Proposed Continuation & Expansion of Sand Extraction Operations

Environmental Impact Statement

Braidwood Sand & Gravel
Lots 331,332 & 333 Deposited Plan 755418
No. 552 Larbert Road, Larbert NSW

Prepared by:

Outline Planning Consultants
Town Planning | Environmental Assessment

November 2025

[**Cover page:** Photograph of front-end loader within the existing sand pit.]

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in respect of: Proposed Continuation & Expansion of Sand Extraction Operations
Lentro Group Australia Pty Ltd trading as Braidwood Sand & Gravel

Development Application

Applicant name: Outline Planning Consultants Pty Ltd
acting on behalf of Braidwood Sand & Gravel

Applicant address: [redacted]

Land to be developed: Pt. Lots 331,332 & 333 Deposited Plan 755418, No. 552 Larbert Road, Larbert NSW

Environmental Impact Statement

An Environmental Impact Statement (EIS) is attached.

Pursuant to Part 4, Division 4.1 of the NSW E*nvironmental Planning and Assessment Act 1979* and clause 190(3) of the *Environmental Planning & Assessment Regulation 2021*, and to the best of my knowledge, I declare that this Environmental Impact Statement:

- Has been prepared in accordance with this Regulation.
- Contains all available information that is relevant to the environmental assessment of the development to which the statement relates.
- The information contained in this EIS is neither false nor misleading.

Name: Gary William Peacock, Director,
Outline Planning Consultants Pty Limited

Date: November 2025

Signature: [redacted]

ACKNOWLEDGEMENT OF COUNTRY

We respect and honour Aboriginal and Torres Strait Islander Elders past, present and future. We acknowledge the stories, traditions and living cultures of Aboriginal and Torres Strait Islander peoples on this land.

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Executive Summary

ES1. Overview

This Environmental Impact Statement (EIS) has been prepared by Outline Planning Consultants Pty Ltd on behalf of Braidwood Sand and Gravel Pty Ltd (the Proponent) to support a development application for the continuation and expansion of an existing approved sand extraction operation (sand quarry) within Lots 331, 332 and 333 in Deposited Plan (DP) 755915, No. 552 Larbert Road, Larbert NSW.(Project Site, Project, Braidwood Sand & Gravel Project). The existing Braidwood Sand and Gravel sand extraction operation on the Project Site enjoys a development consent for sand extraction pursuant to Development Consent DA.2022.1181, issued by Queanbeyan-Palerang Regional Council on 20 July 2023. The proposed expanded sand extraction project will continue to rely on the existing access over Lot 331 DP 755915 back to Larbert Road. No sand extraction is proposed on Lot 331.

The proposed sand extraction project (sand quarry, Project) is located on the eastern side of Larbert Road and located about 5.5km north of the Kings Highway intersection and 14km to the north-west of Braidwood within the Queanbeyan-Palerang Regional Council local government area-refer ***Figure 0.1****. Access to the sand quarry site is via an internal access route that links the existing sand extraction operation to Larbert Road.*

The proponent seeks consent for the staged expansion of sand extraction from the currently approved sand extraction area, the component parts including the following:

- *The staged, progressive expansion of the existing sand extraction area by an additional 18.1 ha approximately over Lots 332 and 333, with an estimated resource of approximately 1.23 million tonnes.*
- *An increase in the rate of sand extraction, from the currently approved 25,000 tonnes per annum, to increase to 200,000 tonnes per annum.*
- *Reliance on existing approved access to and from the existing sand pit back to Larbert Road.*
- *A minor increase in the currently approved hours of operation of sand extraction and processing.*
- *A proposed increase in truck volumes as a result of the increase in the rate of sand extraction proposed on site, equivalent to an average of 20 loaded trucks per day, or a maximum of up to 50 loaded trucks per day.*
- *Avoiding extraction of sand from significant trees on site and from a drainage depression located to the north of the currently approved extraction area.*
- *Avoiding extraction over identified Aboriginal sites.*
- *The project would initially rely on the existing sand processing and washing plant on the Project Site.*
- *Rehabilitation of each extraction stage once sand extraction is completed in each stage.*

Refer ***Figure 0.2.***

ES2. Planning Approvals

The Project is 'designated development' under s.4.10 of the Environmental Planning and Assessment Act 1979 (EP&A Act) requiring the preparation of an Environmental Impact Statement (EIS). It is classified as regionally significant development under Schedule 7 of the State Environmental Planning Policy (Planning Systems) 2021, requiring the approval of the Southern Regional Planning Panel.

As extraction of more than 30,000 tonnes per year of quarry resource is proposed, under s.4.46 of the EP&A Act an 'integrated development' approval is required from the NSW Environment Protection Authority (EPA) in accordance with s.43(a) of the Protection of the Environment Operations Act 1997 (POEO Act) and Water NSW as extraction is likely to encounter groundwater.

In accordance with s.4.12(8) of the EP&A Act the EIS responds to and addresses the Planning Secretary's Environmental Assessment Requirements (SEARs) EAR 1933 issued on 13 June 2025 (refer ***Appendix A****) including:*

- *Details of the proposed sand extraction development.*
- *Assessment of potential environmental impacts of the proposed quarry development.*
- *Justification for the proposed quarry development.*
- *Measures proposed to mitigate any adverse impacts on the environment.*

Under the provisions of the Queanbeyan-Palerang Regional Regional Local Environmental Plan (LEP) 2022 the project site is wholly zoned RU1 Primary Production. "Extractive industries" as defined, are a use specifically identified in the RU1 zone as being a permissible with the consent of Council. Significantly, the project site is not zoned for conservation or similar purposes. Moreover, quarries are a permissible use in this zone under the provisions of State Environmental Planning Policy (Resources and Energy) 2021.

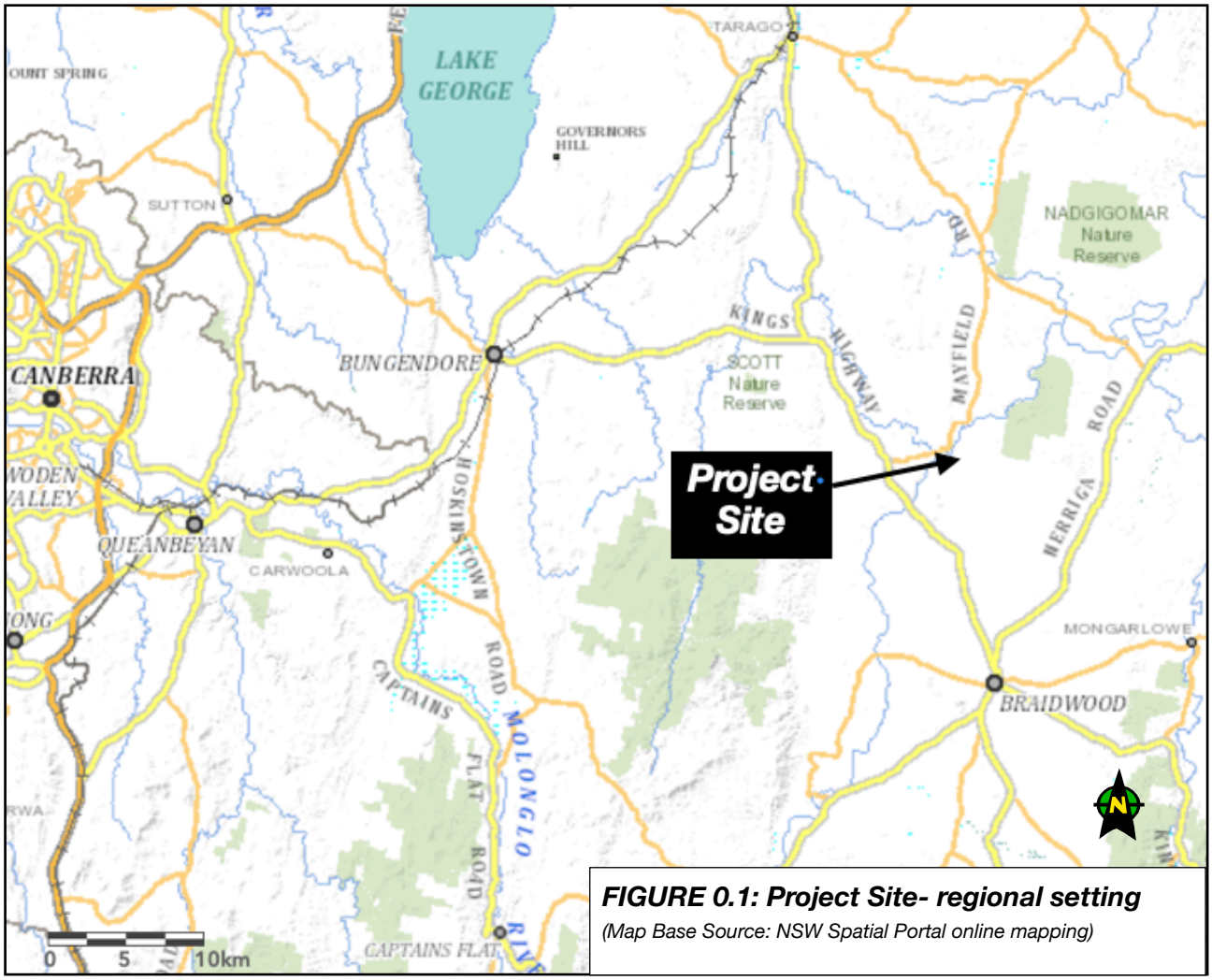
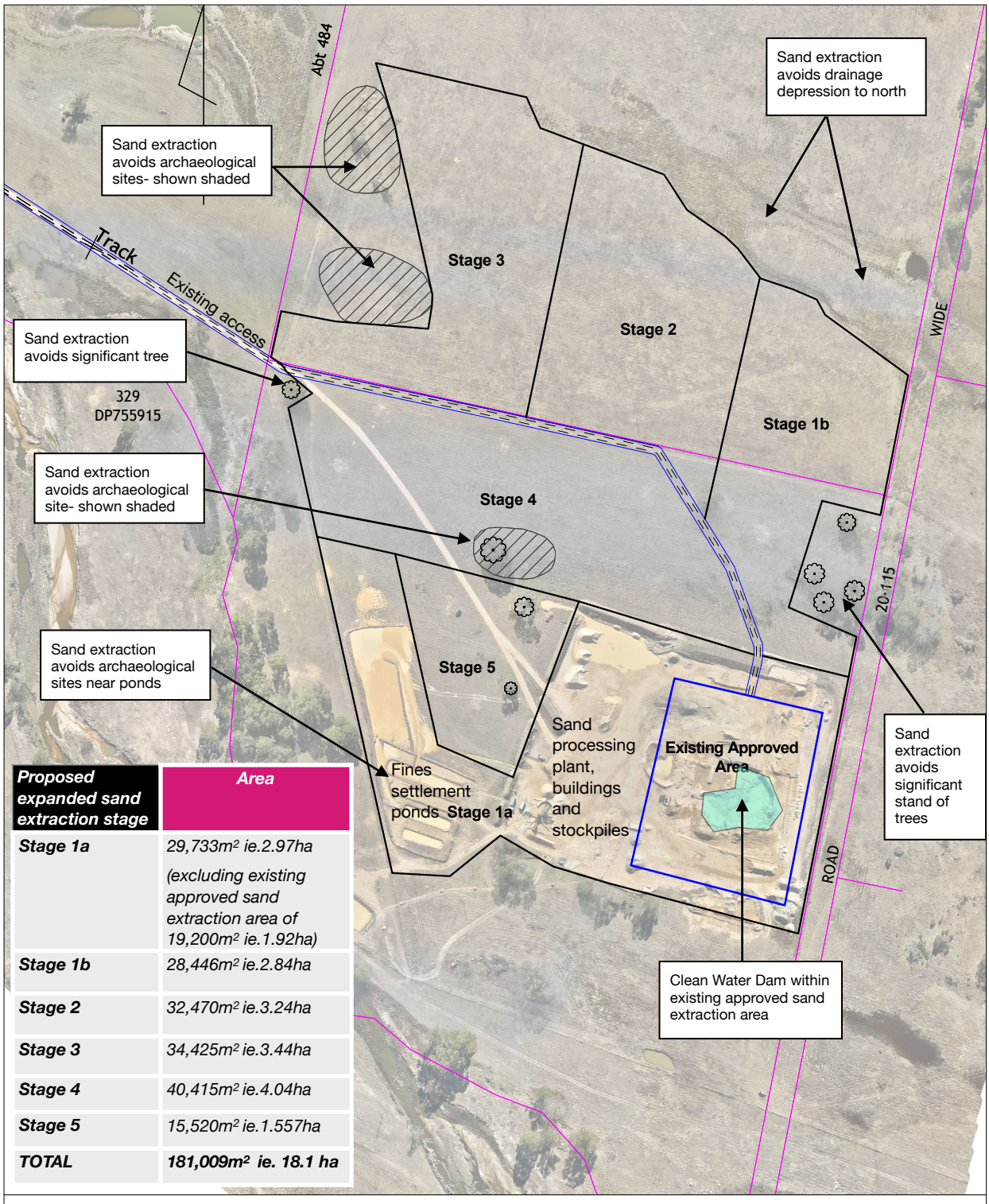


FIGURE 0.1: Project Site- regional setting
(Map Base Source: NSW Spatial Portal online mapping)

▪ *Planning Approvals Process and this EIS*

The proposed quarry project is 'designated development' under s.4.10 of the Environmental Planning and Assessment Act 1979 (EP&A Act), requiring the preparation of an Environmental Impact Statement (EIS). Given that extraction of more than 30,000 tonnes per year of quarry resource is proposed to be extracted, and pursuant to s.4.46 of the EP&A Act, an 'integrated development' approval is required from the NSW Environment Protection Authority (EPA). Once consent is obtained, the quarry will require the issue of an Environment Protection Licence (EPL).

The proposed quarry development is regionally significant development under Schedule 7 of the State Environmental Planning Policy (Planning Systems) 2021. The Southern Regional Planning Panel is thus the consent authority under Section 4.5 of the EP&A Act.



Proposed expanded sand extraction stage	Area
Stage 1a	*29,733m² ie.2.97ha (excluding existing approved sand extraction area of 19,200m² ie.1.92ha)*
Stage 1b	*28,446m² ie.2.84ha*
Stage 2	*32,470m² ie.3.24ha*
Stage 3	*34,425m² ie.3.44ha*
Stage 4	*40,415m² ie.4.04ha*
Stage 5	*15,520m² ie.1.557ha*
TOTAL	***181,009m² ie. 18.1 ha***

FIGURE 0.2: Extent of proposed expanded sand extraction area and indicative staging proposed including areas where sand extraction is to be avoided

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Date: 25/09/2025

Drawn By: Abbey Richards

▪ Key Sand Extraction Project Components

Table 0.1 presents a summary of the indicative key Project components. Refer also to ***Figures 0.2 and 0.3****.*

Table 0.1:Key sand extraction project components

Quarry component	Summary description
Extraction method	*Staged extraction of sand from within proposed expanded and extraction area. Excavator used to remove topsoil, with extraction of sand resource down to approx. 576m AHD.*
Annual extraction rate	*Up to 200,000 tonnes per annum (currently 25,000 tonnes per annum) over six (6) stages.*
Total recoverable resource and project life	*Estimated resource 1.23 million tonnes. Estimated life of sand quarry is 6 years at full production from commencement- potentially 10-12 years (ie. up to 2039), depending on market demand and allowing for exhausting of sand within existing sand extraction operation + 2 year maintenance period following rehabilitation (ie. up to 2041).*
Processing of sand resource	*Processing operations undertaken in a similar manner to existing sand operations, namely, raw material won from each staged pit, stockpiled and blended, loaded into hopper, with wet screening/processing to meet demand for washed/screened sand products. Wastewater from the sand washing and screening process will continue to be directed to silt cells to allow the silt to settle and the water is reused on-site.*
Quarry resource	*Sand suitable for concrete production and allied construction uses in the region.*
Disturbance, rehabilitation	*Total new quarry pit area of approximately 18.1ha (excluding existing approved sand pit 1.92ha), including existing fines settlement ponds and processing/stockpiles not proposed for sand extraction. Sand extraction avoids significant trees, a drainage depression to the north and archaeological sites encountered on the Project Site. Once each stage of sand extraction is completed the decommissioned area will be rehabilitated and shaped to stable, post-extraction landforms, using clean ENM and VENM fill when available.Refer Figure 0.3.*
Transport	*Reliance on existing internal access to the sand quarry from Larbert Road. A mix of truck and dog combinations, generating an average of 20 loaded trucks per day, increasing to a maximum of up to 50 loaded quarry trucks per day.*
Waste management	*Minimal waste materials are anticipated to be generated.*
Infrastructure	*Reliance on existing plant and equipment, toilet, storage and fuel storage, with additional infrastructure proposed.*
Hours of operation	*Limited to 6.00am to 6.00pm Monday to Friday (currently 7.00am to 5.00pm) and 7.00am to 2.00pm on any Saturday (currently 8.00am to 1.00pm). No licensed activities to be conducted on Sundays or public holidays.*
Workforce	*Up to 3-4 employees working on site + contractors (eg. machinery servicing contractors, refuelers).*
Key environmental issues	*Impacts relating to groundwater, noise, rehabilitation and traffic.*

Progressive rehabilitation will be undertaken concurrently once extraction of each quarry stage is completed.

▪ Mitigation Measures and Impact Assessment

Various specialist firms have been engaged to undertake comprehensive technical assessments of the potential impacts associated with the quarry project, including noise and ecological assessments. These technical assessments, summarised in the body of this EIS document and provided in full in the appendices to this EIS, have recommended suitable mitigation measures to avoid or mitigate identified impacts. The following provides an overview of the main findings of these technical assessments and other assessments, however, to gain a proper understanding of the project and identified impacts, the detailed assessments should be read in their entirety. The EIS contains an outline of the mitigation measures proposed that will form the basis of an overall quarry management plan, to be prepared following the grant of consent. [NOTE: Some of the technical assessments have assessed a larger sand quarry project footprint than what is now currently proposed.]

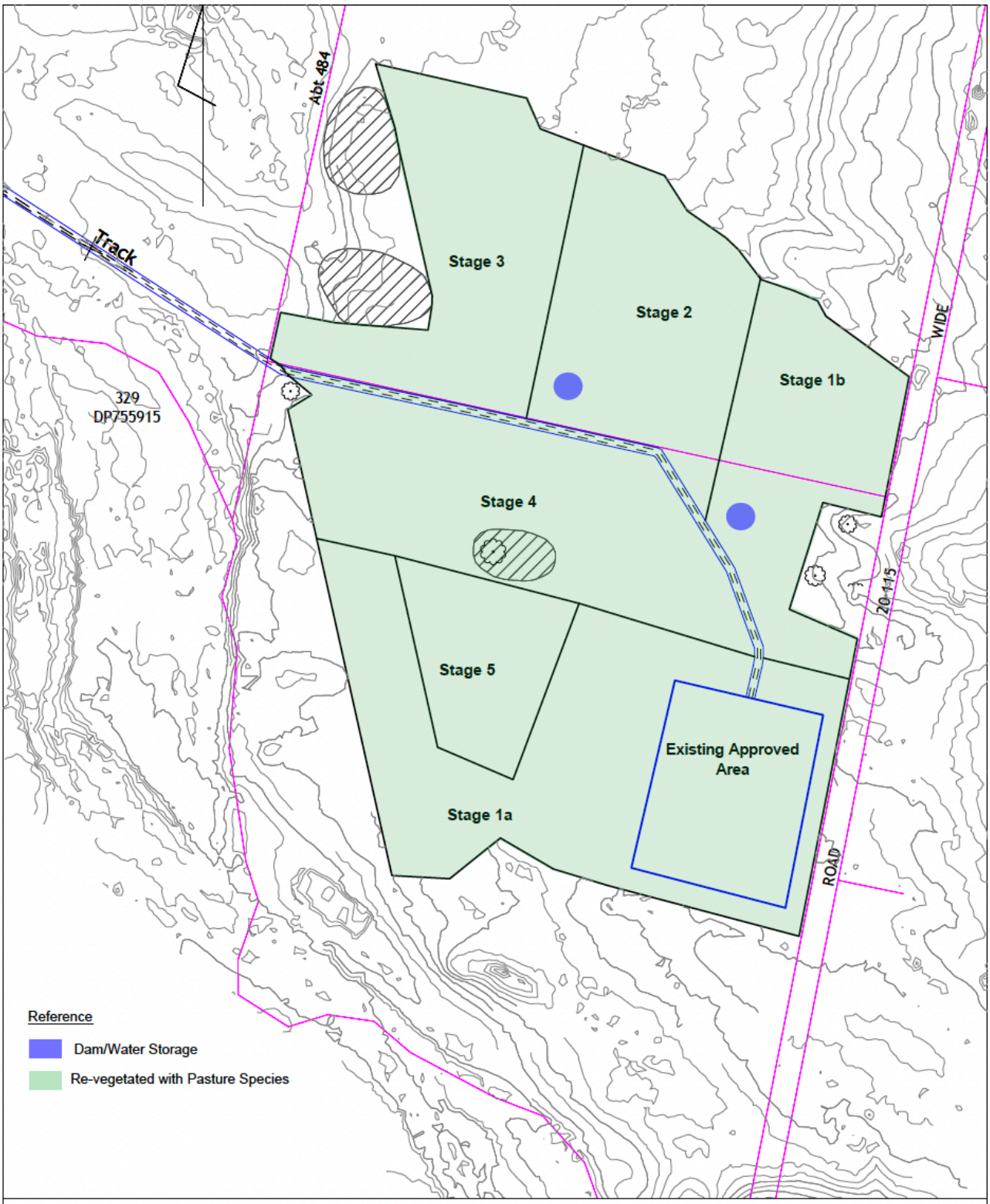

FIGURE 0.3: Rehabilitation plan

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▪ Noise

The objective of the Project is to avoid the expanded sand quarry being a source of nuisance noise to surrounding residential receptors. In this regard it is relevant to note that:

- *The project site is located in a sparsely populated rural area and is reasonably buffered from neighbouring residences not associated with the proposed sand quarry.*
- *In the interests of protecting neighbourhood amenity, the sand quarry is to be operated during the day.*
- *The existing internal sand quarry haul route will be maintained in a good condition to prevent corrugations which can contribute to truck noise.*

The noise assessment by Vipac Engineers and Scientists predict that noise levels generated by the sand quarry, or by sand quarry traffic, will comply with the relevant noise criteria at the nearest residences for all sand quarry operations during neutral and adverse weather conditions.

▪ Traffic

The proposed sand quarry has direct access to Larbert Road, sealed to a width of between 5.5m and 6.5m, which connects to the Kings Highway some 6km away.

