations may vary depending on haulage contractor availability and material source, any differences in truck type (for example, using a truck and dog instead of a semi-trailer) are not expected to alter the assessed vehicle movement numbers or increase traffic impacts, for the following reasons:

- Payload efficiency – Larger truck combinations (e.g., semi-trailers or truck and dogs) can carry greater loads per trip, which may reduce the total number of vehicle movements compared to smaller rigid tippers.
- Operational envelope – All truck types are within the size, axle configuration and performance limits of vehicles already assessed in the original traffic assessment (i.e., up to B-double size).
- Road network capacity – As daily movements are expected to be unchanged, there will be no cumulative increase in traffic load or road maintenance demand.
- Temporal distribution – Haulage activities will continue to occur within approved operating hours, with truck movements expected to occur over a similar temporal distribution as previously assessed.

On this basis, while the material source and haulage purpose would change (importation for rehabilitation rather than exportation of quarry product), the type, frequency and road impact of heavy vehicle movements would remain consistent with the existing assessed activity.

### 8.3.2 Change in the surrounding area

Since the quarry was approved in 2005, there has not been significant change in the surrounding area, in terms of receivers or the intensity of surrounding industry or development. For these reasons, no greater cumulative impact is expected above that which is already permitted under the existing consent.

### 8.3.3 Impact assessment and controls

The proposed modification will not result in any traffic impacts above the existing approved development. However, the following controls will be implemented to ensure that existing mitigation measures for traffic impacts remain effective:

- Re-linemarking of the intersection features including lane markings, seagull treatment and turning arrows to improve visibility and reflective properties.
- Cleaning (or replacement) of all intersection related road signs to ensure that the reflective properties are achieved.
- Trimming of vegetation near the access to ensure that all existing road signage is not obstructed.

These are not new commitments, but are rather re-committing to existing requirements of the Consent.

## 9. Surface and groundwater

### 9.1 Groundwater Conditions at Calga Quarry

#### 9.1.1 Water Table

The groundwater table at Calga Quarry generally sits below the base of the extraction pit. Monitoring data from the Site Water Management Plan (2020) (**WMP**) and Closure and Post-closure Groundwater Management Plan (2019) (**CPCGMP**) indicate that local groundwater levels typically range from approximately 148 m AHD (in the south) to over 200 m AHD (in the north and east), with a mean of 195.5 m AHD. The base of extraction in the deepest parts of the quarry (e.g., Stage 3/4 and 3/5) are between RL 180 to RL 188 m AHD. The top of the pit in the north of the Site is approximately 225 m AHD; therefore the pit at Stage 3/5 is approximately 40-45 m deep.

#### 9.1.2 Groundwater inflow

As the pit reached design levels, the quarry floor intersected the local water table, resulting in minor groundwater inflows in the north and north-east. However, the majority of the pit remains unsaturated, and groundwater inflows are relatively minimal. There is no evidence of significant groundwater mounding or persistent standing water in the pit, and any inflow is managed within the site's water management system.

#### 9.1.3 Groundwater Flow Direction

Regional groundwater flow is governed by the topography and the hydrogeology of the regional Hawkesbury Sandstone aquifer. Groundwater flows from higher elevations in the north and north-east towards the south and southwest, discharging to local waterways. Groundwater underlying and intercepting the Site flows south towards Cabbage Tree Creek and its tributaries. The quarry acts as a local sink, with groundwater gradients directed towards the pit. Post-rehabilitation and closure modelling predicts that groundwater levels will recover, with flow directions returning to the natural south-westerly trend.

#### 9.1.4 Final landform

The final landform for the Site (see Figure 8) will result in levels of approximately 190-191 m AHD in the north of the Site, sloping to 189 m AHD in the south-west. These levels will result in restoration of the landform above (or equivalent to) the long-term average groundwater table height in the north of the Site.

### 9.2 Groundwater closure plan

The CPCGMP for Calga Quarry has been developed to provide a comprehensive framework for the management of groundwater resources during the final stages of extraction and following the completion of quarrying activities. This plan, prepared in accordance with Condition 19 of Schedule 3 of the quarry's development consent (DA 94-4-2004 MOD3), is designed to ensure that the long-term impacts of quarrying on groundwater are thoroughly understood, monitored, and managed, with a particular focus on the security of water supply for neighbouring landholders and the protection of local groundwater-dependent ecosystems.