The southern section of Larbert Road is sealed (up to the sand quarry access) then unsealed to the end in the north. It has low volumes of traffic, with existing quarries in the Larbert area generating regular heavy vehicle haulage movements making up over 10% of total daily traffic volumes on Larbert Road. It operates at a Level of Service of 'B'. The traffic impact assessment by StreetWise consider that Larbert Road has adequate capacity to cater for the additional traffic movements to be generated by the proposed sand quarry, with minimal reduction in safety or efficiency.

The Kings Highway is an approved Heavy Vehicle route, catering for vehicles up to 26m B-doubles. The speed limit is 100km/hour, with a level of Service 'A'. The intersection of Larbert Road and Kings Highway intersection was ungraded to a Channelised Intersection (CHL) with long turn lanes to allow safe truck turn movements within the 100kmh speed zone. The existing intersection layout has adequate capacity to cater for the estimated traffic increases to be generated by the subject sand quarry expansion, with no significant reduction in safety or efficiency. Streetwise conclude that there is no further requirement to upgrade this intersection as a result of the proposed expansion of the existing sand quarry operation.

▪ Landscape and Visual Impacts

The site of the proposed expanded sand quarry, including internal haul route, is not within an area identified as possessing any visual sensitivity or landscape value. Moreover, the proposed sand extraction area is not visible from any nearby residences not associated with the quarry, nor will it be visible from the haul route back to the intersection of Kings Highway and Larbert Road. No other adverse visual or landscape impacts on neighbours are anticipated. Visual impacts are assessed to be minimal and satisfactory.

▪ Soils and Water

A centre-piece of the soil and water management strategy for the proposed expanded sand extraction area is the containment of runoff within the sand quarry footprint and the recycling of water used in sand extraction an the processing of sand, ensuring that run-off does not contaminate off-site areas or nearby waterways. The effectiveness of these sediment control measures is to be continuously monitored by the quarry operator and improvements made where necessary. The use of appropriate soil stripping, handling and stockpiling procedures is also proposed.

Ground disturbance will be minimised during the construction and operational phases of the development through the introduction of measures such as the marking out of the boundaries of extraction for each stage of the project, and the restriction of heavy vehicles and machinery to designated areas, as well clearly designating stockpiling, car parking and work areas generally.

The depth of extraction proposed means that groundwater will be encountered at depth, and, as such, will be classified as an aquifer intervened activity. However, the proposed development would not exceed the limits set down in the NSW Aquifer Interference Policy and acceptable groundwater impacts are predicted. No groundwater dependent ecosystems were found within the vicinity of the Project Site.

The existing fines settlement ponds receive surplus water from the existing sand processing and sand washing plant and direct rainfall. Water from the sand processing plant transferred to the fines settlement ponds and captured rainfall will be filtered and reused on site.

Erosion and sediment controls (ESCs) will be installed and maintained, prior to and during all sand quarry activities, to prevent soil erosion, water pollution or the discharge of loose sediment on surrounding land, in general accordance with Managing Urban Stormwater – Soils and Construction Volume 1 (Landcom, 2004)and Volume 2E: Mines and quarries (Department of Environment and Climate Change, 2008)-collectively referred to as the 'Blue Book'. These controls will remain in place until all disturbed ground surfaces are rehabilitated/revegetated and stabilised to prevent erosion or sediment loss.

Like the existing sand extraction operation, the proposed expanded sand extraction area is located within the Sydney Drinking Water Catchment. The proposed sand quarry development has been designed, sited and managed to avoid any significant adverse stormwater, groundwater, erosion and sedimentation, or water quality impacts particular in terms of off-site impacts:

- *As the proposed Project is located within the Sydney Water drinking water catchment the proponent will undertake mitigation measures to ensure that a Neutral of Beneficial Effects (NorBE) is achieved. The NorBE analysis demonstrates that the post-development pollutant loads discharged from the Project are equal to or less than the pollutant loads discharging from the existing developed sand extraction site.*
- *Aquatic and riparian species, habitats and ecosystems.*
- *The stability of the bed and banks of the watercourses downstream.*

The Project Site is flat, sandy country and does not form a part of any identified, broad-brush Biophysical Strategic Agricultural Land (BSAL) area; the quarry site itself possessing a low suitability for agriculture, other than for grazing. The project will not impose or affect the ongoing use of adjoining agricultural land of the reminder of the property. It is intended that the quarry be returned to agricultural use after quarrying is completed, involving the filling and re-shaping of land and the creation of water ponds for livestock. The assessment reasonably identifies potential agricultural land use impacts as Low.

The land proposed for expanded sand extraction is above the 1% AEP flood. To further reduce the potential impact of flooding bunding will be provided around each extraction stage, as is the current practice. The processing plant and site buildings are located on land generally in excess of 4 metres above this flood level.

▪ *Air Quality*

Various dust abatement measures are proposed to be implemented on the proposed quarry site to abate dust nuisance. The results of the modelling by Vipac Engineers and Scientists show that air quality predictions comply with the relevant criteria and averaging periods at all sensitive receptors modelled. Based on the technical assessment undertaken, Vipac conclude that air quality should not be a constraint to the proposed expanded sand quarry development.

▪ *Contamination*

The Project Site is not listed as a a potential asbestos source (loose-fill asbestos insulation only), nor has the site possess any acid sulfate soils potential, nor is it registered as significantly contaminated land or any similar affectation within the meaning of s.59(2) of the Contaminated Land Management Act 1997. The Stage 1 contamination assessment by Ballpark Environmental finds that the project site presents an acceptable low level of risk for site contamination and is suitable for its proposed use as an expanded sand quarry.

▪ Bushfire

The Project Site is located in a Vegetation Category 3 bushfire prone area, with virtually all of the site cleared land used for the grazing of livestock. Various bushfire safeguards and controls are proposed, to satisfactorily address any bushfire hazards, including the maintenance of suitable buffers around all fixed plant and buildings. A Council-approved emergency management and evacuation plan is already in place on site.

▪ Heritage

An assessment of potential impacts on Aboriginal cultural heritage assessment report has been undertaken for the Project, as required by the SEARs. The Aboriginal cultural heritage assessment report, prepared by Past Traces ,is included as ***Appendix J*** *to the EIS. It found a number of Aboriginal relics and potential sites in and around the proposed sand extraction footprint. It is proposed that none of these sites will be disturbed- the proposed expanded sand extraction area avoiding any identified Aboriginal site. As a result, no Aboriginal heritage Impact Permit (AHIP) under Section 90 of the NSW National Parks and Wildlife Act 1974 is required.*

It has been assessed that the proposal would not adversely impact on items of Aboriginal heritage significance or cultural values. In the unlikely event that previously unknown Aboriginal object(s) and/or sites are discovered during works associated with the quarry, work must stop, and an appropriately qualified archaeologist be contacted to access the nature, extent and significance of the identified sites, in consultation with Aboriginal stakeholders.

▪ Ecology

The land proposed to be developed for the expanded sand extraction project has been cleared and used for grazing of livestock, with existing tracks, fences, and farm dams. Some isolated scattered native trees occur on the property, comprising Ribbon Gum (Eucalyptus viminalis). No flora species were recorded or considered likely to occur that are listed matters under the Biodiversity Conservation Act (BC Act) or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Council's LEP designation of most of the proposed expand sand extraction area as having significance in terms of terrestrial biodiversity values is at odds with the fact that with the exception of few stands of trees the land proposed for the expanded sand quarry extraction area is y cleared and used for agriculture.

The design of the proposed expanded sand quarry avoids any significant stands of trees, as well as the drainage depression located to the north of the proposed extraction area. Such an adherence to the mitigation hierarchy, namely, prioritising avoidance and minimisation of impacts as part of site selection process, is a critical requirement under the Biodiversity Conservation Act (BC Act).

The ecological assessment by Macrozamia Environmental Consulting concludes that significant adverse impacts to threatened flora or fauna species are not anticipated.

▪ Social and Economic

The Southeast and Tablelands Regional Plan 2036 applies to the Queanbeyan-Palerang Regional Council local government area (LGA) and surrounding LGAs. The plan sets out a broad strategy guiding land use planning for the next two decades in the region. It aims to leverage the region's assets, including its natural environment and infrastructure, to foster balanced growth. The vision for the region is a borderless area within Australia's most diverse natural environment, with Canberra at its heart. The plan integrates and aligns with the strategic planning for Canberra.

The proposed expanded sand quarry project will provide sufficient volumes of sand material to service proposed future urban development and infrastructure projects planned for the Canberra region.

Assuming the safeguards and controls nominated to manage impacts on other environmental aspects are adopted the overall impact on local amenity is anticipated to be satisfactory. The proposed expanded sand quarry has been designed to minimise the social and economic cost on adjoining land owners, local and regional communities.

Quarries stimulate local communities through investment and by providing jobs. Positive economic impacts include the provision of much-needed sand to local infrastructure projects, and in particular to concrete making plants, essential for the continued economic growth of the region.

■ *Justification of Project*

The Braidwood Sand and Gravel Project is justified for a number of reasons, including but not limited to the following:

- *The proposal seeks consent to expand the existing approved sand extraction and sand processing operations already established on the site.*
- *The character of the locality has been shaped by the existence of a number of other approved sand extraction operations in the Lambert locality. it is considered that the proposed expanded sand quarry is not incompatible with surrounding land uses and is capable of co-existing with these uses without significant adverse impacts.*
- *The proposed extraction area consists largely of cleared land, limiting the potential ecological impacts of further disturbance. The design excludes extraction from any significant (isolated) stands of trees found on site or Aboriginal sites.*
- *The views of the proposed expanded sand quarry project are very limited to non-existent.*
- *The quarry is strategically positioned in terms of ability to service growth areas in the Canberra region. The Project will support the planned future growth of the region and maintain local employment and supply of much-needed sand materials close to markets.*
- *The project has been designed to ensure that noise and air quality impacts on surrounding properties are satisfactorily minimised.*
- *The project site is to be appropriately rehabilitated once each stage of sand extraction is completed.*
- *The quarry is a permissible use in the RU1 zone under the Queanbeyan Regional Local Environmental Plan 2022. A quarry development is consistent with the zoning of the Project Site.*
- *The Project will provide employment for quarry workers and contractors dependent on the continued operation of the already established sand quarry.*
- *The project would generate flow-on economic benefits to the region of direct expenditure generated by wages, contractors fees and the sale of processed sand products.*
- *The project accords with the objects of the EP&A Act (refer to Section 5.1.4 of this EIS) and in particular:*
  - *The project seeks to maximise the safe and economic recovery of a known, valuable sand resource.*
  - *The design of the expanded sand quarry project achieves satisfactory environmental, social and economic outcomes generally, incorporating design features to reduce the potential for adverse impacts.*
  - *The land proposed for the quarry is cleared or disturbed/partially cleared land.*
  - *No cultural sites affected.*
- *The project accords with the Ecologically Sustainable Development (ESD) (refer to Section 7.1.2 of this EIS) and in particular:*
  - *The Precautionary Principle: It is concluded that the proposed quarry can operate within acceptable criteria, with no serious or irreversible environmental damage resulting, nor does does it give rise to any uncertainty in terms of what is proposed or likely impacts, or relationship to adjoining development.*
  - *The Integration Principle: Quarry management measures have been proposed that will ensure that acceptable impacts will ensue in both the short-term and the medium-long-terms.*
  - *Intergenerational Equity Principle: The project will provide benefits for future generations by providing a secure, valuable sand resource close to regional markets.*

- *Biological Diversity Principle: The site comprises land that was lawfully cleared in part prior to 1990, for purposes associated with agriculture. The potential impacts of the project have been described in this EIS, including the potential impact of the project on biodiversity.*
- *Valuation and Pricing of Resources Principle: The site of the proposed expanded sand quarry site has limited value to agriculture.*

From the above, there are demonstrable benefits associated with the project, and with appropriate conditions of approval, these benefits can be achieved without significant adverse social or environmental impacts.

■ Conclusions

The site of the proposed expanded sand quarry is within a locality already approved for other sand extraction developments.

It is strategically located in terms of its close proximity to, and ability to service planned population growth in and around the Canberra region. The project provides for the supply of much-needed processed sand product to service future economic growth and development in the region, in particular the supply of sand for the concrete industry.

The consequences of not proceeding with the project also weigh heavily in favour of proceeding with the project.

It is considered that the potential impacts of the proposed project are acceptable and are able to be managed as outlined within the safeguards and mitigation measures contained within the EIS and appended technical reports.

This EIS has been prepared in accordance with the provisions of the EP&A Act and addresses the SEARs, as well as all relevant environmental issues raised by government and others. Moreover, the Project accords with the principles of Ecologically Sustainable Development.

1. Introduction

1.1 Overview of Project, Objectives

The development the subject of this Environmental Impact Statement (EIS) seeks a continuation and expansion of an existing approved sand quarry within Lots 331, 332 and 333 in Deposited Plan (DP) 755915, at No. 552 Larbert Road, Larbert. (Project, Project Site). The current sand extraction facility, approved by Queanbeyan-Palerang Regional Council on 20 July 2023 (DA.2022.1181), and is operated by Braidwood Sand and Gravel. It is located about 5.5km north of the Kings Highway intersection with Larbert Road and approximately 14km to the north-west of Braidwood, within the Queanbeyan-Palerang Regional Council local government area, and about 55km from Canberra and 44km from Queanbeyan. Refer to **Figures 1.1**and **1.2** showing the project site in its regional and local setting.

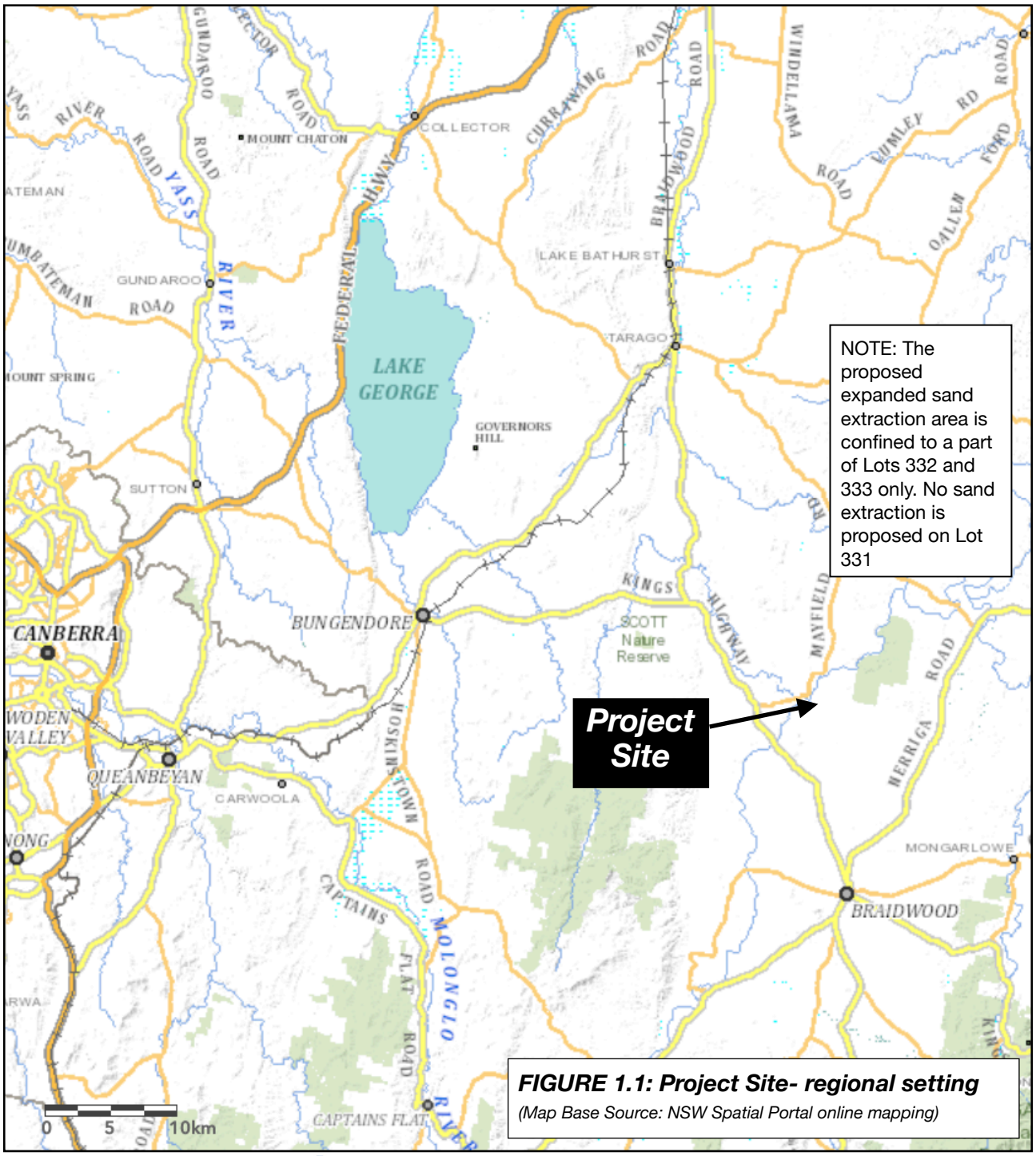


FIGURE 1.1: Project Site- regional setting
(Map Base Source: NSW Spatial Portal online mapping)

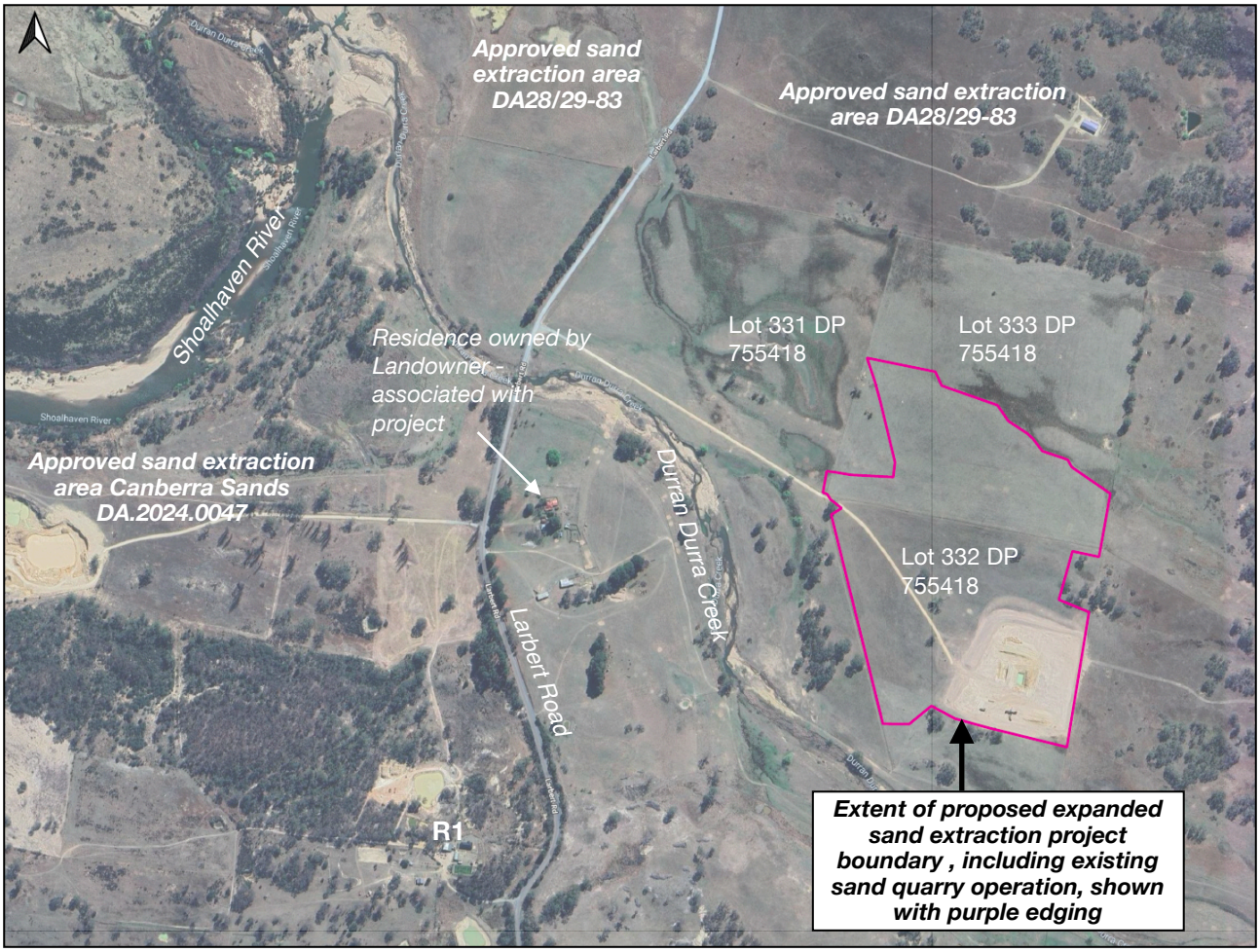


FIGURE 1.2: Proposed Project- local setting and nearest residence not associated with the project-R1

(Map Base Source: Ground Doctor mapping. Boundaries approx.)

The principal objectives for the Project may be summarised as follows:

- The staged, progressive expansion of the existing approved sand extraction area by an additional 18.1ha approximately, with an estimated resource of approximately 1.23 million tonnes.
- To secure an increase in the rate of extraction of the sand resource, from the currently approved 25,000 tonnes per annum to 200,000 tonnes per annum
- Secure access to a proven, valuable additional sand resource capable of providing much-needed processed sand to urban development and local infrastructure projects in the Canberra region.
- Reliance on existing approved access to and from the sand pit back to Larbert Road, with marginally increased hours of operation of the sand extraction facility, in line with the recent (April 2025) consent issued to the nearby Canberra Sand and Gravel sand extraction operation.
- A proposed increase in loaded truck volumes, equivalent to an average of 20 loaded trucks per day, or a maximum of up to 50 loaded trucks per day.
- Provide fit for purpose, safe and compliant sand extraction operation undertaken in an environmentally responsible manner and to create a final landform capable of being effectively rehabilitated.
- To effectively manage and to mitigate noise, groundwater, dust, traffic, drainage, ecological and blasting impacts.
- To achieve the above objectives in a cost-effective way such that the Project is viable.
- Increase the number of jobs within extractive industry sectors in the region.

▪ 1.2 Approvals Process

1.2.1 Overview, approvals process

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) governs planning and the assessment of development projects in New South Wales, including quarry projects. This planning legislation is administered by Department of Planning, Housing and Infrastructure and by local councils.

1.2.2 Integrated Development Checklist

Under the provisions of s.4.46 of the EP&A Act of the EP&A Act, 'integrated development' approvals may need to be obtained from other government agencies, in addition to obtaining a development consent. Relevant approvals required are summarised in Table 1.1 below.

Table 1.1: Integrated Development Checklist for Project

Approval Authority	Law Requiring Approval	Applicability
Dept Environment & Conservation (Environment Protection Authority (EPA))	*ss.43(a), 47 & 55 Protection of the Environment Operations Act 1997*	***Applicable**. An environment protection licence (EPL) will be required for any scheduled activity once development consent is granted to the proposed expanded sand extraction operation.*
Dept Climate Change, Energy, the Environment and Water	*Approval required under s.58 Heritage Act 1977*	*Not Applicable. No Heritage Order applies.*
Dept Transport & Roads (Transport for NSW-TfNSW), Queanbeyan-Palerang Regional Council	*s.138 Roads Act 1993- works over or on public roads, including connection to a classified road*	*Not Applicable. Refer also to Note below.*
Dept Climate Change, Energy, the Environment and Water (Heritage NSW)	*s.90 of National Parks & Wildlife Act 1974*	*Not Applicable. No grant of Aboriginal Heritage Impact Permit is required for proposed expanded quarry.*
Dept Primary Industries (NSW Fisheries)	*Permits required under s. 144, 201, 205 and 219 of Fisheries Management Act 1994*	*Not Applicable. No marine impacts proposed as per the relevant sections of this Act.*
Dept Regional NSW (Resources Regulator)	*Improvements under s.15 of Mine Subsidence Compensation Act 1961*	*Not Applicable*
Dept Regional NSW (Resources Regulator)	*Grant of mining lease under ss. 63 & 64 Mining Act 1992*	*Not Applicable.*
Dept Regional NSW	*s. 9 Petroleum (Onshore) Act 1991*	*Not Applicable.*
Dept Police & Emergency Services (Rural Fire Service)	*s.100B of the Rural Fires Act 1997*	*Not Applicable. Although the land is bushfire prone no s.100B authorisation is required.*
Dept Industry-Water (WaterNSW)	*Ss 89,90 & 91 of Water Management Act 2000*	***Applicable**. License required given that groundwater likely to be encountered.*

***NOTE TO TABLE 1.1**:*
Section 4.46(3) of the EP&A Act provides that developments which also require consent under Section 138 of the Roads Act 1993 are not integrated development if the council is both the development consent authority under the EP&A Act and the relevant Roads Authority providing consent under the Roads Act- as is the case here. In general, the Roads Act provides that a Local Council is the Roads Authority for all the roads within its local government area except freeways.

Where a development is integrated development, s.4.47(3) of the EP&A Act gives the consent authority power under that Act to impose any conditions that an approval body could impose as a condition of its approval.

Even though there is a very wide power to impose conditions, the power of a determining authority to impose any condition nominated by the other government agencies is limited to only those conditions that fairly and reasonably relate to the proposed development and are for a purpose related to the relevant powers of that particular agency under the integrated development provisions of the EP&A Act.

Section 4.47(2) of the EP&A Act requires, inter alia, that before granting development consent to an application for consent to carry out the development that is 'integrated development' for the purposes of the Act, the consent authority must obtain from each relevant approval body the General Terms of any Approval (GTA) proposed to be granted in relation to the development.

Section 4.47 (3) of the EP&A Act requires a consent, granted by a consent authority, to be consistent with the general terms of any approval proposed to be granted by the approval body, in this case:

- As more than 30,000 tonnes per year of quarry resource is proposed to be extracted an 'integrated development' approval is required from the NSW Environmental Protection Authority (EPA) under ss.43(a), 47 and 55 of the *Protection of the Environment Operations Act 1997*.
- Given that extraction is is likely to encounter groundwater an 'integrated development' approval is required from Water NSW under s.91(2) of the *Water Management Act 2000*.

1.2.2 Regionally Significant Development: EIS Required

The Project is 'designated development' under s.4.10 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) requiring the preparation of an Environmental Impact Statement (EIS). It is classified as regionally significant development under Schedule 7 of the State Environmental Planning Policy (Planning Systems) 2021, requiring the approval of the Southern Regional Planning Panel.

As extraction of more than 30,000 tonnes per year of the sand resource is proposed, under s.4.46 of the EP&A Act an 'integrated development' approval is required from the NSW Environment Protection Authority (EPA) in accordance with s.43(a) of the Protection of the Environment Operations Act 1997 (POEO Act) and Water NSW as extraction is likely to encounter groundwater.

The Project is classified as regionally significant development pursuant to the provisions of Schedule 6 of the *State Environmental Planning Policy (Planning Systems) 2021* and not State Significant Development (SSD). Consequently, the Southern Regional Planning Panel (SRPP) is the consent authority for this proposed sand extraction development.

The Project is not State significant development as it does not trigger the involves: a sand extraction operation extracting less than 500,000 tonnes per annum and a resource of less than 5 million tonnes; and the fact that the land on which the quarry Project is to be undertaken does not comprise an 'environmentally sensitive areas' referred to in clause 7(1)(c) of Schedule 1 of State significance (as defined in s.2.2 of *State Environmental Planning Policy (Planning Systems) 2021*.

1.2.4 Concurrence Requirements

The Project Site is adjacent to the Shoalhaven River. The Shoalhaven River is part of the Sydney Drinking Water Catchment (SDWC), administered by WaterNSW. Clause 6.64 of *State Environmental Planning Policy (Biodiversity and Conservation) 2021* - Part 6.5 Sydney Drinking water Catchment- states development consent must not be granted to development on land in the Sydney Drinking Water Catchment unless the consent authority has obtained concurrence of the Regulatory Authority (Water NSW).

▪ 1.3 EIS Project Team

The preparation of this EIS was undertaken and managed by Gary Peacock who holds a Bachelor of Town Planning (UNSW), is a Registered Planner (EIA) of the Planning Institute of Australia, and is a principal and director of Outline Planning Consultants Pty Ltd.

Table 1.2: EIS Project Team

Specialist area of expertise	Name of consulting firm	Names of specialist personnel
Details of the proposed quarry project, including design, operational aspects	*Outline Planning Consultants, and [redacted] on behalf of Braidwood Sand and Gravel and Lentro Earthworks Pty Ltd*	*Gary Peacock [redacted] with design by Abbey Richards*
Roads and traffic assessment	*Streetwise*	*Andy Davis Traffic Engineer*
Stormwater, Drainage	*SEEC (Strategic Environmental and Engineering Consulting) and Outline Planning Consultants*	*Jason Armstrong and Gary Peacock*
Ecology, Rehabilitation	*Macrozamia*	*Pat Guinane*
Air quality, greenhouse gas impacts	*Vipac*	*Dr Stephen Thomas*
Noise impacts	*Vipac*	*Jackson Yu and Patrick Drake*
Contamination	*Ballpark Environmental*	*Andrew Ballard*
Groundwater	*Ground Doctor Pty Ltd*	*James Morrow*
Surveying	*Premise- formerly Southern Cross Consulting Surveying*	*Andrew Nesbitt*
Aboriginal heritage	*Past Traces*	*Lyn O'Brien*

1.4 Content of this EIS

The structure and contents of this EIS complies with the Planning Secretary's Environmental Assessment Requirements (SEARs) EAR 1993 issued on 13 June 2025, as required under the provisions of Section 4.12(8) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Part 8 Division 5 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation 2021), as summarised in the accompanying Table 1.3.

The EIS consists of a main report and series of appendices, the latter, in the main, containing specialist consultants assessment reports. The main report covers a broad range of matters required by the SEARs, including a description of the existing environment, a description of the project in its strategic and statutory context, an assessment of the impacts of the project, and a list of proposed mitigation measures.

The EIS is informed by the technical assessments contained in the EIS appendices and provides a summary of each of the technical assessments.

Table 1.3: Compliance with issued SEARs (EAR 1993)

EAR 1993 EIS Requirement	Where addressed in this EIS
General requirements	
The Environmental Impact Statement (EIS) for the development must comply with the requirements in Clauses 190, 192 and 193 of Part 8 Division 5 of the Environmental Planning and Assessment Regulation 2021. In particular, the EIS must include:	The matters required to be addressed under Clauses 190, 192, and 193 of the EP&A Regulation have been addressed within the EIS with details provided as to their location within the EIS provided within this table below.
• Executive Summary	An executive summary has been provided at the front of this EIS.

• Comprehensive description of the development: - a detailed site description and history of any previous activities on the site, including a current survey plan; - identification of the resource, including the amount, type, composition; - the layout of the proposed works and components (including any existing infrastructure that would be used for the development); - an assessment of the potential impacts of the development, as well as any cumulative impacts, including the measures that would be used to minimise, manage or offset these impacts; - a detailed rehabilitation plan for the site; - any likely interactions between the development and any existing/approved developments and land uses in the area, paying particular attention to potential land use conflicts with nearby residential development; - a list of any other approvals that must be obtained before the development may commence; - the permissibility of the development, including identification of the land use zoning of the site; - identification of sensitive receivers likely to be affected by the development using clear maps/plans, including key landform areas, such as conservation areas and waterways; • Conclusion, justifying why the development should be approved, taking into consideration: - alternatives: - the suitability of the site; - the biophysical, economic and social impacts of the project, having regard to the principles of ecologically sustainable development; and - whether the project is consistent with the objects of the Environmental Planning and Assessment Act 1979; and • Signed declaration from the author of the EIS, certifying that the information contained within the document is neither false nor misleading	Section 3 Sections, 2.5,2.8 & 8 Refer to EIS page 6 Refer Appendix B
Consultation In preparing the EIS for the development, you should consult with relevant local, State or Commonwealth Government authorities, infrastructure and service providers and any surrounding landowners that may be impacted by the development. The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.	Section 6 + Appendix C
Noise- including a quantitative assessment of potential: - construction and operational noise and off-site transport noise impacts of the development in accordance with the Interim *Construction Noise Guideline*, NSW Noise Policy for Industry and *NSW Road Noise Policy* respectively; - reasonable and feasible mitigation measures to minimise noise emissions; and - monitoring and management measures;	Sections 4.2 & 7.3.5 + Appendix D
Air- including an assessment of the likely air quality impacts of the development in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*. The assessment is to give particular attention to potential dust impacts on any nearby private receivers due to construction activities, the operation of the facility;	Sections 3.12, 4.2 & 7.3.6 + Appendix E
Water-including: - a detailed site water balance and an assessment of any water licensing requirements or other approvals required under the *Water Act 1912* and/or *Water Management Act 2000*, including a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant Water Sharing Plan or water source embargo; - an assessment of potential impacts on the quality and quantity of existing surface and ground water resources, including a detailed assessment of proposed water discharge quantities and quality against receiving water quality and flow objectives; and - a detailed description of the proposed water management system, water monitoring program and other measures to mitigate surface and groundwater impacts;	Sections 2.4, 3.5, 4.2 & 7.3.11 + Appendices F & G

Biodiversity- including - accurate predictions of any vegetation clearing on site; - a detailed assessment of the potential biodiversity impacts of the development, paying particular attention to threatened species, populations and ecological communities and groundwater dependent ecosystems undertaken in accordance with Sections 7.2 and 7.7 of the *Biodiversity Conservation Act 2016;* and - a detailed description of the proposed measures to maintain or improve the biodiversity values of the site in the medium to long term, as relevant.	Sections 2.4, 4.2 & 7.3.9 + Appendix H
Heritage- including -An Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared in accordance with the relevant policy and guidelines, identifying, describing and assessing any impacts to Aboriginal cultural heritage sites or values associated with the project.	Sections 2.4, 4.2 & 7.3.8 + Appendix I
Traffic & Transport-including: - accurate predictions of the road traffic generated by the construction and operation of the development, including a description of the types of vehicles likely to be used for transportation of quarry products; - an assessment of potential traffic impacts on the capacity, condition, safety and efficiency of the local and State road networks, detailing the nature of the traffic generated, transport routes, traffic volumes and potential impacts on local and regional roads; - a description of the measures that would be implemented to maintain and/or improve the capacity, efficiency and safety of the road network (particularly the proposed transport routes) over the life of the development; - evidence of any consultation with relevant roads authorities, regarding the establishment of agreed contributions towards road upgrades or maintenance; and - a description of access roads, specifically in relation to nearby Crown roads and fire trails;	Sections 2.4, 3.6, 4.2 & 7.3.7+ Appendix J
Land resources-including an assessment of: - potential impacts on soils and land capability (including potential erosion and land contamination) and the proposed mitigation, management and remedial measures (as appropriate); and - an assessment of activities that could cause erosion or sedimentation issues, and the proposed measures to prevent or control these impacts;	Sections 2.4, 4.2 & 7.3.1 + Appendix K
Waste-– including estimates of the quantity and nature of the waste streams that would be generated or received by the development and any measures that would be implemented to minimise, manage or dispose of these waste streams;	Sections 3.7, 4.2 & 7.3.3
Hazards-– including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks and the transport, storage, handling and use of any hazardous or dangerous goods;	Sections 2.4, 3.15, 3.16, 3.17, 4.2 & 7.3.2
Visual-– including an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, including with respect to any new landforms;	Sections 2.4, 4.2 & 7.3.4
Social & economic-– an assessment of the likely social and economic impacts of the development, including consideration of both the significance of the resource and the costs and benefits of the project; and	Section 7.3.12
Rehabilitation-– including: - a detailed description of the rehabilitation measures that would be undertaken throughout the development; - a detailed rehabilitation strategy, including justification for the proposed final landform, taking into consideration the objectives of any relevant strategic land use plans or policies; and, - potential impacts on landforms (topography), paying particular attention to the long-term geotechnical stability of any new landforms (such as overburden dumps, bunds etc).	Sections 3.18 & 4.2

Environmental planning instruments The EIS must take into account all relevant State Government environmental planning instruments, guidelines, policies, and plans. While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies and plans that may be relevant to the environmental assessment of this development. During the preparation of the EIS you must also consult the Department's EIS Guideline –Extractive Industries – Quarries. This guideline is available at http://www.planning.nsw.gov.au/~/media/Files/DPE/Guidelines/extractive-industriesquarries-eis-guideline.pdf. In addition, the EIS must assess the development against the Palerang Local Environmental Plan 2022 and any relevant development control plans/strategies.	Sections 2.5, 5.2 & 7.2

1.5 EIS Report Structure

The purpose of this EIS is to enable consideration of the implications of the proposed Project. The EIS has been prepared in accordance with the EP&A Act and the EP&A Regulation 2021. An overview of the layout of this EIS is provided below:

Executive Summary: Provides a brief overview of the proposed quarry development and the EIS.

Section 1: Introduces the Project, including project objectives, the project team and EIS report.

Section 2: Outlines the existing environment of the project site and surrounds.

Section 3: Outlines the strategic context for the sand extraction project and key strategic issues that are relevant to the assessment of the project, including justification of the project, relevant plans that establish the regional or local land use planning context for the project.

Section 4: Provides details of the proposed sand extraction project, including plans for the proposed expansion of the existing approved sand extraction area and alternatives to the Project.

Section 5: Provides a full description of the measures to mitigate adverse effects of the Project.

Section 6: Summarises the findings of the community engagement that was carried out for the sand extraction project during the preparation of the EIS.

Section 7: Provides an assessment of the likely impact on the environment as a result of the proposed sand extraction project.

Section 8: Provides a justification and evaluation for the proposed sand extraction project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development.

The appendices to the EIS present the following additional information including:

- The Secretary's Environmental Assessment Requirements (**Appendix A**).
- Noise impact assessment report by Vipac (**Appendix D**).
- Roads and traffic assessment by Streetwise (**Appendix J**.
- Groundwater assessment by Ground Doctor Pty Ltd (**Appendix G**).
- Water balance report by SEEC (**Appendix F**).
- Air quality impact assessment by Vipac (**Appendix E**).
- Contamination Report by Ballpark Environmental (**Appendix K**).
- Aboriginal heritage assessment by Past Traces (**Appendix I**).
- Ecological assessment by Macrozamia (**Appendix H**).
- Newsletter distributed to neighbours (**Appendix C**).

1.6 Existing Approved Sand Extraction Operations

An established sand extraction facility is already in operation on the site. It operates under development consent DA.2022.1181 issued by Queanbeyan-Palerang Regional Council (QPRC) on 20 July 2023. Refer **Figure 1.3** and **Photograph 1.1**.

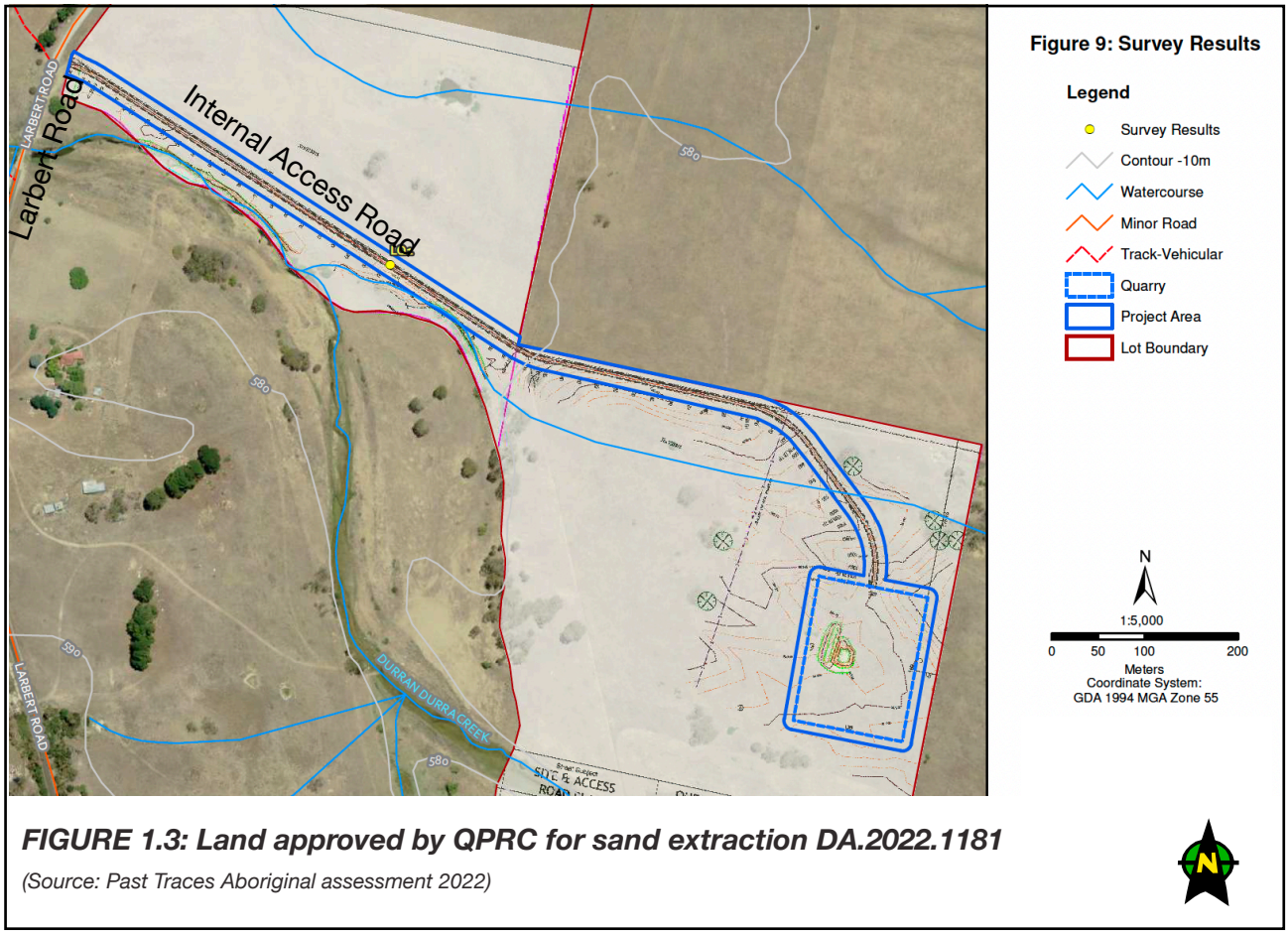


FIGURE 1.3: Land approved by QPRC for sand extraction DA.2022.1181

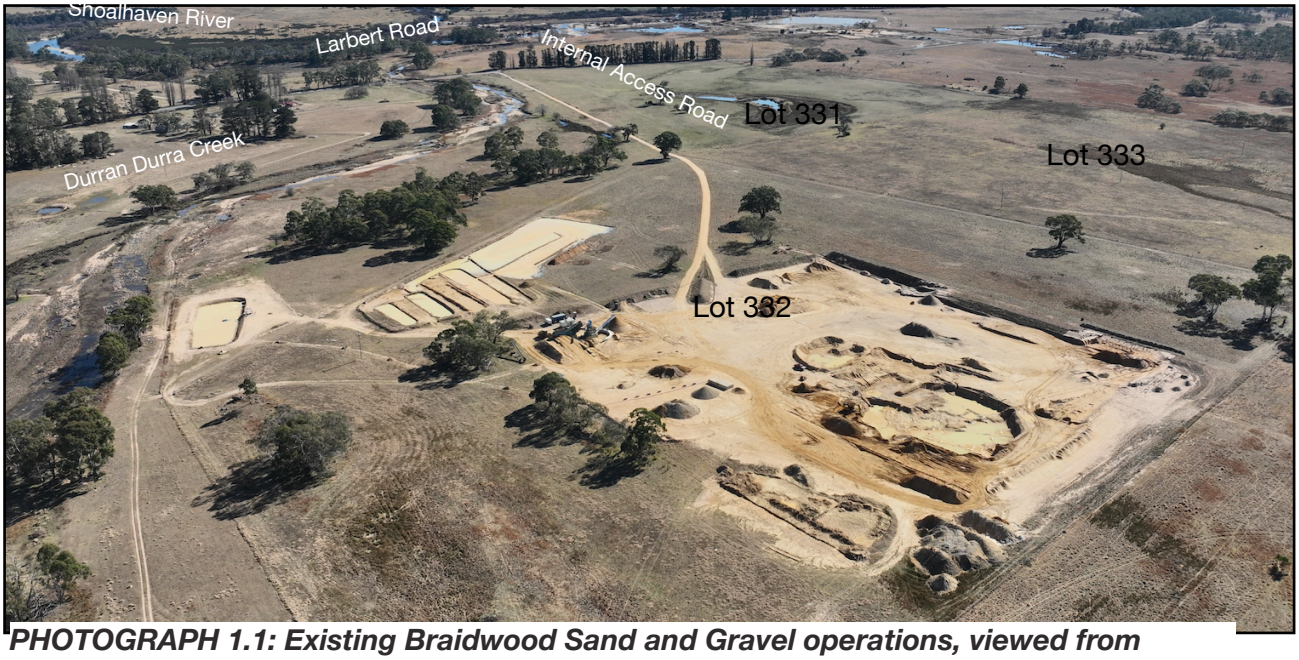
(Source: Past Traces Aboriginal assessment 2022)

This consent limits the extraction of sand to a disturbance footprint of 1.92 ha and production to 25,000 tonnes per annum, as well as the following:

- The consent to lapse after 125,000 tonnes of extractive resource have been won from the sand pit, or five (5) years after the date the consent commences, whichever comes first (consent condition 11).
- Haulage truck operations on all public roads to cease during the period when school buses may be encountered on public roads, between the hours of 7.30am to 9.00 am, and 3.00pm to 5.00pm on school days (consent condition 13).
- Hours of operation limited to 7.00am to 5.00 Monday to Friday and 8.00am to 1.00pm on Saturdays, with no works undertaken on Sundays or public holidays (consent condition 22).
- Entry to the site from Larbert Road to be upgraded (consent condition 8). These works have now been completed.
- In accordance with the issued consent various management plans now apply to the operation, including a Soil and Water Management Plan, driver code of conduct, Quarry Rehabilitation Plan and Emergency and Evacuation Management Plan.