A robust groundwater monitoring network underpins the CPCGMP (see Figure 6). This network comprises both on-site and off-site monitoring bores, as well as private water supply bores on neighbouring properties within a 500-metre radius of the quarry, subject to landholder consent. The monitoring regime is structured to provide early detection of any adverse trends in groundwater levels or quality, and to distinguish between impacts attributable to quarry operations and those resulting from natural climatic variability. Water levels are measured quarterly in all accessible bores, with key

bores equipped with automatic dataloggers recording at six-hour intervals. Groundwater quality is assessed quarterly for pH and electrical conductivity, with annual laboratory analysis for major ions and dissolved metals. Rainfall and evaporation are recorded daily by an on-site weather station, supporting the interpretation of groundwater trends. All monitoring data are compiled into monthly and annual reports, which are independently audited and made publicly available.

The CPCGMP establishes clear criteria for the assessment of groundwater impacts. For groundwater levels, a drawdown of greater than 1.0 metre (not attributable to climate) at key monitoring bores, or a reduction in yield of more than 10% in any private bore within 500 metres of the quarry, triggers a formal investigation. For groundwater quality, a 20% increase in electrical conductivity or total dissolved solids in a private bore within 500 metres prompts resampling and, if confirmed, a detailed investigation into the cause. These criteria ensure that any significant impacts are promptly identified and addressed.

Groundwater modelling forms a critical component of the GWMP. The plan incorporates the results of advanced numerical modelling, including regional MODFLOW-based simulations that account for both the extraction and post-closure recovery phases. The modelling demonstrates that the quarry acted as a local groundwater sink during extraction, with minor drawdown effects extending up to 300 metres from the pit. The maximum drawdown at private bores was predicted to be less than 4 m, with most bores experiencing less than 1 metre of drawdown. Following closure, groundwater levels are expected to recover, with equilibrium reached within 10 to 20 years. Permanent residual drawdown at all private bores is predicted to be less than 1 metre. The modelling also predicts that reductions in baseflow to local creeks, such as Cabbage Tree Creek, will be negligible, amounting to less than 0.04% of total baseflow.

The CPCGMP is supported by a detailed Groundwater Contingency Strategy, which outlines procedures for early detection and remediation of impacts. Monitoring bores located between the quarry and private bores provide early warning of potential impacts. If a private bore is adversely affected by a loss of yield greater than 10% attributable to quarrying, the operator is required to restore supply by providing an alternative water source, deepening the affected bore, drilling a replacement bore, or implementing another mutually acceptable arrangement. Interim water supply must be provided within 24 hours of confirmed loss. All incidents and exceedances are reported to the Secretary, affected landholders, and relevant agencies, with quarterly updates provided until compliance is restored.

Post-closure, groundwater monitoring continues for at least two years, or longer if required, to confirm that groundwater levels and quality recover as predicted. In terms of groundwater level, attention will be paid in particular to bores north, northeast, and northwest of the quarry, where drawdown effects are most likely. The plan is reviewed and updated as necessary in response to monitoring results, incidents, or regulatory changes, ensuring adaptive management.

Groundwater quality in the area is generally characterised by low salinity and slightly acidic pH, with no significant quarry-related contamination detected. Annual inspections of groundwater-dependent ecosystems, such as hanging swamps and gully rainforest, are conducted to ensure that no adverse impacts occur on biodiversity as a result of quarry operations.

### *9.3 Interaction between emplaced fill and groundwater*

Approximately 10-11 vertical meters of fill material are required across the majority of the Site (see Figure 8 and Figure 9) to achieve the design final landform. Due to the local water table sloping strongly in a southerly direction, fill in the north and north-east parts of the Site is expected to interact with groundwater (i.e. be saturated), whereas fill in the central and southern/south-west parts of the Site are sufficiently above the maximum predicted water table height that no direct interaction is expected.

### *9.4 Surface water*

Surface water during rehabilitation and after the establishment of the final landform will continue to flow and accumulate in the dams in the south-west of the Site. The dams allow settlement of any minor sediment load that may be present in the water and then discharge via overflow to a holding dam at the west of the quarry and then flows west to Cabbage Tree Creek.