1.7 The Proponent: Braidwood Sand and Gravel

Braidwood Sand and Gravel Pty Ltd is a family-owned sand and gravel supply company, was established in 2021. Currently it operates an approved sand extraction facility on land identified as Lots 331 and 332 DP 755915 , No.552 Larbert Road, Larbert. The existing sand extraction operations supplies the regional sand market as well as a recently opened concrete batching plant, owned by the same family, situated at No. 29 Industrial Close, Yass.



PHOTOGRAPH 1.1: Existing Braidwood Sand and Gravel operations, viewed from south-east looking north-west towards Larbert Road and the Shoalhaven River (in background)

(Source: Premise July 2025 drone survey)

2. Site Features and Context

The following section identifies the key strategic issues that are relevant to the assessment of the Project.

2.1 Snapshot of the Queanbeyan-Palerang Region LGA

The Project Site is located within the Southeast and Tablelands Region, centred on Canberra and the ACT, within the Queanbeyan-Palerang Regional Council (QPRC) area. As noted in Queanbeyan-Palerang Regional Council's document entitled *Towards 2040 Local Strategic Planning Statement*:

- "*Queanbeyan-Palerang LGA is a highly diverse community that includes modern urban centres, historic towns and villages, productive rural landscapes and high quality natural environments*."
- "*The LGA is adjacent to the ACT and is strongly influenced by the activities of the Commonwealth and ACT Governments. Significant residential, rural residential and industrial developments adjoin or are located close to the border of the ACT*."
- "*The proximity to the ACT is an opportunity for QPRC and provides employment for over 63% of the QPRC workforce*."

The primary drivers of demand for construction materials, including sand, include urbanisation, population growth, infrastructure investment, and economic growth. As urban centres expand and populations grow, the need for new housing, commercial buildings, and infrastructure increases, directly driving demand for construction materials. A robust economy typically translates to increased construction activity, and a corresponding increased demand for construction materials, like sand.

ABS (July 2025) estimates indicate that the Queanbeyan-Palerang Regional Council population forecast for 2025 is 67,516, with NSW Government projections indicating forecast growth to 79,208 by 2041 (**Figure 2.1**), an increase of 11,692 residents or 17% growth in population. ABS projections predict a 2041 population of 85,084 by 2041. Either way, strong future population growth is predicted for this LGA.

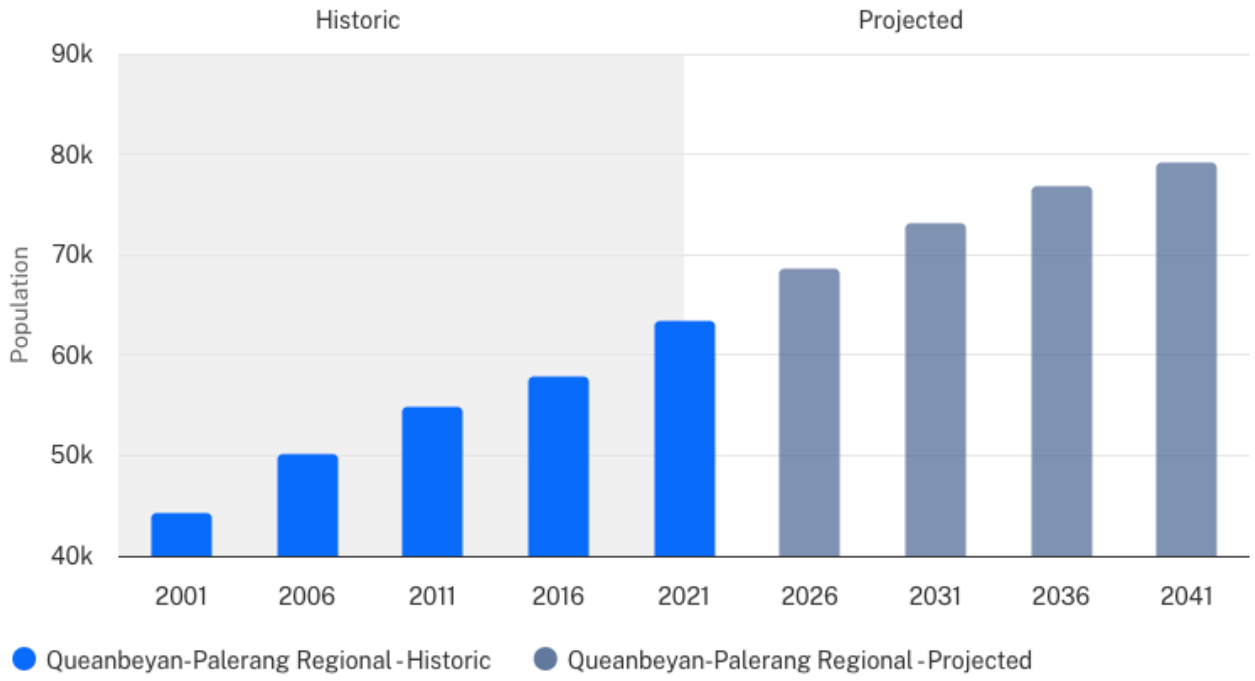


FIGURE 2.1: Future demand for sand will be driven, in the main, by population growth. Forecast 17% population growth Queanbeyan Palerang Regional 2025 to 2041

(Source: NSW Government online data at planning.nsw.gov.au/data-and-insights/population projections July 2025)

The Queanbeyan-Palerang Regional Council area includes the city of Queanbeyan, and the towns of Bungendore and Braidwood, along with smaller rural villages and hamlets. Queanbeyan is the largest urban center. The council is heavily invested in the region's growth, with plans to commit over $750 million in investments over the next 10 years. The population of Canberra in 2025 is estimated to be 482,986, an increase of 5,419 in the last year. According to ACT Government projections, the population is expected to grow to approximately 784,000 persons by June 2060.

The construction industry is very much tied to population growth, not only of QPRC but also that of the Canberra region. It is noteworthy that one of the top three economic sectors in QPRC is in construction which, together with public administration and health care, accounts for more than 40% of QPRC's economy according to QPRC's *Towards 2040 Local Strategic Planning Statement*. Refer **Figure 2.2**.

FIGURE 2.2: The construction industry is a major driver of QPRC economy. A robust economy typically translates to increased construction activity, and a corresponding increased demand for construction materials, like sand.

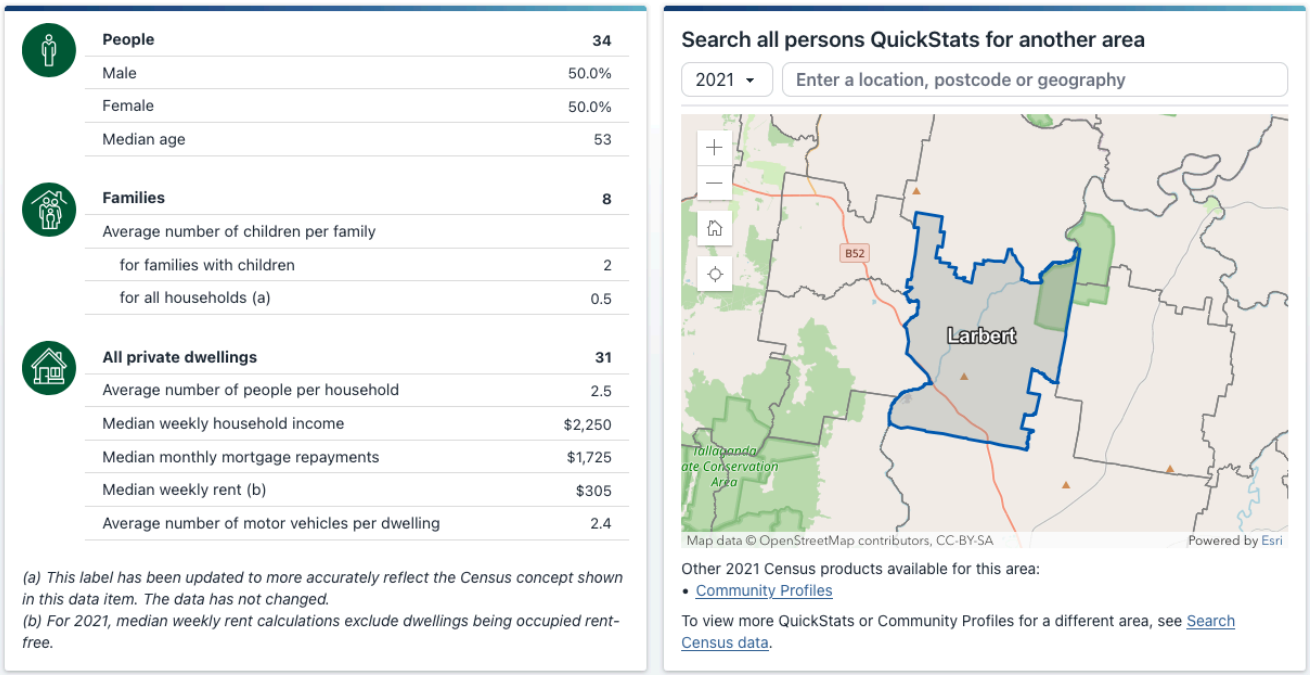
(Source: QPRC Towards 2040 Local Strategic Planning Statement)

▪ 2.2 Locational Context

The Project Site is accessed from the Kings Highway via Larbert Road, a sealed local no-through road serving several properties and existing approved extractive industries (sand quarries).

The Project Site comprises Lots 331, 332 and 333 in Deposited Plan (DP) 755915, at No. 552 Larbert Road, Larbert. (Project, Project Site), having a combined area of approximately 71ha- refer **Figure 1.2**. The proposed expanded sand extraction footprint, excluding existing internal access and existing sand extraction operations, comprises approximately 23% of the total area of Lots 331,332 and 33. The land which is the subject to the proposed development application is owned by [redacted] (Landowner) with Braidwood Sand and Gravel (Licensee) holding a deed of licence to extract sand and gravel from the Project Site. The landowner owns an extensive area of land, shown edged in orange in accompanying **Figure 2.5**.

The Project Site is located in the locality of Larbert, a sparsely populated rural area located within the Queanbeyan-Palerang Region of New South Wales situated north of the Kings Highway between Bungendore and Braidwood, where it crosses the Shoalhaven River. At the 2021 Census the Larbert locality had a population of 34 residents, living in 31 dwellings (source: ABS *Larbert 2021 Census All persons QuickStats*).Refer **Figure 2.3**.



People	**34**
Male	50.0%
Female	50.0%
Median age	53
Families	**8**
Average number of children per family	
for families with children	2
for all households (a)	0.5
All private dwellings	**31**
Average number of people per household	2.5
Median weekly household income	$2,250
Median monthly mortgage repayments	$1,725
Median weekly rent (b)	$305
Average number of motor vehicles per dwelling	2.4

(a) This label has been updated to more accurately reflect the Census concept shown in this data item. The data has not changed.
(b) For 2021, median weekly rent calculations exclude dwellings being occupied rent-free.

FIGURE 2.3: Larbert locality and population at 2021 Census

(Source: ABS Larbert 2021 Census All Persons Quickstats)

▪ 2.3 Land Uses in Locality

The locality comprises cleared farmland on the alluvial flats located either side of the Shoalhaven River, with a number of established sand extraction operations situated to the west and to the north of the Project Site, including an approved sand and gravel extractive industry on the same Landowner holding, operated by Canberra Sand and Gravel. Timbered lands occur in the hills adjoining the alluvial plain. The predominant land use in the locality is agriculture and other extractive industries (sand quarries) in the locality- refer **Figure 2.4**. Approved sand extraction operations in the locality comprise the following:

- Approved sand and gravel extraction Lots 119, 334, 335, 336, 337, 339 and 340 DP 755915, on land owned by [redacted], located to the north of and adjoining the Project Site on either side of Larbert Road. Development consent DA28/99-83 issued 23 March 1984 permitting sand extraction over an area of approximately 256ha. No apparent restrictions on the size or annual rate of extraction of the resource, however, limits apply in terms of the area of sand to be worked at any one time and depth of extraction
- Further to the north, an approved sand and gravel extraction on five separate parcels of land on Lots 119 and 120 DP 755915, within steeper lands forming a part of the Durran Durra Range, on land owned by [redacted], located to the north of the Project Site and the approved sand and gravel extraction operation described in the dot point above. The extractive resource on these lands comprise sandstone, shales and mudstone, gravel and sand deposits. Operated by GC Schmidt (Plant) Pty Ltd. Restrictions apply in terms of the extent of lands subject to extraction, with an annual rate of extraction of between 37,000 cubic metres (Site 2) to 100,000 cubic metres (Site 1) permitted.
- Canberra Sand and Gravel sand extraction operations, recently approved in April 2025 for an expanded extraction area on land owned by [redacted] on Lots 24, 25, 27 and 330 DP 755915, also at No. 552 Larbert Road. The development consent for DA.2024.0047 allows an increase in the size of the current operations (2ha) to 29.21ha, with an increase in the rate of extraction from 25,000 tonnes per annum to 200,000 tonnes per annum. The consent allows a continuation of operation of a wet screening plant and includes the stockpiling of excavated material and finished product, processing and haulage of material and rehabilitation The life of the project is expected to extend to 25 years with a total available resource estimated to be 5 million tonnes (Mt).
- Braidwood Sand and Gravel sand extraction operation, approved by QPRC on 20 July 2023.(DA.2022.1181), with a limited extraction area of 1.92ha and a rate of extraction limited to 25,000 tonnes per annum.

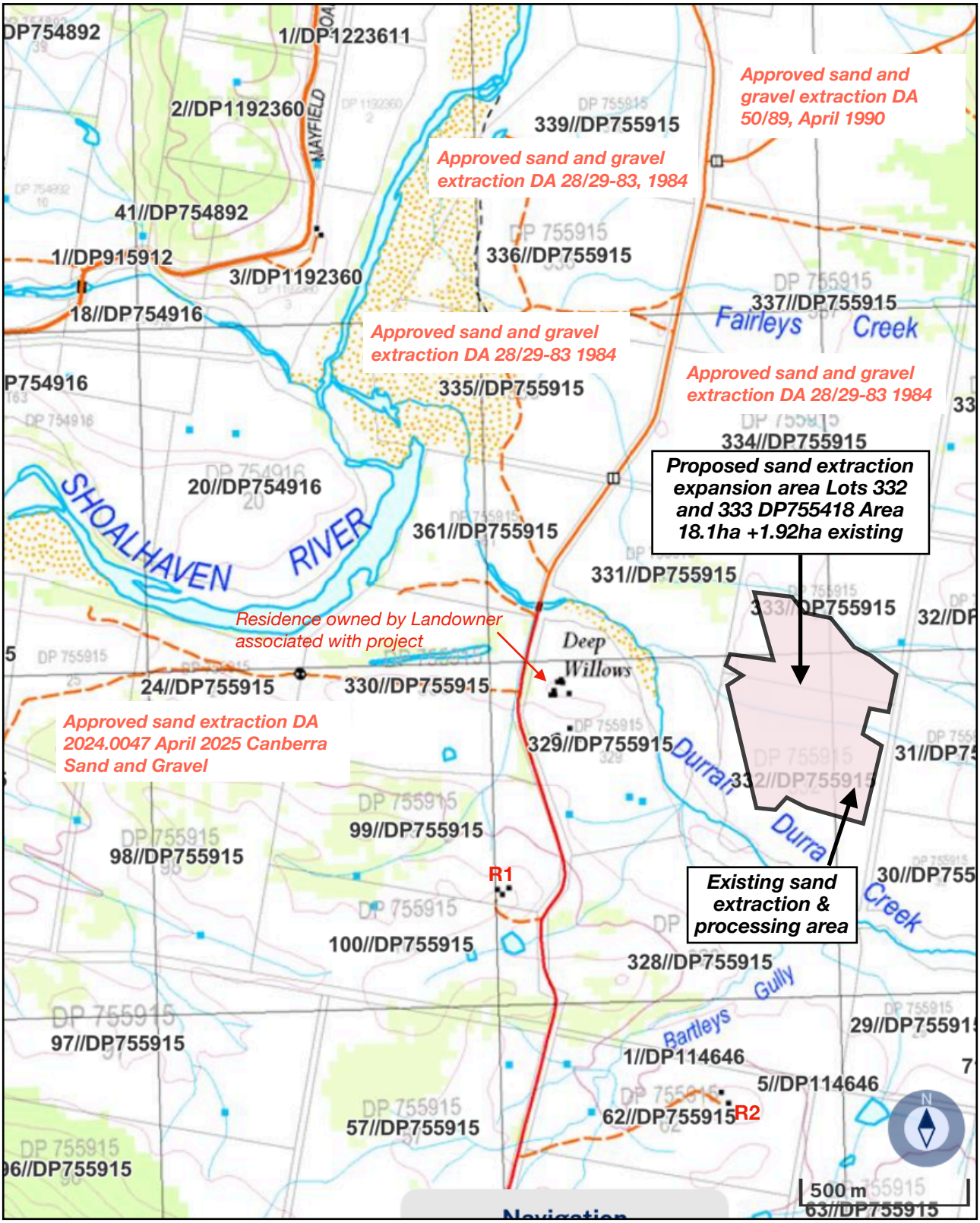


FIGURE 2.4: Locational context & other approved sand extraction areas in Larbert locality + nearest residences (R1 and R2)

(Source: NSW Government SDT Explorer website, 1km grid, areas approx. only)

0 100 500 1000

The locality is sparsely populated, with the nearest rural residences to the proposed expanded sand extraction area described in the following. The closest sensitive receiver location is located on Lot 329 DP 755915 (R1) situated some 882m from the then proposed sand quarry site. Lot 329 DP 755915 is owned by the Landowner, and is thus associated with the proposed development. The distance of the proposed sand quarry expansion from nearest residences not associated with the quarry are as follows:

- R1: Residence to the south-west, on Lot 99 DP755915, located approximately 800 metres away from the edge of the proposed sand quarry expansion area.
- R2: Residence to the south on Lot 62 DP755915 located approximately 894 metres away from the edge of the proposed sand quarry expansion area.