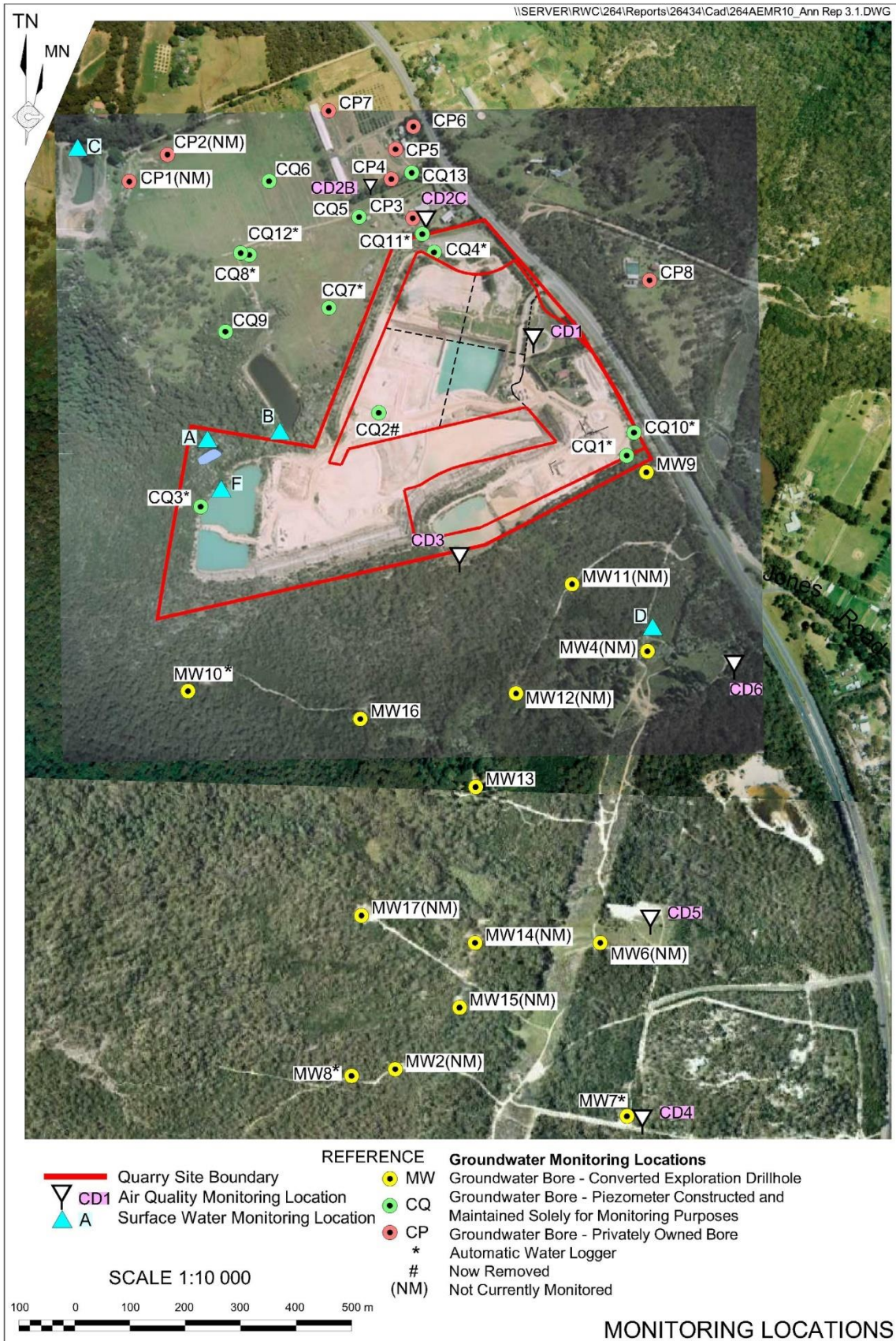


Figure 6: Groundwater and surface water monitoring points. Source: Annual Review 2023 (RW Corkery 2024).



Figure 7: Groundwater-dependent ecosystem monitoring locations. Source: Site Water Management Plan (RW Corkery and Dundon Consulting 2020).

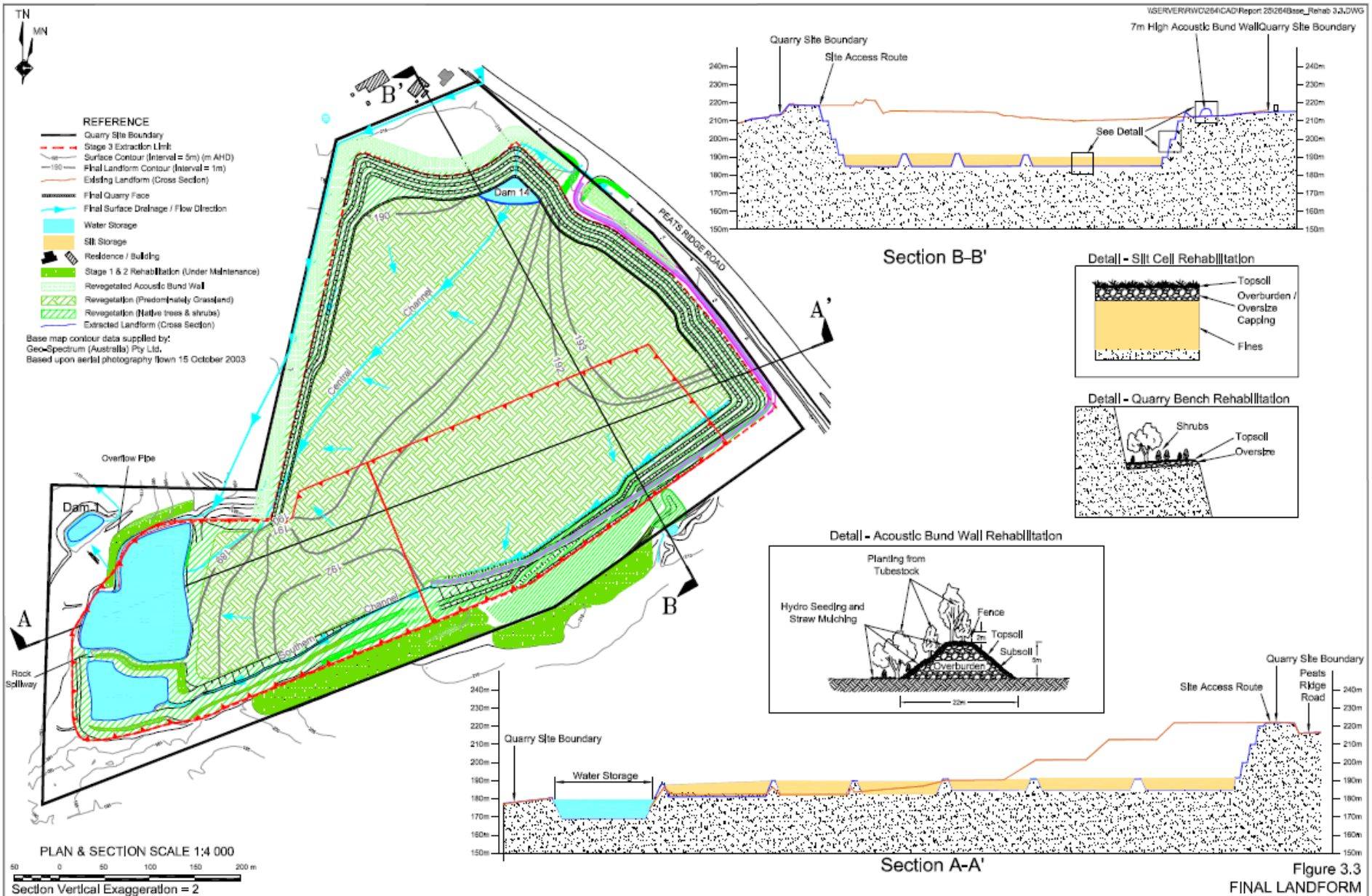


Figure 8: Final landform plan. Source: Rehabilitation and Landscape plan 2006 (RW Corkery).

## 9.5 Monitoring program

The CPCGMP mandates annual independent audits to assess compliance and recommend improvements. All monitoring results, audits, and incident reports are published online. The plan is reviewed annually and after any incident, audit, or modification to the consent, supporting a process of continual improvement and adaptive management.

The existing monitoring and trigger-action-response details in the CPCGMP are appropriate for managing the residual risk to groundwater associated with placing recovered engineered fill on Site.