Refer to **Figure 2.5** and **Photograph 2.1** for the location of each residence:

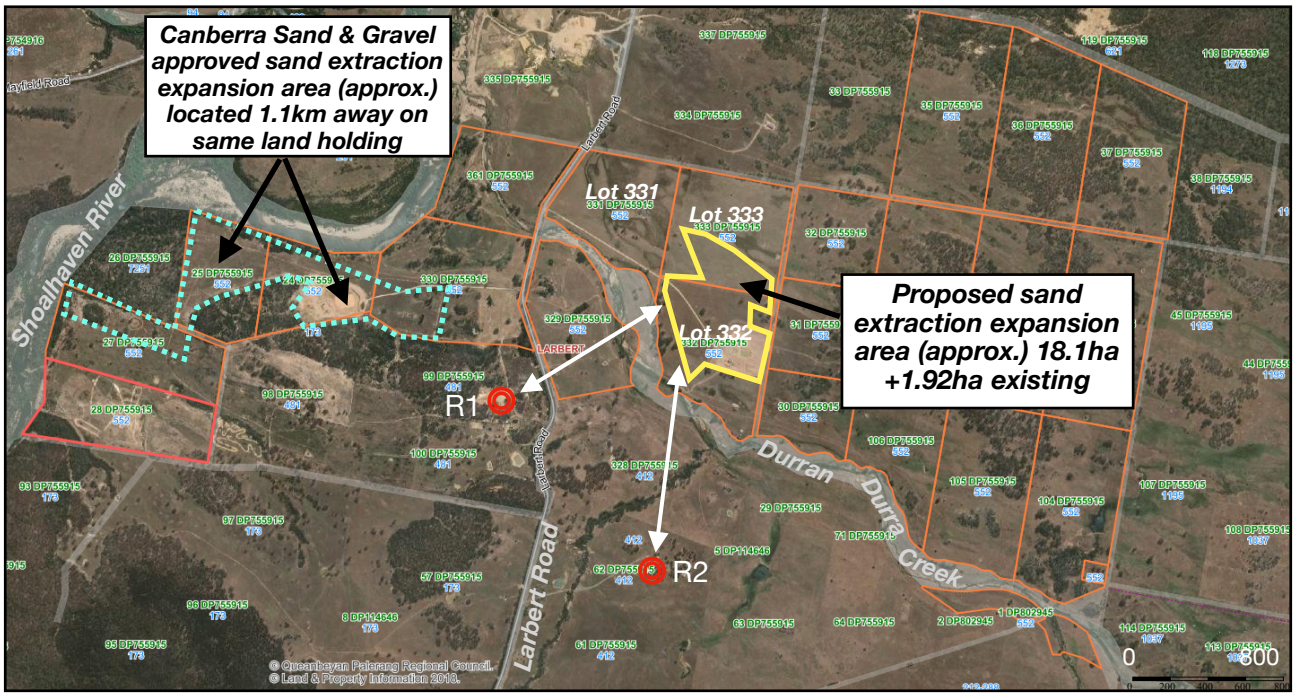


FIGURE 2.5: The land proposed for the expanded sand extraction area forms a part only of a much larger rural holding owned by the Landowner (edged in orange), already approved in part for sand extraction. The location of nearest residences not associated with the quarry are also identified (R1 and R2)

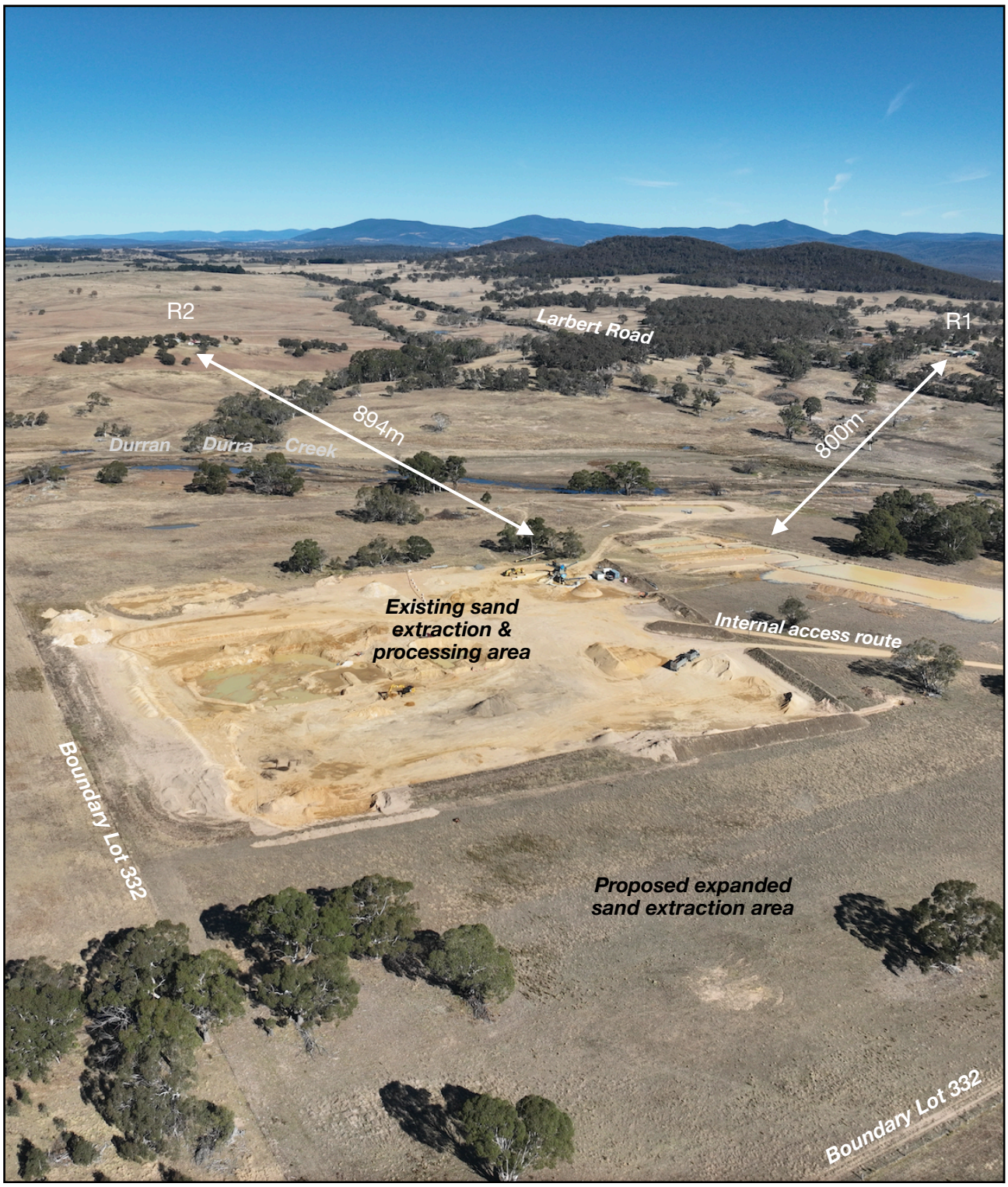
(Source: QPRC mapping provided)

2.4 Site Features

2.4 1 Land Use

The Project Site and surrounds has been impacted by European settlement from the mid nineteenth century and as a result been under continual grazing and pastoral regimes over a lengthy period of time. These past use impacts result in the following typical impacts:

- Vegetation and tree clearance, and ploughing of topsoils for pasture improvement or light cropping. Most trees have been removed from the paddocks with some old growth trees remaining.
- Stock impacts.
- Construction of sheds, outbuildings, yards and fencing.
- Vehicle tracks – some consisting of minor roads, other of impact trails.
- Impacts by previous quarrying operations. In this regard it is relevant to note that the recently approved sand extraction operation by Canberra sand and Gravel is located on land in the same ownership.



PHOTOGRAPH 2.1: Existing Braidwood Sand and Gravel operations. Drone view from north looking south. The two nearest residences to the Project Site are located approximately 800 metres (R1) and 894m (R2) from the proposed expanded sand extraction area. Views of the expanded sand extraction area are screened by intervening vegetation.

(Source: Premise site survey July 2025)

Outside of the currently approved sand extraction and processing plant are silt ponds associated with the sand extraction operation and perennial pasture grasses with some scattered trees. A farm dam is located further to the south near Durran Durra Creek. The alignment of the internal access track runs along an existing fence line before cutting across a paddock towards the proposed sand quarry location.

2.4 2 Topography

The Project Site occurs in an area of flat to gently undulating alluvial plain underlain by sand deposits of variable depth. Local relief on the Project Site varies between about 10 metres between RL578 and 586 m elevation with a gradual but steady rise in elevation from west to east. Refer **Figure 2.6**.

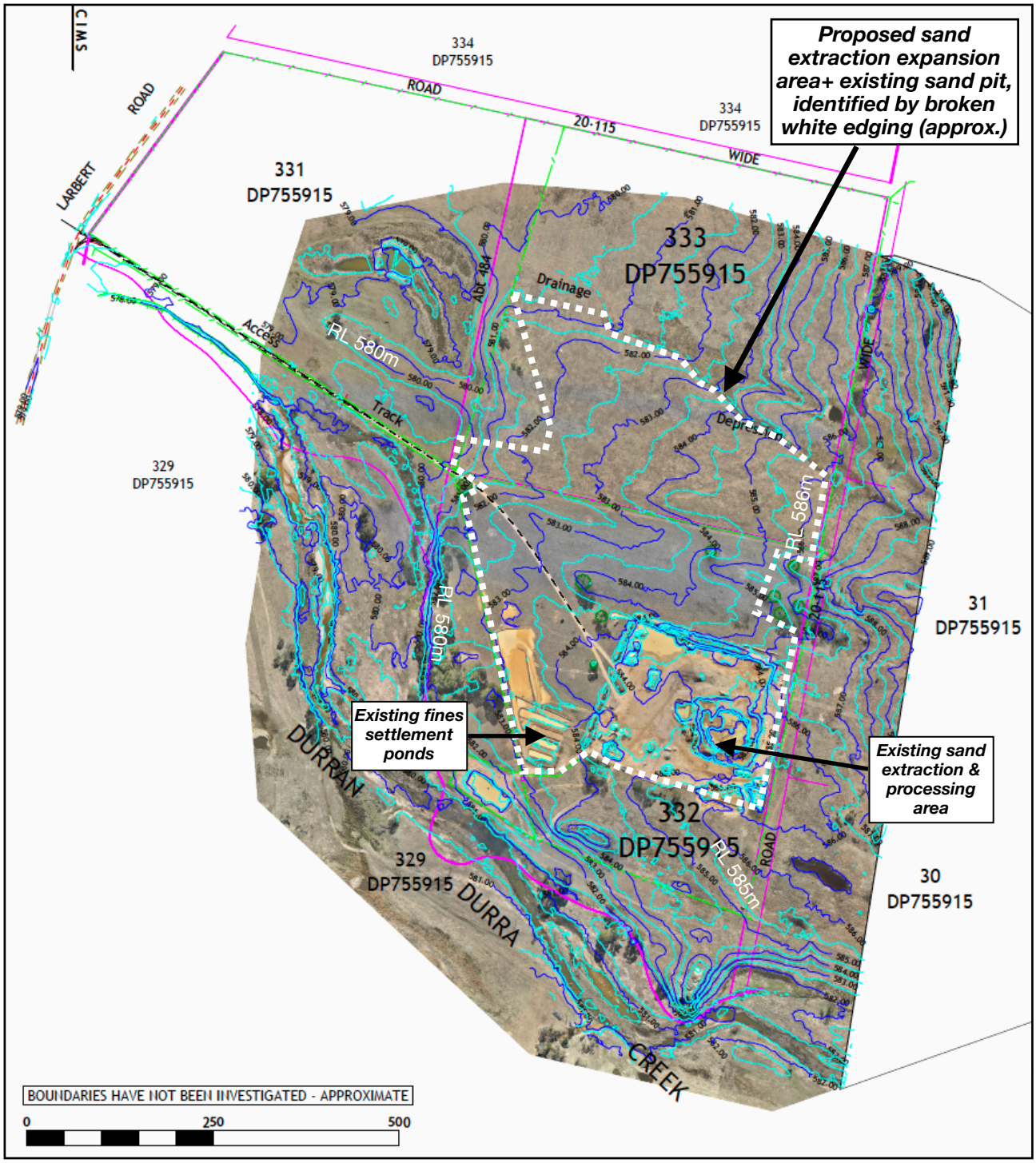


FIGURE 2.6: Site features. The elevation of the land the subject of the proposed expanded sand extraction area ranges between RL 580m (west boundary) to RL 586m+ (east boundary) to RL585m+ (south boundary), well above the known 1% AEP flood level

(Source: Premise June 2025 survey, boundaries approx. only)

2.4 3 Soils

Soil landscape mapping available at the NSW Government eSpade portal shows that the project is located across the Larbert Variant b and Oorong Soil Landscapes. Table 2.1 provides a description of each. Refer also to **Figure 2.7**.

Table 2.1: Soil landscape descriptions

Soil feature	Larbert Variant b Soil Landscape (ALlab) Alluvial Soil Group	Oorong Soil landscape (AE00) Aeolian Soil Group
Soil landscape description	*Flat to gently undulating floodplains on Quaternary alluvium. Includes floodplains of the Shoalhaven River. Local relief <20 cm, usually <10 m between 550 and 600 m elevation. Extensively cleared woodland. Landscape Variant—laa—less frequently flooded.*	*Undulating aeolian sand dunes and sheets overlying granitic rock. Aeolian sand dunes and sand sheets of the Braidwood Rises physiographic region. The most extensive occurrence is to the south of Durran Durra Range ie Larbert.* *Local relief 10–40 m between 580 and 720 m elevation. Dunes are 1–10 m high, up to 60 m long and orientated WNW. Extensively cleared open-forest to woodland.*
Typical soil conditions	*Moderately deep to deep (80–150 cm), poorly drained Solodic Soils (Dy2.43) on old terraces. Moderately deep to deep (70–100 cm), moderately well-drained Non-calcic Brown Soils (Db1.42, Dr2.22) and Prairie Soils (Gn3.45) on younger terraces. Moderately deep to very deep (>100 cm), poorly to very poorly drained Alluvial Soils (NSG) along drainage depressions and back swamps.*	*Soils—moderately deep (approx. 120 cm), rapidly drained Siliceous Sands (Uc1.21, Uc1.23) over sand.*
Common soil and landscape constraints	*High soil permeability* *Low soil fertility* *Low available water-holding capacity* *General rural land capability is Class 6 (Class 5 per NSW Government eSpade online mapping: Severe limitations)*	*High permeability* *Low fertility- General rural land capability is Class 4/6 generally severe to high limitations for cultivation and moderate limitations for grazing (Class 5 per NSW Government eSpade online mapping: Severe limitations)* *Sodicity* *Low available water-holding capacity* *Strong acidity*

Acid Sulfate Soil (ASS) Risk Mapping (DLWC) does not identify the project site as having a risk of acid sulfate soils (confirmed via the NSW Government eSpade portal). Site observations did not identify any landscape indicators that suggest acid sulfate soils might be present within the project boundaries. Salinity levels are low to very low. The Project does not occur on land mapped as Biophysical Strategic Agricultural Land (BSAL).

2.4.4 Groundwater

Based on the site assessment by Ground Doctor Pty Ltd of land adjoining the Project Site, owned by the landowner, [redacted] (refer **Appendix G**):

- According to the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011* the Project Site sits above the Goulburn Fractured Rock Groundwater Management Unit, being groundwater found in alluvium less than 10m deep and, lower still, groundwater found in fractured granite rock.
- The alluvial plains surrounding the Shoalhaven River, including the Project Suite, are comprised of Quaternary and Tertiary alluvium, incised by the Shoalhaven River such that the Tertiary alluvium is situated above the present day flood range of the Shoalhaven River. The Quaternary alluvium is situated within the broader valley of Tertiary alluvium. The existing and proposed expanded sand extraction area occurs largely within the Tertiary alluvium, above the flood level.

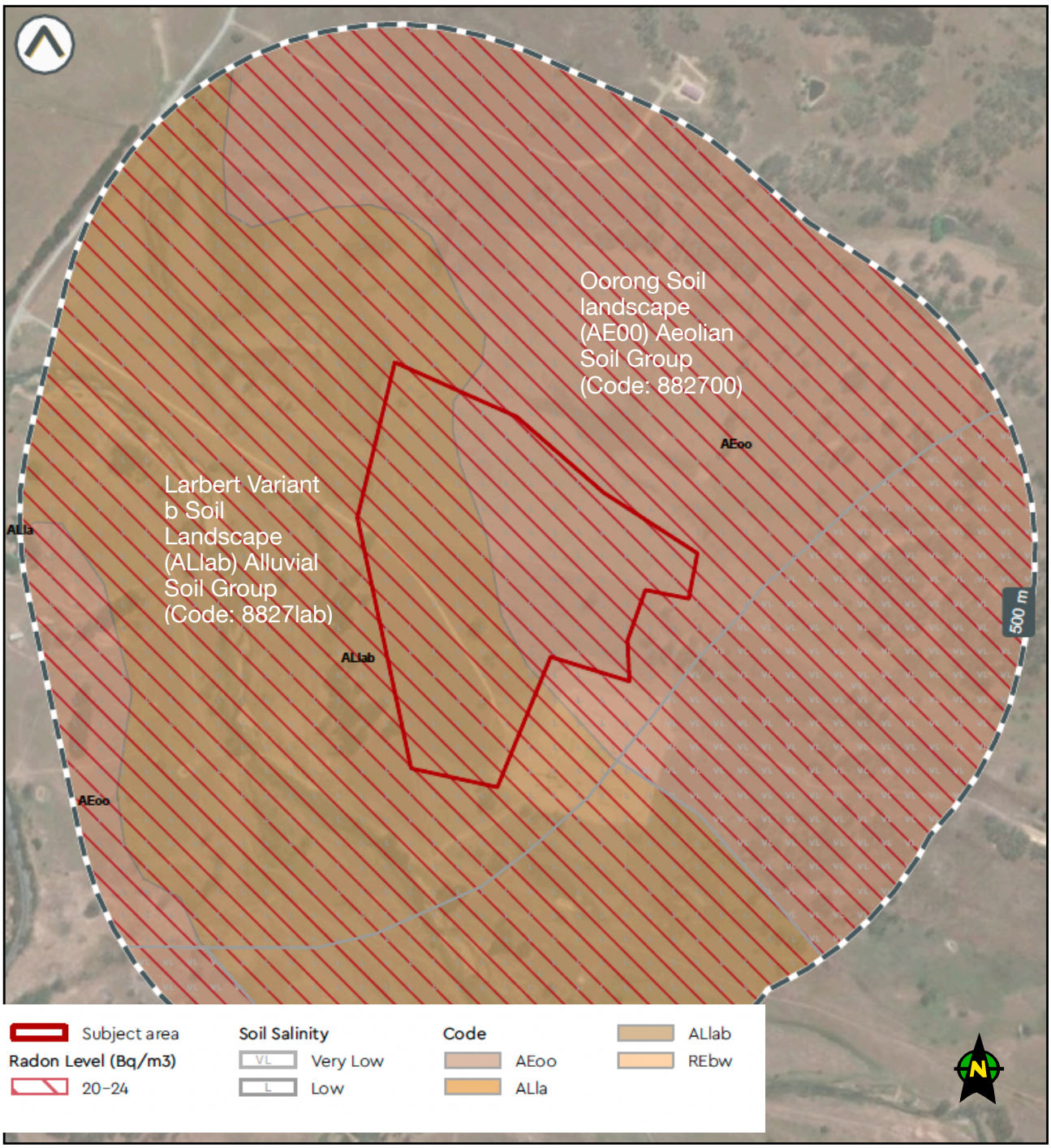


FIGURE 2.7: Soil landscapes and salinity

(Source: Land Insight- refer to Appendix K. NOTE: Diagram relies on an earlier , larger expanded sand quarry design footprint-since reduced)

- Measured groundwater levels are higher than water levels on the Shoalhaven River.
- Measured groundwater flows are from the sand deposits towards the Shoalhaven River.
- The extraction of sand by Canberra Sand and Gravel extends approximately 5m below the pre-excavation ground level (ie. down to RL 576m) into groundwater, however :"*the existing excavations remains above the elevation of water in the Shoalhaven River. The base of the existing and proposed excavations will remain above the Shoalhaven River level ensuring water cannot flow from the Shoalhaven River into the open excavations*." (p.13 of Ground Doctor report entitled *Groundwater Impact Assessment CSG Larbert Quarry* 2022). The same report noted that with a maximum depth of extraction of 576m AHD "*Therefore any drawdown within the proposed extraction areas cannot draw water from the Shoalhaven River*."(p.13 ibid) [NOTE: It is proposed that extraction at the Braidwood Sand and Gravel project will also extend down to as low as RL576-577m AHD]

- Water quality monitoring support the conclusion that there is a low risk of encountering any ASS.

The groundwater drilling program over the project site confirms the above. Ground Doctor Pty oversaw the drilling of four (4) monitoring wells on the periphery of the project site- refer **Figure 2.8**. Measured standing water (ie. groundwater) levels at the time of gauging are summarised in Table 2.1 below.

Refer to **Appendix G** and Section 7.10 for further details.

Table 2.1: Groundwater depths at 4 monitoring bore locations on periphery of project site

Bore ID	Ground surface level (m AHD)	Depth to water (m below ground level)	Approx. groundwater RL (m AHD)
MB01	*RL 586.5 m AHD*	*3.7*	*RL 582.8m AHD*
MB02	*RL 584*	*1.4*	*RL 582.6*
MB03	*RL 582*	*2.8*	*RL 579.2*
MB04	*RL 581.5*	*2.3*	*RL 579.2*

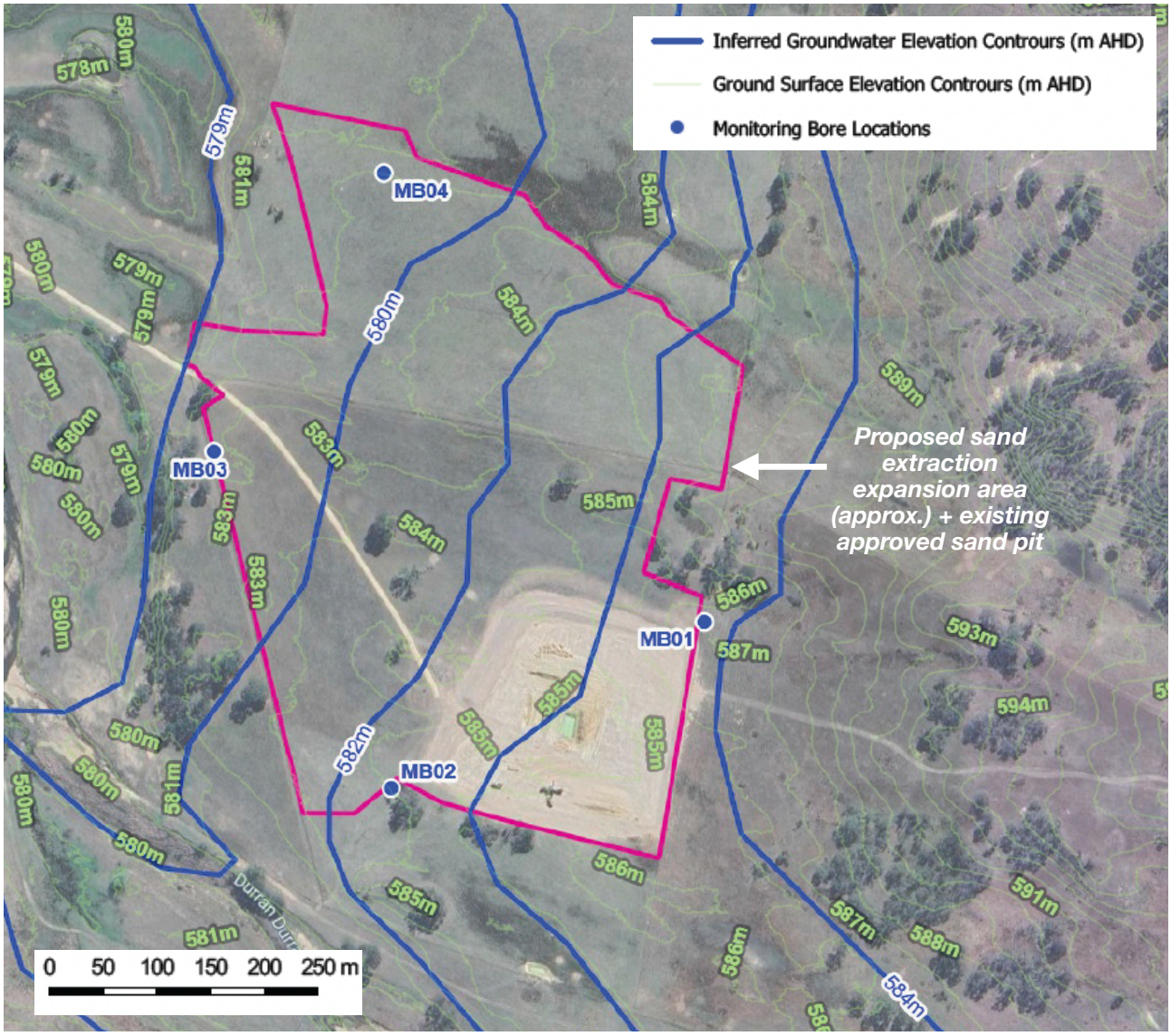


FIGURE 2.8: Groundwater monitoring bore and inferred groundwater levels

(Source: Ground Doctor (2025))

Ground Doctor Pty Ltd

The potential for any Groundwater Dependent Ecosystems (GDE's) in or proximate to the proposed Project footprint would be Low-nil, as confirmed by the Bureau of Meteorology (BoM) Groundwater Dependent Ecosystems Atlas, which identifies the location of potential Groundwater Dependent Ecosystems (GDE's) in the locality.