Surface water monitoring will continue throughout the rehabilitation phase, which will be sufficient to demonstrate that the fill, as placed, does not present a risk to surface water. Once capped and vegetated, the risk to surface water will be negligible and ongoing post-closure surface water monitoring will not be necessary.

## 10. Justification

### 10.1 Justification

The availability of overburden and silt at the Site is not sufficient to meet rehabilitation needs. The import of stable and clean backfill materials is an established practice, and the proximity of the Site to sources of fill in Sydney, the Central Coast, Newcastle and the Hunter region makes it a commercially viable option. The Proponent has confirmed that sources of suitable fill materials are readily available and would allow the rehabilitation of the Site to occur in a timely manner.

Importantly, the modification is consistent with the objects of the EP&A Act, particularly in relation to the orderly and sustainable use and development of mineral resources for the benefit of the community.

### 10.2 Alternatives

#### 10.2.1 Additional extraction to obtain rehabilitation materials

One option to obtain the necessary fill materials for rehabilitation is to modify the disturbance footprint and final landform, and extract material from other areas of the Site to re-distribute them. This alternative is less desirable than the proposed approach because it would:

- Involve further excavation and expansion of the overall lateral footprint of the quarry;
- Remove additional vegetation; and
- Result in greater amenity impacts on the local community.

#### 10.2.2 Do nothing approach

If nothing was done, the quarry would not be able to achieve its current approved rehabilitation objectives and the landform as it currently exists would remain (albeit with some opportunity for limited cut and fill to stabilise some areas). The net void space would be larger than that originally approved and the final landform would be different than the landform approved by the NSW Government and envisaged by the local community. The landform would likely not be free draining and would likely be subject to poor plant establishment, erosion, and removal of water resources from the surrounding environment due to excessive storage.

## 11. Closing statement

The proposed modification to permit the importation of recycled fill materials for rehabilitation at Calga Quarry offers significant benefits and demonstrates minimal environmental and community impact. The modification is consistent with regional, state, and national strategies for waste reduction, resource recovery, and sustainable land management.

Robust operational controls, including material classification, tracking, and independent validation, will be implemented through a Fill Import Management Plan to further reduce any residual risk. The modification does not increase the approved footprint, operating hours, or traffic movements, and maintains all existing environmental safeguards. Comprehensive impact assessments confirm that air quality, noise, traffic, water resources, biodiversity, and community amenity will remain at levels equal to or lower than those already approved.

The rehabilitation process will restore the site to a stable, free-draining landform suitable for future agricultural use, enhancing local landscape values and ecological outcomes. Given the clear alignment with strategic objectives, the

proven safety of proposed materials, and the absence of significant or measurable adverse impacts, the modification represents a responsible and beneficial development. Approval of this proposal will enable timely and effective rehabilitation of Calga Quarry, delivering lasting environmental and community benefits while upholding all regulatory and statutory requirements.

### ATTACHMENT C



Figure 9: Cut and fill diagram for the pit - excerpt from 2025 updated Rehabilitation and Landscape Management Plan, prepared by RW Corkery and Co.

## 12. Appendices

Appendix 1. Updated project description.

Appendix 2. Traffic expert report, TTPP 2025 Reference: 25417 dated 18 December 2025.

Note: the following standard appendices for a Modification Report, as per the Guidelines (DPIE, 2022) are not relevant for this Modification Report:

- Statutory compliance table.
- Updated Schedule of Mitigation Measures (they are unchanged).

**Note:** Owner's consent for this application will be provided separate to this report, as part of the documents to be provided in order to meet the standard form of a Modification Application as per the EP&A Regulation.

## Appendix 1 – Updated project description and conditions of consent

### Updated project description

The Project, as modified, consists of:

- Decommissioning and rehabilitation of the Site, to achieve the approved final landform;
- Minor extraction of friable sandstone resource by bulldozer ripping - for the purpose of contributing to rehabilitation, shaping and land formation;
- Importing materials, including VENM, ENM and other suitable materials under general or specific Resource Recovery Orders/Exemptions;
- Transporting fill materials, via road, to the Site.