Within the locality, there are no High priority GDE's, with parts of the proposed quarry identified as being Low-Nil GDE's.

Refer **Figure 2.9** and **Appendix K** for details.

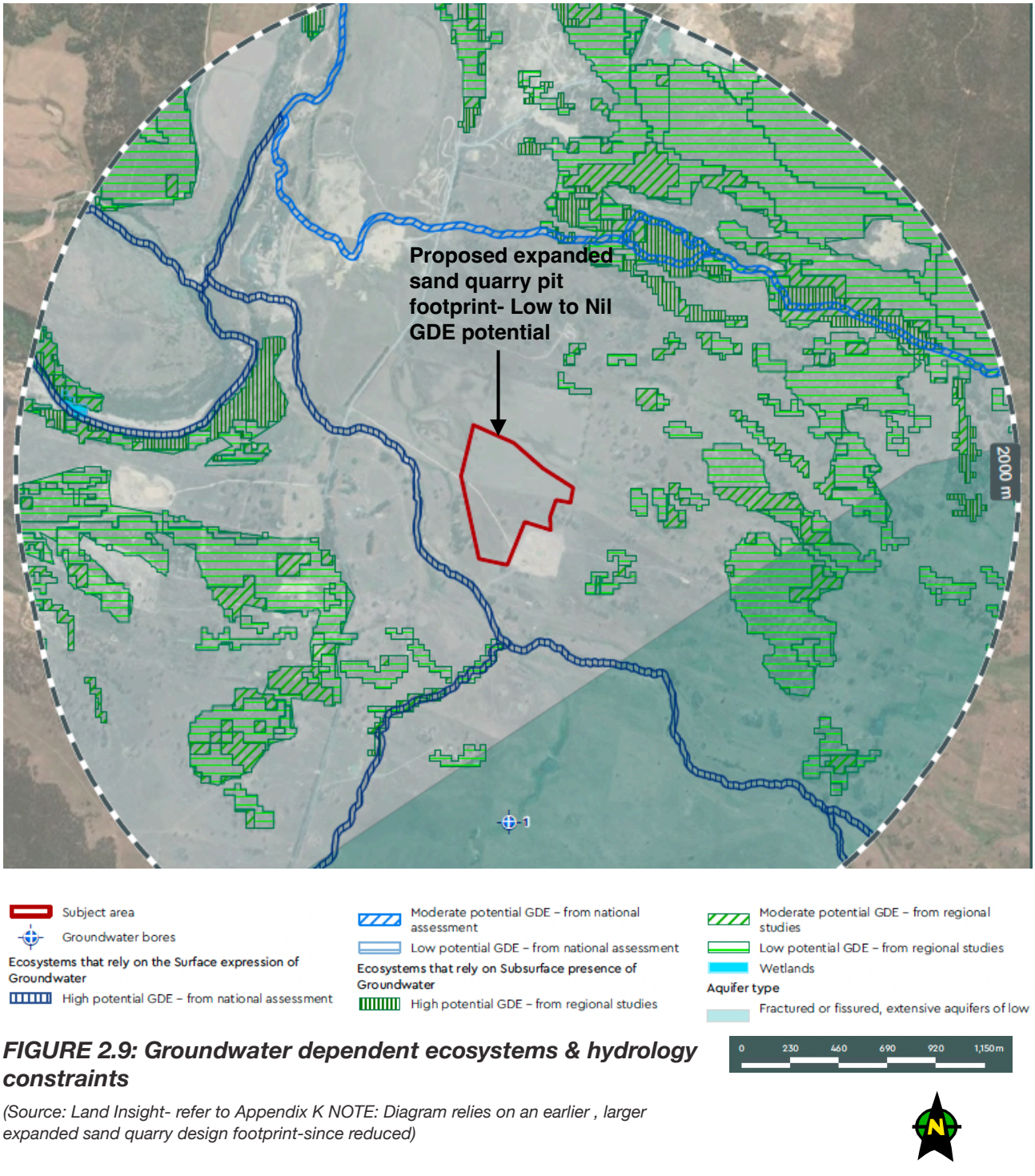


FIGURE 2.9: Groundwater dependent ecosystems & hydrology constraints

(Source: Land Insight- refer to Appendix K NOTE: Diagram relies on an earlier , larger expanded sand quarry design footprint-since reduced)

2.4.5 Bushfire Hazard

The document *Planning for Bush Fire Protection* 2019 defines bush fire prone area as:

> *"an area of land that can support bush fire or is likely to be subject to bush fire attack, as designated on a bushfire prone land map."*

The land proposed for the expansion of the existing approved sand quarry is cleared land, however, it is identified as Vegetation Category 3 medium bushfire risk bushfire prone land on Council's bushfire mapping- refer **Figure 2.10**.

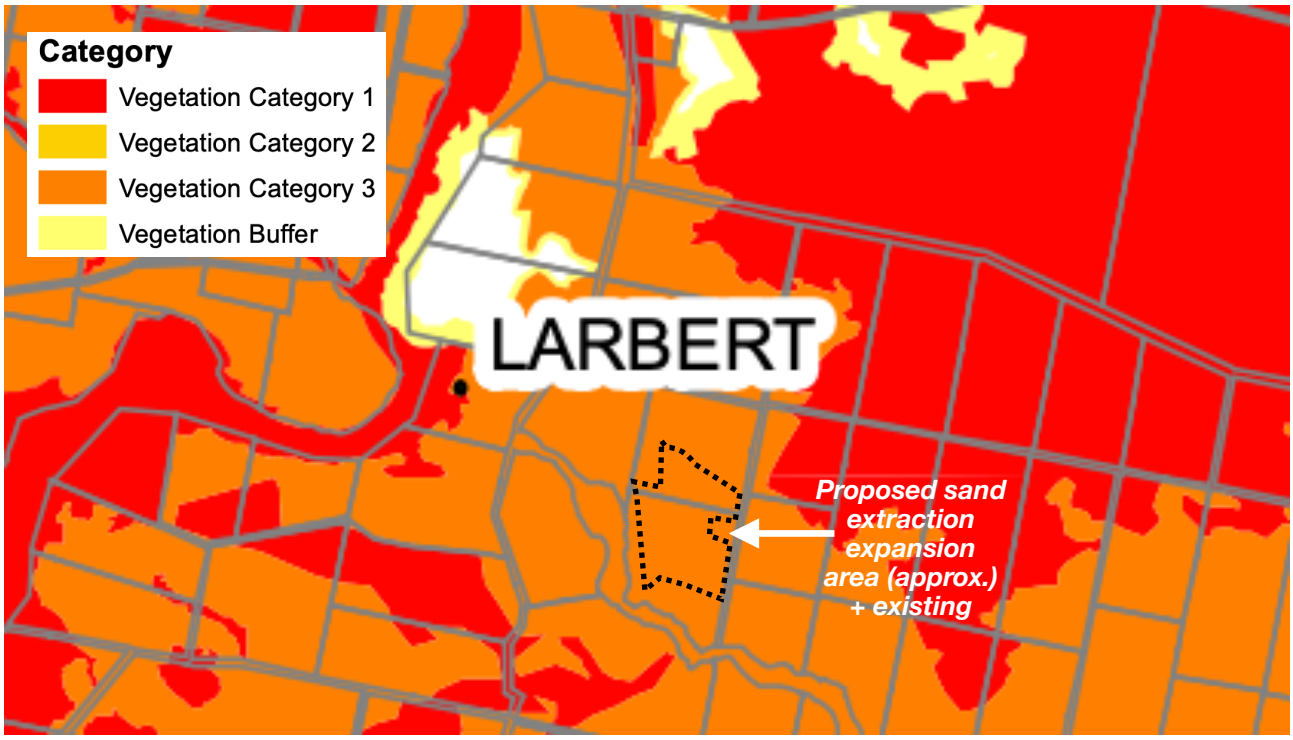


FIGURE 2.10: The proposed extraction area is cleared land- Category 3 bushfire prone land

(Source: Queanbeyan-Palerang Regional Council Bush Fire Prone Land Map)

The land surrounding the Project is generally flat alluvial plain with grassland. The Category 3 designation reflects this land use. Category 3 bushfire lands are considered to have a medium bushfire risk.

The Environmental Planning and Assessment Act 1997 (EP&A Act) and the Rural Fires Act 1997 (RF Act) provides the legal framework for development assessments on bushfire prone land in NSW. Under the RF Act clause 100B only development applications for subdivision, special fire protection purpose development or residential development require referral to the Rural Fire Service (RFS). The proposed development is an extractive industry and does not correspond to any of these categories. *Planning for Bush Fire Protection* does not require Asset Protection Zones for extractive industries, however, cleared, bunded areas are to be maintained around all active extractive areas and sand processing site, acting as de facto asset protection zones. In the interests of ensuring that bushfire threat is addressed as a matter of best practice management, bushfire mitigation measures have been proposed as part of the Project- refer Section 3.16 and Section 4 of this EIS.

2.4 6 Surface Water

The Project Site adjoins Durran Durra Creek, a 4th order watercourse, which then drains into the Shoalhaven River. The Shoalhaven River, located 1.0km away from the proposed expanded sand extraction area, is the primary source of drinking water for the Shoalhaven region, however, it also and is part of Sydney's Drinking Water Catchment, particularly when dam levels in other parts of the water catchment drop.

The Shoalhaven River catchment has a total catchment area of approximately 7,250 km^2.

Sydney's Drinking Water Catchment is administered by WaterNSW. It requires that all activities on lands within this catchment must achieve a Neutral or beneficial effect on water quality (NorBE) on water quality pursuant to the provisions of section 6.61of *State Environmental Planning Policy (Biodiversity and Conservation) 2021*. Section 6.63 also provides that development consent must not be granted to development on land in the Sydney Drinking Water Catchment unless the consent authority is satisfied the development is consistent with the NorBE Guideline. Neutral or Beneficial Effect on Water Quality Assessment Guideline (WaterNSW, 2022) indicates that a development is considered to have a NorBE on water quality if the development:

- Has no identifiable potential impact on water quality, or
- Will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or
- Will transfer any water quality impact outside the site where it is treated and disposed of to standards approved by the consent authority.

The existing and proposed sand extraction areas are reasonably set back from Durran Durra Creek. At its closest point the access track is located 30m to the Top of Bank (TOB) of Durran Durra Creek, while the approved sand quarry is located over 200m from TOB. At its closest point, the proposed expanded sand extraction area will be as close as approximately 110m to Durran Durra Creek. Detailed flood modelling undertaken Umwelt (October 2023) for a sand extraction project on the same landholding, adjoining the Project Site, found that a 1% AEP flood event would inundate land up to 2 metres below RL 580 metres AHD. Applied to the Project Site, this would mean that the internal access road would be inundated during such a flood event as far east as the western boundary of Lots 332 and 333, with no other parts of the Project Site being flood affected.

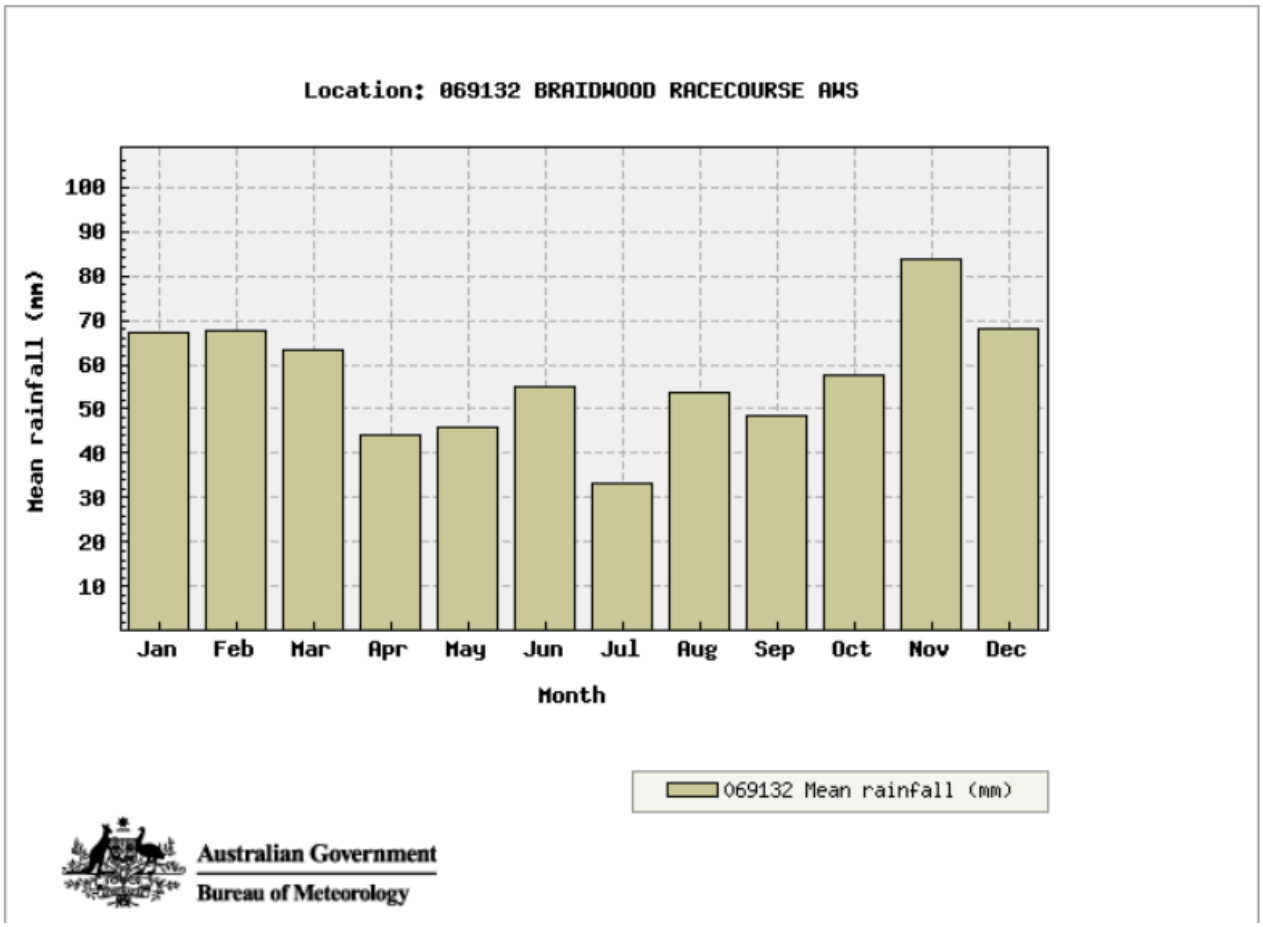


FIGURE 2.11: Average annual rainfall Braidwood Racecourse

(Source: Bureau of Meteorology online website July 2025)

2.4 7 Climate

Braidwood, NSW, experiences an oceanic climate characterized by mild to warm summers and cold winters with frequent morning frost. The town's location on the eastern slopes of the Great Dividing Range and its proximity to the coast contribute to cooler summers than inland areas at similar altitudes, along with a wetter climate due to easterly winds. Summers are generally partly cloudy, with warm days tempered by afternoon and evening breezes. Winters tend to be very cold and mostly clear, with frequent morning frost.

Climate and rainfall data have been obtained from the Bureau of Meteorology (BoM) Braidwood Racecourse Station (No. 069132), the closest weather stations to the Project Site. Average annual rainfall is 792 mm, with an average yearly pan evaporation rate of 689mm- refer to accompanying **Figure 2.11**. On average, 3.6 mm of evaporation is recorded each year, with evaporation spread fairly evenly throughout. Evaporation is typically highest between November to February (mean range: 5.0 mm to 6.0 mm) and less throughout the remainder of the year reaching its lowest during June and July (mean range:1.5 mm).

The wind roses reveal that: at 9.00am winds from the North and the North-West predominate; and at 3.00pm winds from the North-West and South- East predominate- refer **Figure 2.12**.

The Office of Environment & Heritage *South East and Tablelands Climate change snapshot* predicts that:

- Maximum temperatures are to increase by 0.6°C to 2.0°C in the near future (to 2039) and by 1.1°C to 3.3°C in the far future (2070). The number of days with a severe fire risk in the region is projected to increase in summer and spring in the future, with average fire weather predicted to increase in summer and spring.
- Rainfall is projected to decrease in spring and winter. rainfall is projected to increase in summer and autumn.
- Minimum temperatures are projected to increase in the near future by 0.4°C to 0.7°C , with minimum temperatures projected to increase in the far future by 1.4°C to 2.3°C .

2.4 8 Contamination Potential

Ballpark Environmental Pty Ltd was engaged to undertake a preliminary site investigation (PSI) for potential soil contamination associated with quarrying at this site- refer **Appendix K**. A search of NSW EPA list of sites notified under Section 60 of the Contaminated Land Management Act 1997 finds no contaminated sites within 5km of the project site. There is no information that the land has been subject to any notices concerning the need for remediation of the site. There is no information to indicate that the land has been subject to voluntary remediation by any prior landowner.

Based on the site history investigation and site walkover operations Ballpark Environmental Pty Ltd conclude that:

- Disturbance from sand and gravel extractive activities adjacent to the southeast of this site is visible in the 2023 aerial photograph. Prior to this date the historical aerial photographs from the period 1960 to 2020 show no quarrying use and this site has been used for grazing purposes..
- No buildings or structures were constructed on this site and therefore it is unlikely that waste building materials, including asbestos, are present on this site.
- A review of the initial Conceptual Site Model (CSM) prepared for this Preliminary Site Investigation found no areas of environmental concern have been identified on this site.

Ballpark Environmental Pty Ltd recommend that an unexpected fines protocol should be included as part of the quarry Environment Management Plan or as a stand-alone document if potentially contaminated material or buried unexpected finds, are encountered during future quarry earthworks on this site. Ballpark Environmental Pty Ltd find that the site has an acceptable low level of risk of contamination and is suitable for its proposed use as a sand extraction development. Furthermore Ballpark Environmental Pty Ltd find that:"The site is assessed to be suitable for its proposed industrial use, in accordance with Chapter 4 of the Resilience and Hazards SEPP (2021)."

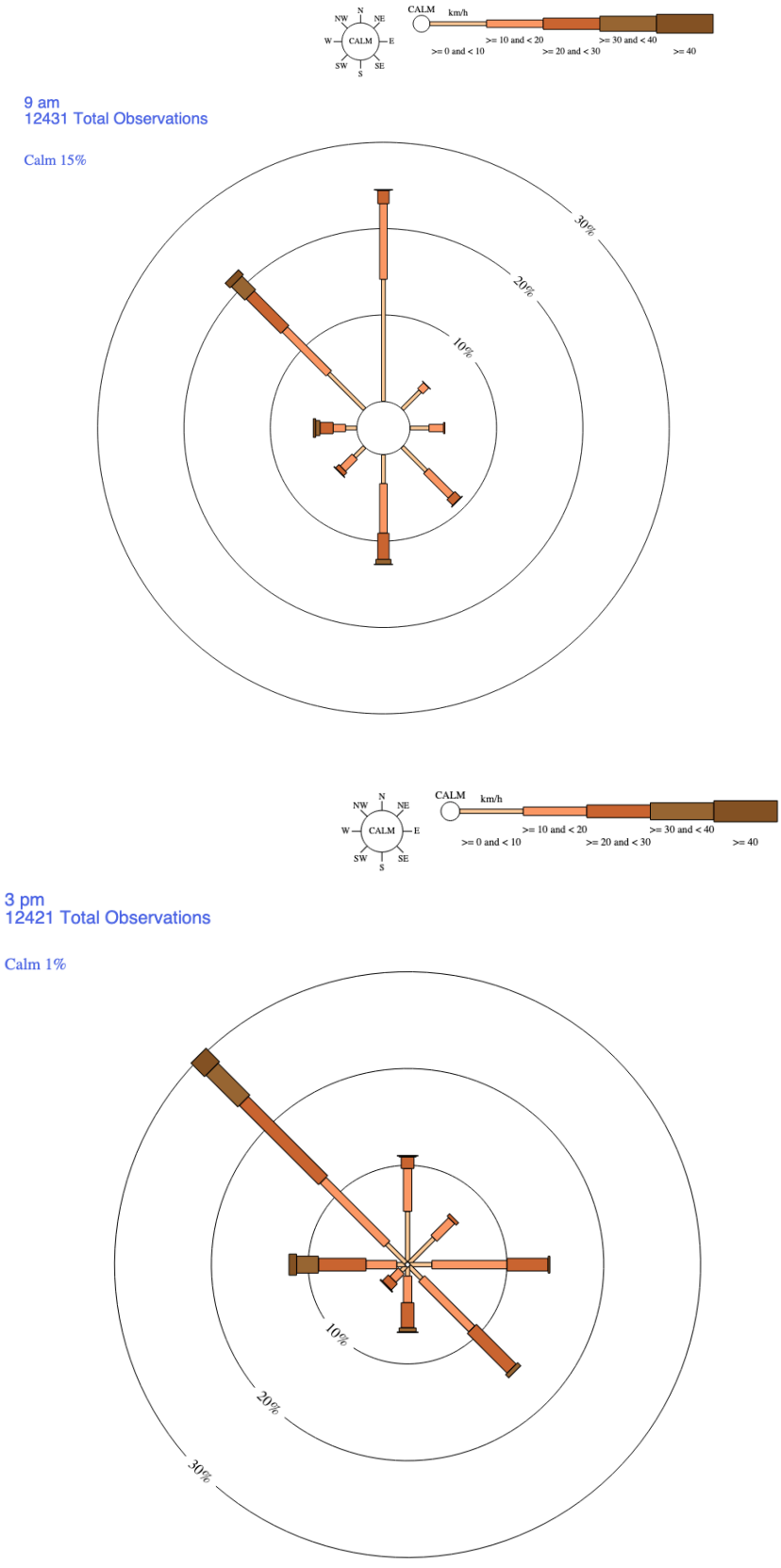


FIGURE 2.12: 9am & 3pm wind roses Braidwood

(Source: Bureau of Meteorology Braidwood Racecourse station)

2.4.8 Roads and Access

The Project Site is located at No.552 Larbert Road, at Larbert, located approximately 11km to the north of Braidwood and 6km north of the Kings Highway. The main haul route (road) will be Larbert Road, which heads south for approximately 6km before intersecting with the Kings Highway

Local Road Network

Larbert Road is a rural road with one lane of traffic each way which runs from a dead-end at the north to a channelised T-intersection with the Kings Highway in the south. Currently the traffic volumes on Larbert Road are very low. The 8km long road provides access to rural properties in the Larbert precinct, north of the Braidwood township.