#### 12.1.1 Main project components

Component	Detail
<b>Total sand recovery</b>	No further production.
<b>Maximum annual production</b>	Nil – no further production.
<b>Maximum annual fill import</b>	400,000 tonnes
<b>Processing</b>	No processing.
<b>Hours of operation</b>	<p><b>Delivery and distribution</b> Monday to Friday: 5:00 am to 10:00 pm Saturday: 5:00 am to 4:00 pm Sunday and public holidays: Nil</p> <p><b>Earthworks and Fill placement</b> Monday to Friday: 7:00 am to 6:00 pm Saturday: 7:00 am to 4:00 pm Sunday and public holidays: Nil</p> <p><b>Maintenance activities (if inaudible at neighbouring residences)</b> 24 hours a day, 7 days a week</p>
<b>Final landform</b>	Free-draining to the south-west approximately 15-25 m below the pre-extraction surface level, rehabilitated to support ongoing agricultural land use.

*Proposed modifications to condition(s) of consent*

Condition	Existing text	Proposed text (new text in green, deleted text in strikethrough)
Definitions	Rehabilitation - The restoration of land disturbed by the development to a good condition and for the purpose of establishing a safe, stable and non-polluting environment.	Rehabilitation - The restoration of land disturbed by the development to a good condition and for the purpose of establishing a safe, stable and non-polluting environment. <i>Rehabilitation may utilise fill won on Site, or imported to the Site in accordance with this Consent.</i>
7	The Applicant must not transport more than 400,000 tonnes of product per year from the site.	The Applicant must not transport <i>a combined total of more than 400,000 tonnes of product per year from the site, or to the Site.</i>
5	Operating hours (table)	Change 'Extraction and processing' header to 'Earthworks and fill placement'. Other headers and text remain the same.
Schedule 5 Condition 7	The Applicant must establish and operate a Community Consultative Committee (CCC) for the development to the satisfaction of the Secretary. The CCC must be operated in general accordance with the Department's Community Consultative Committee Guidelines State Significant Projects (November 2016), or later version.	Delete.



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Our Ref: 25417

12 January 2026

4 Pillars Environmental Consulting  
Level 1  
5 George Street  
NORTH STRATHFIELD NSW 2137

**Attention: James Hammond**

**RE: HEIDELBERG CALGA QUARRY – SSD MODIFICATION TRAFFIC IMPACT ASSESSMENT**

### **Background and Modification Proposal**

A State Significant Development (SSD) modification application is to be lodged for Heidelberg Calga Quarry to allow the importation of up to 400,000 tonnes per annum (TPA) of material for rehabilitation purposes.

Originally, rehabilitation was to be completed using overburden and leftover material from quarrying, but insufficient quantities remain following completion of extraction activities.

It is noted that 400,000 TPA was also the approved export quantity, so as a result truck movements generated by the importation activity will be comparable.

### **Existing Site**

Heidelberg Calga Quarry is located at 2256 Peats Ridge Road, Calga.

The quarry was previously used to extract and process friable sandstone, with an approved export quantity of 400,000 TPA.

Sandstone extraction at the site has now ceased, and the quarry is currently undergoing rehabilitation.

The site has frontage to Peats Ridge Road on its eastern boundary.

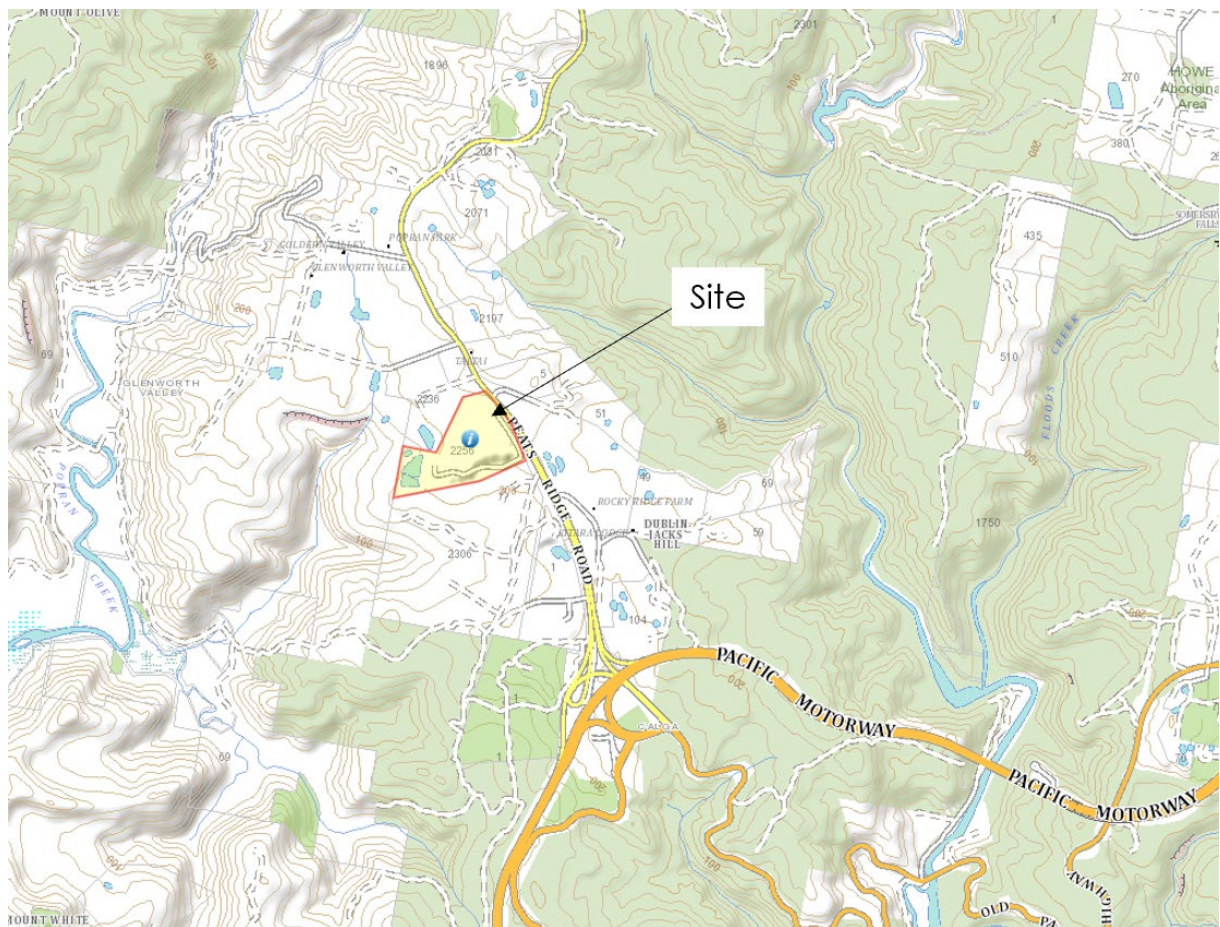
Peats Ridge Road is a classified regional road, typically comprising two lanes in each direction, with a speed limit of 100 km/h near the site.

The existing vehicular access arrangement via Peats Ridge Road is to be retained for the ongoing rehabilitation and proposed importation activities.

It is understood that there have been no notable changes to the access and nearby road geometry for the duration of the Calga Quarry operation.

The location of the site and surrounding context is shown in Figure 1, with a summary of the existing site approvals summarised in Table 1.

**Figure 1: Site Locality**



Base source: New South Wales Spatial Digital Twin (SDT) Explorer

**Table 1: Existing Approvals**

Approval	Date of issue	Description
DA 94-4-2004	2005	Approved Extraction of friable sandstone (quarrying).
DA 94-4-2004 (MOD 1)	June 2012	Approved Relocation of admin centre
DA 94-4-2004 (MOD 2)	November 2015	Withdrawn Crushing system
<b>DA 94-4-2004 (MOD 3)</b>	June 2017	<b>Approved (Current consent)</b> Crushing system
DA 94-4-2004 (MOD 4)	NA	Withdrawn Glass processing

### Operating Hours

The operating hours for the ongoing rehabilitation and proposed importation activities will remain consistent with the approved operating hours during the extraction activities as summarised in Table 2.