The existing quarry access road is located approximately 6km from the Kings Highway. The southern section of Larbert Road is sealed (up to the quarry access) then unsealed to the end in the north. The sealed formation width of Larbert Road varies in width between 5.5 and 6.5m, with minimal crushed gravel shoulders on both sides. There is no posted speed limit on Larbert Road, although some curves include signage with recommended speeds.

It is understood that Larbert Rd is currently an approved haulage route, and currently caters for a number of quarries in the Larbert area. StreetWise's inspection and onsite traffic count noted a number of haulage vehicles (truck & dog trailers) on Larbert Road i.e. existing quarries in the Larbert area generate regular haulage movements on Larbert Road

The existing upgraded entry to the existing sand extraction operation from Larbert Road is able to accommodate an articulated truck turning left (to travel towards Kings Highway) and another truck entering the site- a requirement of the development consent for a sand quarry issued on 20 July 2023 (DA.2022.1181). It has been designed for articulated trucks as a two lane-lane and two-way road as per Austroads *Guide to Road Design Part 4a Unsignalised and Signalised Intersections* (2021). Refer Photograph 2.2.

PHOTOGRAPH 2.2: Entry to Braidwood Sand and Gravel sand operations from Larbert Road.

(Source: Photograph February2025)

Streetwise determine that Larbert Road, with a peak hour traffic volume of less than 50 vehicles, with an unposted speed limit of 89km/hour and around 10% heavy vehicle content currently has a Level of Service of 'B', adequate to accommodate peak hour (two-way) heavy traffic of up to 360 vehicles in a peak hour.

Kings Highway

Kings Highway is is a major east-west road connecting Canberra and the Australian Capital Territory (ACT) with Batemans Bay on the NSW south coast. It's length is approximately 137 km and passes through several towns including Queanbeyan, Bungendore, Braidwood, and Nelligen before reaching Batemans Bay.

In the vicinity of the proposed quarry the travel lanes are generally 3.5m wide in each direction with 1.0m wide sealed shoulders. The roadway is delineated with centre-lines, edge-lines, reflectors and guideposts. Much of the line marking also is enhanced by raised tactile markers. The posted speed limit in the vicinity of Larbert Road is 100km/h. The Kings Highway is an approved B Double route for heavy vehicles up to a length of 26.0m long. Refer Photograph 2.3.

The nearby intersection of Kings Highway with Larbert Road the intersection between Kings Highway and Larbert Road complies with geometric requirements and safe intersection sight distance (SISD) as outlined on Austroads *Guide to Road Design Part 4A*. it performs well with sufficient spare capacity to accommodate additional traffic.

Austroads *Guide to Traffic Management* includes a table for determining Level of Service for highways, based on travel speeds and volumes per lane. Streetwise determine that the 100kmh Kings Highway, with a maximum volume of 231vehicles per hour (VPH) in one direction, currently has a Level of Service of 'A'.

PHOTOGRAPH 2.3: Entry to Larbert Road (left hand side of photo) from Kings Highway.

(Source: Photograph February2025)

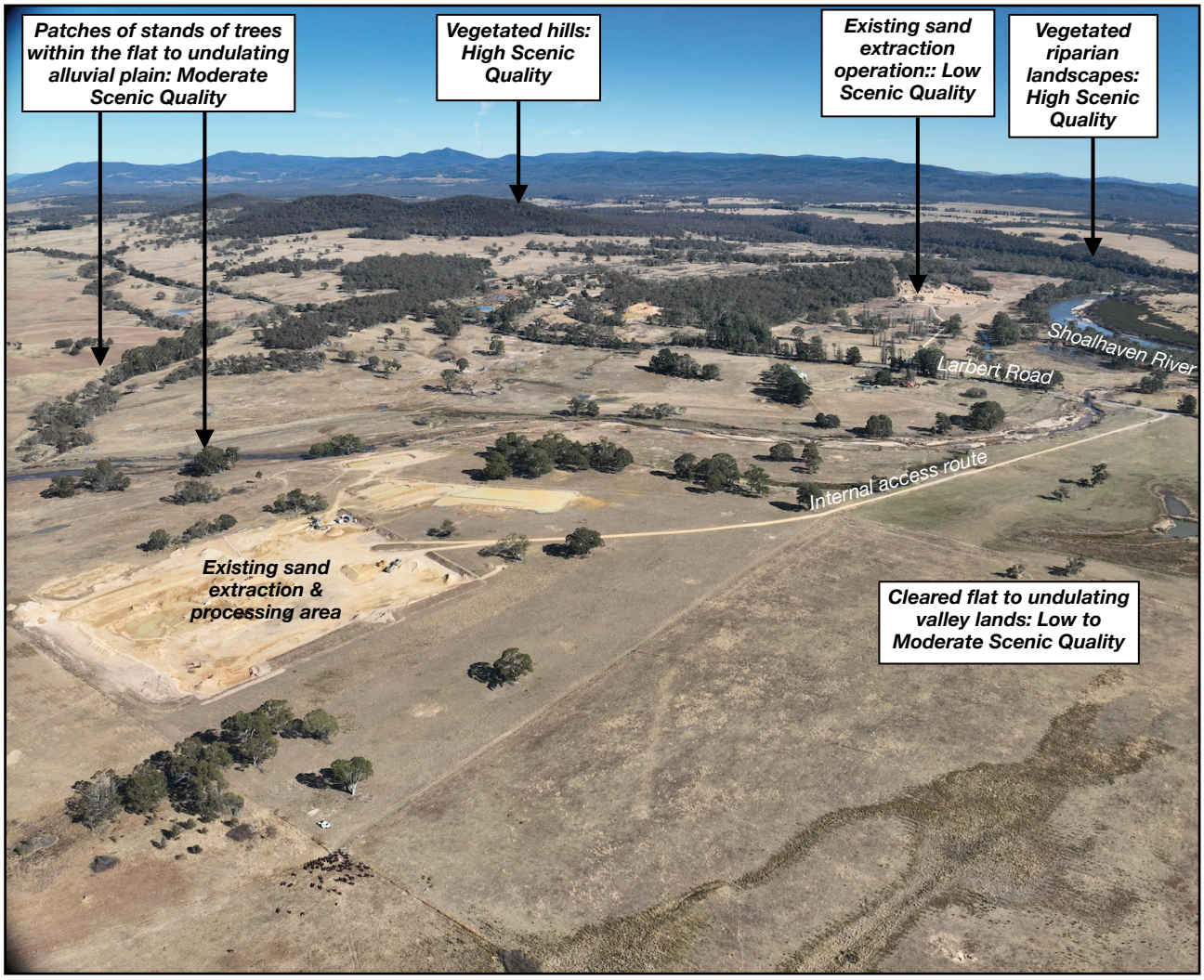
2.4.9 Visual and Landscape

The landscape character and visual significance of land needs to be considered in the context of a range of factors, including landscape features, visual prominence and context in the overall landscape. The general visual character of land is established through an assessment of its topographic characteristics, land use and settlement pattern, ability to be viewed by others and vegetation cover. In general, the Project Site occurs within an area of flat to gently undulating valley flats, with the existing approved sand extraction operation located on undulating aeolian sand deposits that overlie granite terrain. Landscapes found within the near vicinity of the proposed Project predominantly comprises:

- Numerous sand extraction pits located in a generally cleared valley in the immediate vicinity of the Project Site. The existing Braidwood Sand and Gravel sand extraction operations forms a part of this landscape, considered to have Low Scenic Quality.

- Cleared, modified pastures used for agricultural production activities, including cropping and grazing, found on the flat to undulating alluvial plain. Considered to have Low-Moderate Scenic Quality.
- Patches of stands of trees within the flat to undulating alluvial plain, visible in patches along Durran Durra Creek and to the east and north of the Project area. Considered to have Moderate Scenic Quality.
- Further removed from the Project Site, riparian vegetation along the Shoalhaven River to the west and with a woodland hill to the southwest— considered to have a High Scenic Quality.

The existing Braidwood Sand and Gravel sand extraction operation are on relatively flat terrain not clearly visible from the Larbert Road entry, located approximately 900 metres away, or from surrounding residences not associated with the Project. The proposed expanded sand extraction operation is proposed to be set back a minimum of approximately 560 metres away from and to the east of Larbert Road, and will be similarly not visible from Larbert Road or surrounding residences not associated with the Project. The existing topography of the Larbert locality, together with areas of vegetation, will generally obscure views of the Project from public viewpoints, including Larbert Road.



PHOTOGRAPH 2.3: Visual context. Project Site and surrounds viewed from the north-west

(Source: Premise July 2025 drone photography)

2.4.10 Biodiversity

The biodiversity values of the land were assessed by ecologists Macrozamia Environmental Consulting. The land has been cleared and used for agriculture including cropping and grazing, existing tracks, fences, and farm dams occur. Some scattered native trees occur on the property.

The project site occurs in the upper part of a gently sloping, sparsely habited rural landscape. Most of the landscape is cleared agricultural grassland however scattered woody native vegetation occurs in the landscape as well as Durran Durra Creek however riparian habitats are sparse.

The majority of the land proposed for the expanded sand quarry is devoid of native vegetation including the managed exotic grassland and areas of the existing sand extraction operation. No PCTs of adequate size were found appropriate for the BAM survey, native vegetation is restricted to isolated trees and narrow disjunct strips of grassland.

Remnant trees close to the project area are Ribbon Gum (*Eucalyptus viminalis*). One plant community type of one condition state was identified for the site, 3348 Southern Tableland Granites Ribbon Gum Grassy Forest which occurs in a moderate poor, mostly as isolated paddock trees. Exotic managed grassland occurs across the majority of the subject land. No native vegetation occurs in the development area.. Vegetation across the development area is exotic grassland dominated by *Phalaris aquatica* that is routinely grazed, sown and tilled.

No threatened fauna, flora or ecological communities were found on the project area. No species were found likely to occur on the subject land that are listed as at risk of a Serious and Irreversible Impact. It is unlikely habitats present in the development area could support threatened fauna, particularly given the ongoing agricultural management of the site.

No areas of outstanding biodiversity value, as identified under the BC Act occur within the subject land, assessment area or nearby.

No flora species were recorded or considered likely to occur that are listed matters under the BC Act or the EPBC Act.

Whilst part of the land is mapped by QPRC LEP mapping as having Terrestrial Biodiversity, the Project is located on land that has been lawfully cleared and used for agriculture (grazing).

2.4.11 Heritage

In terms of Aboriginal heritage, Past Traces was engaged by Outline Planning Consultants Pty Ltd on behalf of Braidwood Sand and Gravel, to assess the area proposed for the expanded sand extraction operation. Refer **Appendix J**. The field survey was undertaken by Lyn O'Brien, with the assistance of various Registered Aboriginal Parties (RAP) representatives including:

- Batemans Bay Local Aboriginal Land Council.
- Didge Ngunawal Aboriginal Corporation.
- Guntawang.
- Adrian Brown.
- Kamilaroi-Yankuntjatjara Working Group.
- Gamila Roi.
- Lyndsay Urquhart.
- Sonione Rogers.

Field survey was conducted on 12 September 2025 with the field assistance of the Batemans Bay LALC. Onsite discussions as to significance, potential and known site patterning were discussed on site. A total of five Aboriginal heritage sites and one area of Potential Archaeological Deposit (PAD) were identified during the field survey comprising the following [NOTE: A PAD is an area where sub-surface stone artefacts and/or other cultural materials are likely to occur]:

- [redacted] comprised of a single isolated silcrete flake [redacted]
- [redacted] comprised of two silcrete artefacts [redacted]

- [redacted] comprised of an artefact scatter of 14 artefacts [redacted] While the presence of artefacts [redacted] indicate potential for subsurface cultural material, the likelihood of intact deposits is considered low due [redacted].
- [redacted] is comprised of an artefact scatter of eight artefacts [redacted] While the likelihood of intact deposits is considered reduced [redacted], the area is still considered to hold moderate potential for subsurface deposits. [redacted].
- [redacted] is comprised of a freshwater shell midden located [redacted]
- [redacted] encompasses an area [redacted] -no artefacts were recorded .

Refer to **Figure 2.13** showing the location of these sites and the PAD.

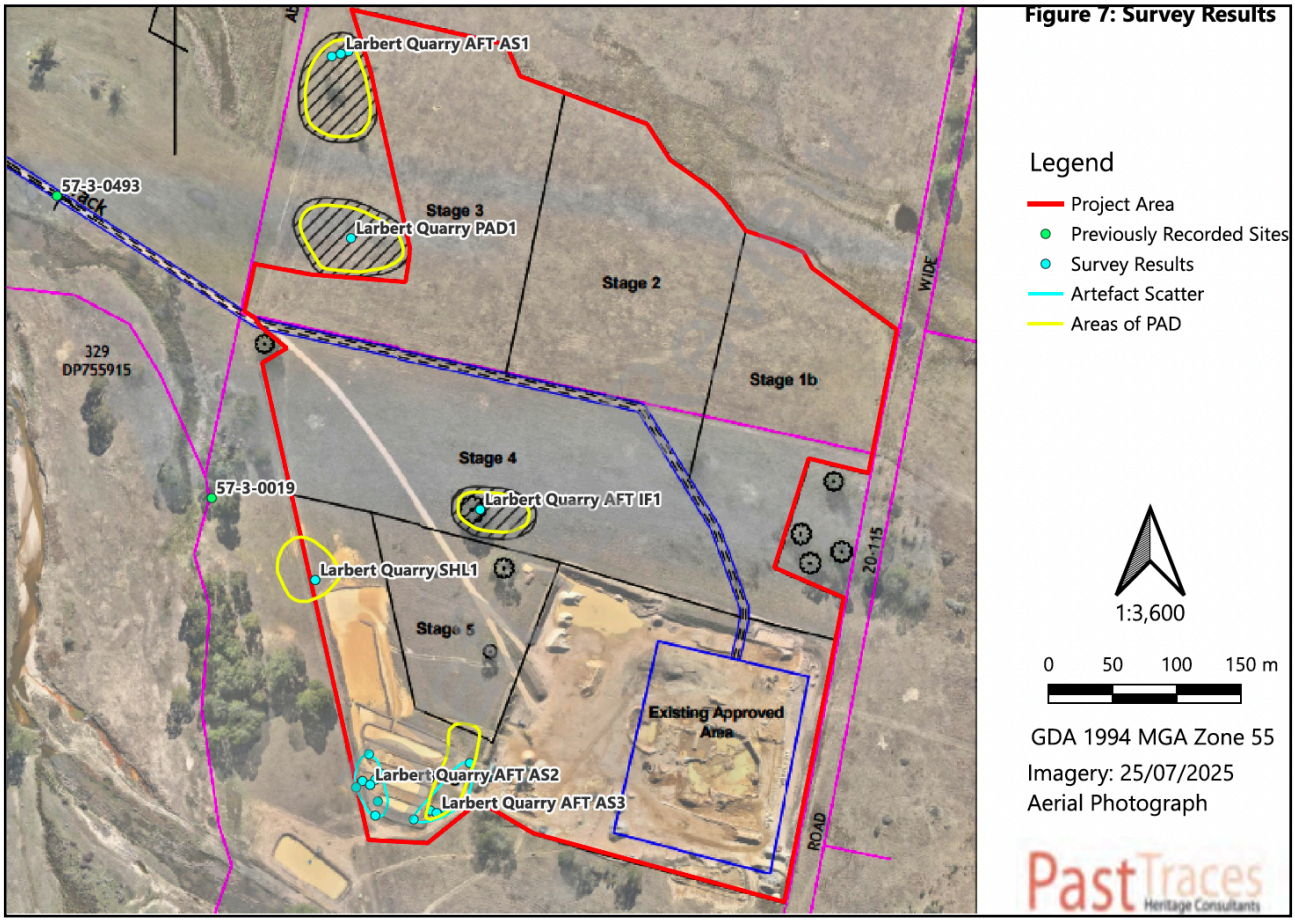


FIGURE 2.13: Archaeological sites. Sand extraction avoids any identified Aboriginal site

(Source: Past Traces September 2025 site survey)

It is proposed that none of these sites will be disturbed by sand extraction activities associated with the Project- the extraction area avoiding any identified Aboriginal site. As a result, no Aboriginal heritage Impact Permit (AHIP) under Section 90 of the NSW *National Parks and Wildlife Act 1974* is required.

2.5 Site Selection Criteria

In summary, and having regard for the site selection criteria in the Department's *EIS Guideline –Extractive Industries – Quarries* the site of the proposed expanded sand extraction area has been chosen because of the known geology and extractive material found here, lack of significant constraints, as well as its proximity to construction projects in the region. However, environmental factors have also been considered when choosing this site including:

- The site of the proposed expanded sand extraction area is adjacent to an existing approved sand extraction and processing operation.
- The ecological assessment shows that the land proposed for the expanded sand quarry is relatively low-quality vegetation that is likely the result of historical clearing, with sand extraction avoiding isolated pockets of trees or areas of higher biodiversity values.
- It is not within a conservation area or identified in the LEP as being flood prone or having any visual sensitivity.
- No sand extraction is proposed within any area known to contain sites of archaeological value.
- It is not affected by any road widening or road realignment proposals.
- It lies within a drinking water catchment and concurrence required from Water NSW in accordance with Clause 6.64 of *State Environmental Planning Policy (Biodiversity and Conservation) 2021.* It complies with the provisions of section 6.62 of this SEPP as it will have a neutral or beneficial effect on water quality.
- It is not affected by any policy relating to landslip hazard or is affected by mine subsidence.
- It has no acid sulphate soils potential.
- It is not registered as significantly contaminated land.
- It has very limited agricultural productive potential. The project site is not mapped as Biophysical Strategic Agricultural Land (BSAL).

2.6 Cumulative Impacts

Cumulative impacts arising from the the Project are addressed in the relevant impact assessments provided in Section 7 of this EIS document and in the technical reports contained in the appendices. In summary, the cumulative impacts arising from the Project is considered to be acceptable having regard for key environmental factors identified in the preceding sub section 2.4. These environmental factors includes soil and water management, noise and blasting, traffic, biodiversity, archaeology, air quality, and visual impact. It is noted that the Project Site is already cleared, and as a result, cumulative ecological impacts are anticipated to be acceptable.

2.7 Agreements

No voluntary planning agreement has been entered into with the local council regarding the future use of the Project Site associated with the proposed expanded sand extraction project.

2.8 Alternatives to the Project

There are a number of alternative ways of developing the sand quarry resource on the Project Site, however, the current proposal is considered to be the most efficient and environmentally acceptable. Section 192(1)(c) of the *Environmental Planning and Assessment Regulation 2021* requires that an analysis is undertaken of any feasible alternatives to carrying out the proposed development, including the consequences of not carrying out the development. A further consideration of alternatives to the Project is provided below. The key, feasible alternatives to the Project considered were as follows:

- To proceed with the original design, without regard for environmental or heritage constraints.
- To not proceed with the Project.
- To rely on other sand quarry projects to service longer term needs for the supply of various sand products to service the construction industry generally and allied projects in the region.

2.8.1 Proceed with Original Design

The final design of the sand quarry Project has been prepared having regard for environmental and heritage constraints not addressed in the earlier concept design. Following more detailed investigations by specialist archeological and ecological consultants sand extraction now avoids these environmental and heritage constraints. Refer **Figure 2.14**.

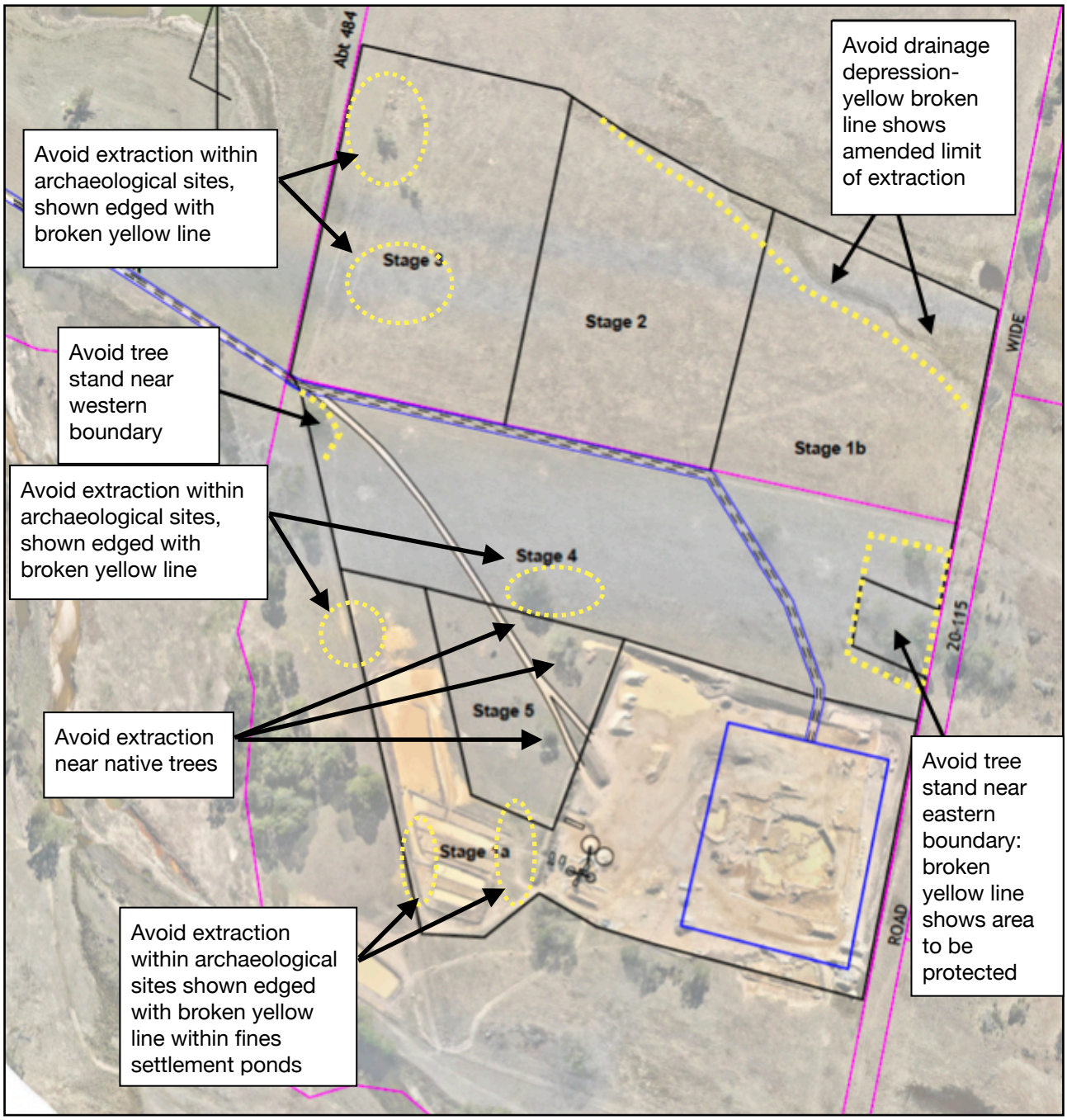


FIGURE 2.14: Original concept sand extraction Larbert NSW, with subsequent identification of areas where sand extraction is to be avoided following detailed site investigations

2.8.2 Consequences of Not Proceeding with the Project

The 'do nothing' option will mean that the proposed expanded sand extraction operation will not have the opportunity to supply essential construction materials to the region and to meet the product demand/needs of current and projected development and population growth as identified in QPRC's *Towards 2040 Local Strategic Planning Statement*.