**Table 2: Operating Hours (Approved vs Proposed)**

Approved Operating Hours	Proposed Operating Hours for This Modification
Delivery and distribution Monday to Friday: 5:00 am to 10:00 pm Saturday: 5:00 am to 4:00 pm Sunday and public holidays: Nil	Delivery and distribution Monday to Friday: 5:00 am to 10:00 pm Saturday: 5:00 am to 4:00 pm Sunday and public holidays: Nil
Extraction and processing Monday to Friday: 7:00 am to 6:00 pm Saturday: 7:00 am to 4:00 pm Sunday and public holidays: Nil	Earthworks and Fill placement Monday to Friday: 7:00 am to 6:00 pm Saturday: 7:00 am to 4:00 pm Sunday and public holidays: Nil
Maintenance activities (if inaudible at neighbouring residences) 24 hours a day, 7 days a week	Maintenance activities (if inaudible at neighbouring residences) 24 hours a day, 7 days a week

### Truck Types

As shown in Table 3, the largest trucks assessed in the site's 2004 Environmental Impact Statement (2004 EIS) prepared by R.W. Corkery & Company Pty Ltd were B-double combinations. The largest trucks proposed on site are quin dog trailers combinations are understood to be similar in size and load capacity to B-double combinations. Therefore, the proposed vehicle type is not expected to result in any increase in overall vehicle size or load capacity compared to the vehicles permitted to access the site.

**Table 3: Truck Types (2004 EIS vs Proposed)**

	2004 EIS	Proposed
Truck types	Single body tippers, semi-trailers and B-doubles	Truck and dog combinations, Semi-trailers, B-doubles and quin dog trailers

### Traffic Generation

The current consent was issued based on the assessment of 100 truck movements on weekdays and 32 truck movements on Saturdays. As demonstrated in Table 4, it is proposed to align with these assessed truck movements.

**Table 4: Proposed Traffic Generation**

Truck type	Deemed load (t)	Proportion of trucks expected	Approximate annual throughput per truck type (t)	Indicative trucks required per year	Indicative trucks per week day (total trucks & movements)	Indicative trucks per Saturday
Truck and dog combinations	29.1	Approx. 80%	320,000	10,997 trucks	40 trucks 80 movements	12 trucks 24 movements
Semi-trailer	15	Approx. 5%	20,000	1,333 trucks	5 trucks 10 movements	2 trucks 4 movements
B-double and quin dog	39.2	Approx. 15%	60,000	1,531 trucks	5 trucks 10 movements	2 trucks 4 movements
<b>TOTAL</b>			<b>400,000</b>		<b>50 Trucks 100 movements</b>	<b>16 trucks 32 movements</b>
<b>Complies with EIS predictions</b>			<b>Yes</b>		<b>Yes</b>	<b>Yes</b>

Table 5 below presents the projected hourly truck movements from the 2004 EIS, with the proposed importation activities expected to remain within the maximum 12 truck movements per hour, with the majority of movements expected to occur before midday.

**Table 5: Extract of Projected Traffic Movements from the 2004 EIS**

Time	400,000 TPA	
	Mon-Fri	Sat
5am-6am	6	4
6am-7am	6	4
7am-8am	7	3
8am-9am	12	3
9am-10am	8	8
10am-11am	12	2
11am-12pm	10	4
12pm-1pm	9	1
1pm-2pm	7	1
2pm-3pm	5	1
3pm-4pm	3	1
4pm-5pm	3	-
5pm-6pm	2	-
6pm-7pm	2	-
7pm-8pm	2	-
8pm-9pm	3	-
9pm-10pm	3	-
<b>TOTAL</b>	<b>100</b>	<b>32</b>

### Haulage Route

It is anticipated that most truck movements will be from the M1 Pacific Motorway, east of the site. Furthermore, most of the truck movements will be to/ from the south.

There is expected to be a small portion of truck movements to/ from the north along Peats Ridge Road.

This is consistent with the haulage routes historically used during quarry operations, with no significant changes to the overall traffic distribution or patterns expected.

### Conclusion

Therefore, the proposed modification to permit the importation of up to 400,000 tonnes per annum (TPA) of material for rehabilitation purposes will not alter the approved operating hours or the originally assessed maximum truck size and temporal distribution.

It is understood that there have been no notable changes to the access and nearby road geometry for the duration of the Calga Quarry operation.

As such, the proposed modification is not expected to have any additional traffic impacts on the surrounding road network in terms of road safety, capacity and/ or intersection level of service beyond what has previously been determined and approved for the site operation.

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On this basis, the proposed modification can be supported from a traffic perspective.

We trust this provides the information you require. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'W Johnson'.

**Wayne Johnson**  
**Director**