If demand for sand is not able to be met using the resources within the project site, other sand quarries- or even a new sand quarry-may be required within the region to meet future market demands for this quarry product.

However, the current site has many strategic benefits which will reduce direct environmental impacts, not the least of which is its close proximity to Queanbeyan, Canberra and projected new urban development projects.

If the Braidwood Sand and Gravel Project was not to proceed, the life of the existing approved sand extraction operation would end in less than 5 years. In addition, the following consequences are likely to occur:

- The existing Braidwood Sand and Gravel operations would continue to operate as currently approved until about 2028.
- The additional potential social and environmental impacts of the project would not occur. For instance, there would be no continuation of employment for the existing Braidwood Sand and Gravel workforce, thereby forgoing job security for local employees and contractors
- Inability of development and infrastructure projects in the region to be provided with a significant, proximate source of much-needed sand quarry material. The extraction of this valuable sand resource would assist in providing additional sand to a region enjoying sound rates of population growth and economic growth. The 2023 Infrastructure Australia *Infrastructure Market Capacity Report* highlights acute quarry shortages in several regions, including potential supply issues for Canberra. This is due to factors like increased demand, long lead times for quarry approval, and the difficulty in sourcing alternatives when needed. The report also notes that projects carry the risk of higher transportation costs and schedule delays if forced to source quarry materials from further afield.
- The identified sand resource would remain undeveloped and potentially sterilised.
- The incremental net benefits of the proposed new Braidwood Sand and Gravel Project would be foregone.
- Given the availability of the sand resource on the Project Site, and the fact that a sand extraction operation is already established on the site, an extension of the sand quarry was considered to be the most feasible option.

2.8.3Alternative Sand Extraction Sites

The following sand extraction sites have been considered -refer **Figure 2.15**:

- Canberra Sand and Gravel (CSG) has recently obtained consent, on 3 April 2025, to extract an additional sand resource near Braidwood Sand and Gravel's Larbert operations, on the same land holding owned by the same Landowner, the approved sand extraction area located approximately 1.1km away from the proposed expanded sand extraction area. The consent allows extraction of up to 200,000 tonnes of sand per annum from CSG's leasehold.
- Canberra Sand and Gravel also operate a sand quarry at Bungendore, at No.s 587-589 Tarago Road, Lake George, in the name of Tobiway Crushing Pty Ltd. Development consent was granted in April 2020 for an extension to an existing sand pit allowing extraction of sand and limited volumes of overburden and inter-burden (clay and silt) over a 77ha proposed extraction area, producing up to 400,000 tonnes of sand products per year for a period of 20 years (DA2020.1146). Surrounded in part by land zoned for conservation purposes.
- Holcim's existing sand quarry at Bungendore (Leonie Quarry, Monier Quarry) is being depleted at such a rate that the company now supplies only its own concrete plants.
- Tegra Australia operates an older, established sand and gravel operation at No. 7275 Kings Highway, 12km west of Braidwood: Warri Quarry. Tegra also operates a concrete plant at Braidwood, supplied with sand from it's Braidwood operations. The sand extraction operation has been established for some years and, more than likely, has limited potential to grow any further.
- Sand extraction was approved by the then Tallaganda Shire Council on 23 March 1994 (DA28/99-83) over an extensive area of land owned by [redacted] comprising Portions (now Lots) 334, 335, 336, 337, 339 and 340, and part of Portion 119, covering an area of approximately 210ha located to the north of the Braidwood Sand and Gravel sand pit. Consent was activated and sand extraction subsequently undertaken over parts of the above Portions (now lots) nearest the Shoalhaven River. There is no reference in consent DA28/99-83 to any limit on the annual rate of extraction of sand from this large land holding, or size of the resource.

- The winning of sandstone, sand and gravel was approved in 1990 (DA50/89) involving five (5) separate pits on land owned by [redacted] on Portions (now Lots) 119 and 120. Currently being worked by GC Schmidt Pty Ltd. This approval allowed the crushing of sandstone at Site 1, with extraction of up to 100,000 cubic metres per annum, the winning of sand by front-end loader from Sites 2, 3, 4 and 5. Site 2 is permitted to extract up to 37,000 cubic metres of sand per annum. Sites 3,4, and 5 have a total resource of 16,500 cubic metres. No screening or washing of sand was approved on either Sites 1-5 or, for that matter, at any off-site location.

In addition, it is relevant to note that further development or new sand extraction operations at Bungendore may be impacted by an expanding urban population and the potential for land use conflicts, for example, with heavy truck traffic travelling through housing areas. The existing sand extraction operations of Holcim and CSG are located in close proximity to the township of Bungendore, located approximately 2km away to the south, and from existing rural residential housing, located approximately 1km (or less) away. Between 2006 and 2019 the population of Bungendore increased from 2,739 to 4,355 persons, with QPRC projections in the *Towards 2040 Local Strategic Planning Statement* forecasting a further 5,066 persons by the year 2036, with most new housing areas planned to the north of the existing built up area of the township, closer to the existing sand extraction operations described above.

In contrast, the locality of Larbert is a small sparsely populated rural community with no new urban or rural residential housing areas earmarked by Council.

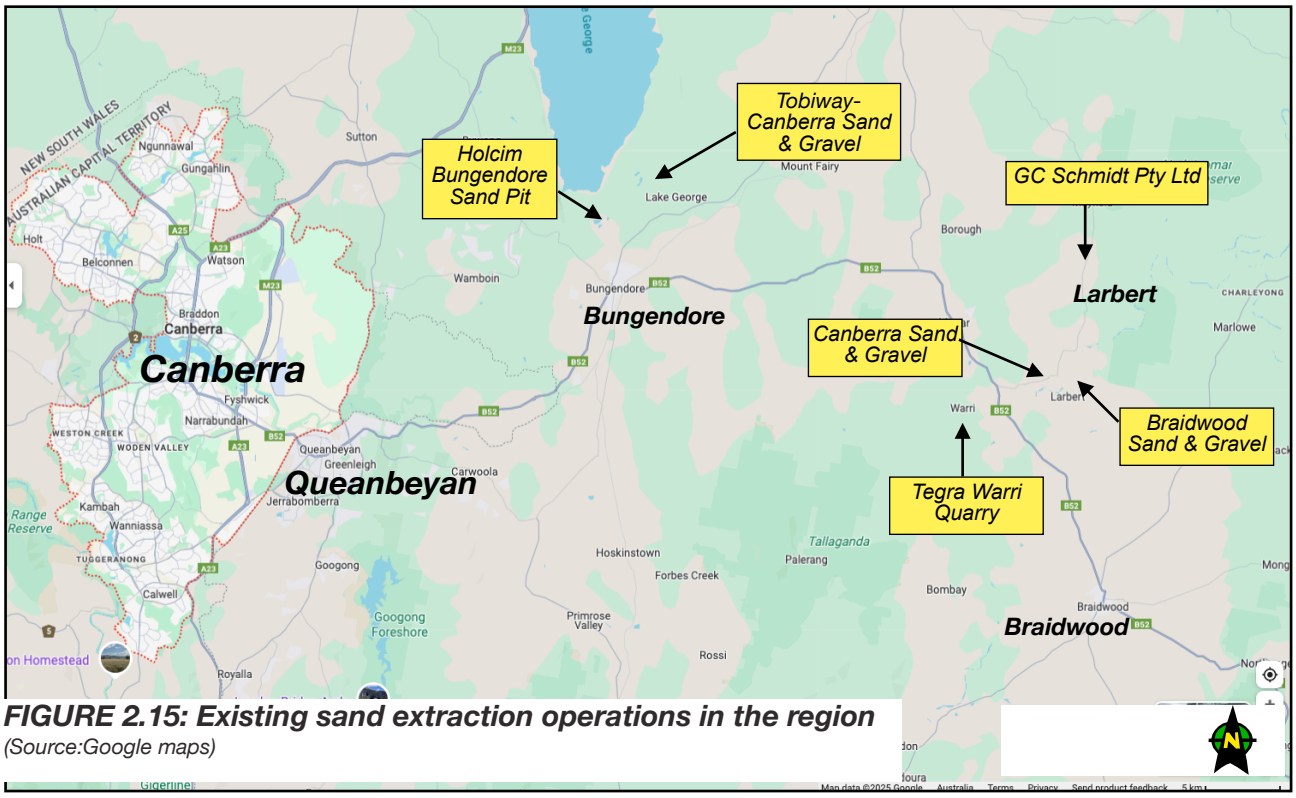


FIGURE 2.15: Existing sand extraction operations in the region
(Source:Google maps)

3.Project Description

3.1 Introduction

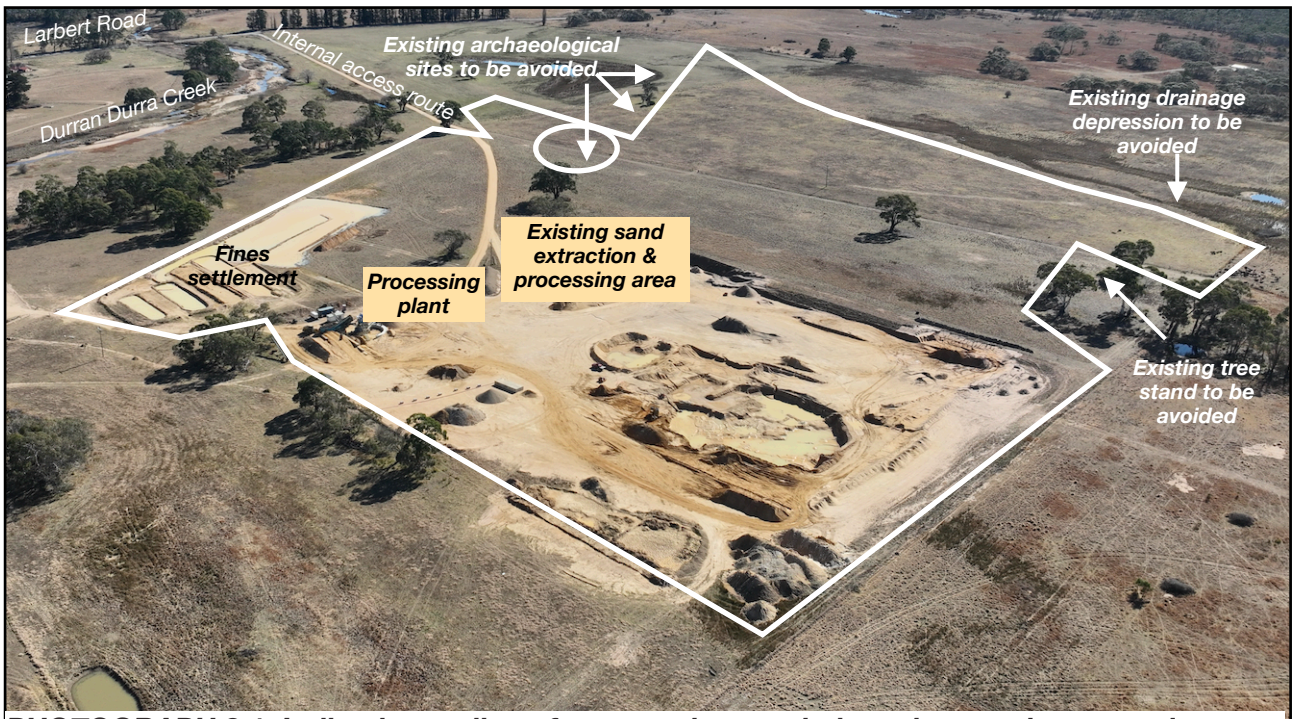
This section of the EIS provides a comprehensive and consolidated description of the expanded Braidwood Sand and Gravel Project for which development consent is being sought. If approved, the applicant will be required to carry out the Project in accordance with the project description in the EIS, the mitigation measures and the conditions of consent. Consequently, the project description, the mitigation measures and the conditions of consent for the project will become the primary reference point for checking compliance if the project proceeds. It is important to note that due to inevitable variations in market demand over time and changes in technologies, there will be commensurate variations in the rates of extraction/production, truck traffic, or sequencing of the sand quarry operation in any one year. These are changes that can be absorbed by any consent, without the need for amendments or modifications to the development consent if the quarry project is approved. Refer Section 3.4.5 for further details.

3.2 Project Overview

An overview of the key proposed Project components is summarised in the accompanying Table 3.1.

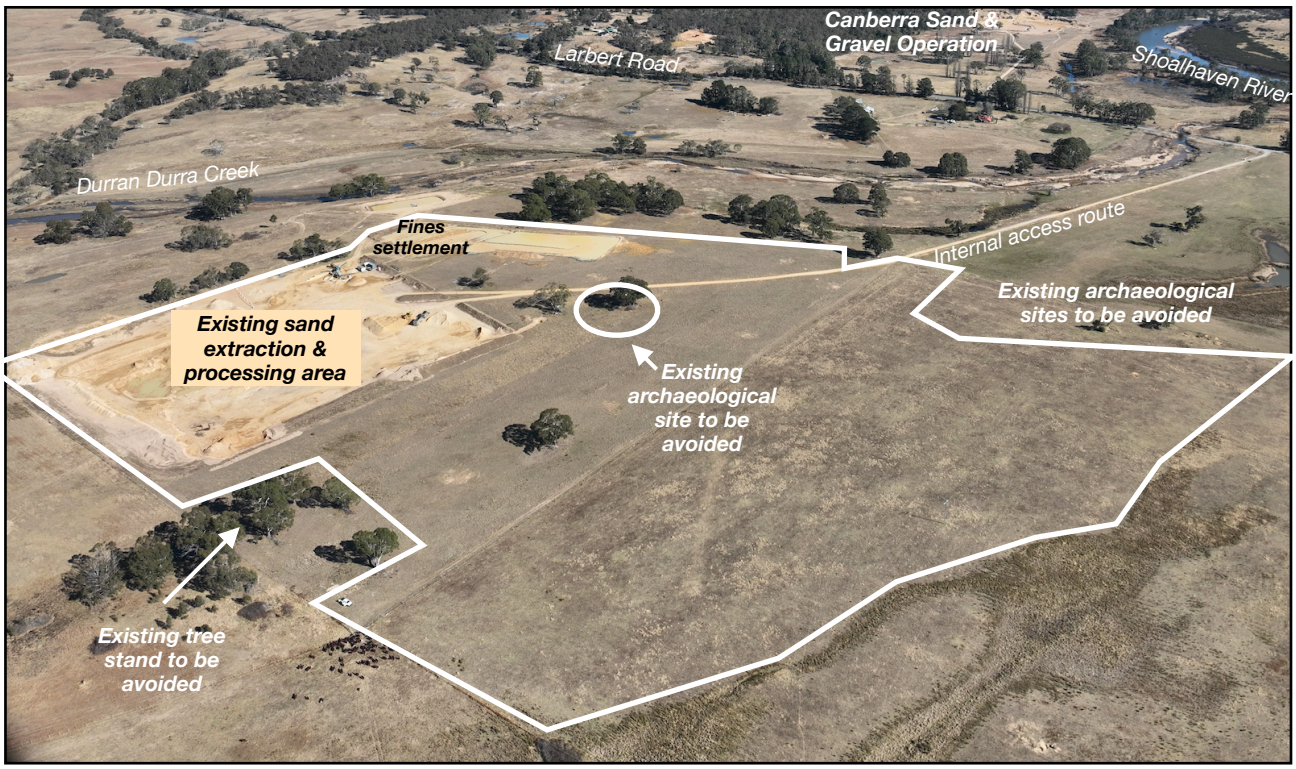
Table 3.1: Key quarry project components- Braidwood Sand and Gravel Project

Quarry component	*Summary description*
Extraction method	*Staged extraction of sand from within propsed expanded and extraction area. Excavator used to remove topsoil, with extraction of sand resource down to 576m AHD.*
Annual extraction rate	*Up to 200,000 tonnes per annum (currently 25,000 tonnes per annum) over six (6) stages.*
Total recoverable resource and project life	*Estimated resource 1.23 million tonnes. Estimated life of sand quarry is 6 years at full production from commencement- most likely 10-12 years (ie. up to 2039), depending on market demand and allowing for exhausting of sand within existing sand extraction operation + 2 year maintenance period following rehabilitation (ie.up to 2041).*
Processing of sand resource	*Processing operations undertaken in a similar manner to existing sand operations, namely, raw material won from each staged pit, stockpiled and blended, loaded into hopper, with wet screening/processing to meet demand for washed/screened sand products. Wastewater from the washing and screening process will continue to be directed to silt cells to allow the silt to settle and the water is reused on-site.*
Quarry resource	*Sand suitable for concrete production and allied construction uses in the region.*
Disturbance, rehabilitation	*Total new expanded quarry of 18.1ha, in addition to current sand pit 1.92ha. Includes existing fines settlement ponds, processing area and stockpiles-refer **Photographs 3.1** & **3.2** & **Figure 3.1** Sand extraction avoids significant trees and archaeological sites and a suitable buffer provided. Once each stage of sand extraction is completed the decommissioned area will be rehabilitated and shaped to stable, post-extraction landforms, using clean ENM and VENM fill when available.*
Transport	*Reliance on existing internal access to the sand quarry from Larbert Road. A mix of truck and dog combinations, generating an average of 20 loaded quarry trucks per day, with a maximum of up to 50 loaded quarry trucks per day.*
Waste management	*Minimal waste materials are anticipated to be generated.*
Infrastructure	*Reliance on existing plant and equipment, toilet, storage and fuel storage, with additional infrastructure proposed.*
Hours of operation	*Limited to 6.00am to 6.00pm Monday to Friday (currently 7.00am to 5.00pm) and 7.00am to 2.00pm on any Saturday (currently 8.00am to 1.00pm). No licensed activities to be conducted on Sundays or public holidays.*
Workforce	*Up to 3-4 employees working on site + contractors (eg. machinery servicing contractors, refuelers).*
Key environmental issues	*Impacts relating to groundwater, noise, rehabilitation and traffic.*



PHOTOGRAPH 3.1: Indicative outline of proposed expanded sand extraction operation, as viewed from the south-east looking towards the north-west. Existing Braidwood Sand and Gravel sand operations in foreground. (Approx. extraction boundary only)

(Base Source:survey by Premise July 2025)



PHOTOGRAPH 3.2: Indicative outline of proposed expanded sand extraction operation, as viewed from the north-west looking towards the south-west. Existing Braidwood Sand and Gravel sand operations in left hand side of photograph.(Approx. extraction boundary only)

(Base Source:survey by Premise July 2025)

▪ 3.3 Project Justification

The proposed expanded sand extraction extraction area and operation would allow Braidwood Sand and Gravel to maintain continuity of sand production at the existing approved sand extraction site and develop an expanded sand extraction operation over land adjoining the existing sand facility.

The Braidwood Sand and Gravel Project will facilitate the continuity of employment for the existing workforce, providing job security for local employees and contractors.

The primary drivers of demand for construction materials, including sand, include urbanisation, population growth, infrastructure investment, and economic growth. Significant levels of population growth and new construction projects are forecast for the Canberra region and surrounds. This will generate a corresponding need for new housing, commercial buildings, and infrastructure increases, directly driving demand for construction materials, like sand. Sand quarries contribute to local economies by providing much needed construction and concrete sand materials necessary to service that growth.

The project will include the ongoing implementation of mitigation and management measures, some already in place, in order to minimise potential impacts on the environment and community.

The proposed expanded sand extraction operation will support long term economic prosperity in the locality by optimising the use of land and resources at a site known to have a proven sand resource.

A significant component of sand is currently supplied to recently established, a family-owned concrete batching plant in the industrial area at Yass.

▪ 3.4 Site Establishment

Minimal site establishment works are required given existing operation, infrastructure and services at the site. The site establishment and construction activities proposed are summarised as follows:

- Prior to the commencement of any additional site disturbance within each of the proposed sand extraction stages, a registered land surveyor is to be engaged to survey the boundaries of the approved limits of extraction and boundary of the tree avoidance area. These boundaries are to be clearly always marked in a permanent manner that allows operating staff and inspecting officers to clearly identify those limits.
- All demolition, excavation, backfilling, construction and other activities associated with the development will be carried out entirely within the allotment boundaries of Lots 332 NSD 333 and in accordance with the prepared survey plan setting out the disturbance area. All excavations and backfilling associated with the operations will be executed in accordance with the requirements of SafeWork.
- The trees nominated to be retained will be protected in accordance with *AS4970-2009 Tree Protection on Development Sites*.
- Any damage caused to public and private property during construction operations will be repaired or reinstated.
- Surface water not to be re-directed onto adjoining private land as a result of site works.
- The sand quarry site will be secured to ensure public safety, as per the current sand extraction operation. Additional signage, fencing, bunding or the like will be be installed, where required, to prevent visitor and unauthorised vehicle access to working areas of the sand quarry.
- Topsoil will be progressively stripped and stockpiled around the perimeter of each extraction stage to form bunds, reflecting current practice. Stockpiles would then be stabilised the establishment of groundcover vegetation. Groundcover vegetation would be removed along with the topsoil in order to maximise retention of the seed bank and nutrients within the soil. Other than immediately prior to excavation for use in rehabilitation, machinery would not be permitted to drive on soil stockpiles and bunds.

Over the life of the sand quarry additional infrastructure will be added, including additional fuel storage, office, water tank, additional toilets, and parking.

▪ 3.5 Sand Extraction Operations

3.5.1 Rate of Extraction

It is proposed that the rate of sand extraction (and not production) undertaken by the Braidwood Sand and Gravel Project would be up to a maximum of 200,000 tonnes per annum from a resource totaling approximately 1.23 million tonnes. [NOTE: "extraction" means taking the material out of the ground per Pain J in *Hy-Tec Industries (Queensland) Pty Ltd v Tweed Shire Council* [2019] NSWLEC 175].The rate of sand extraction from the site will vary from day to day, week to week, depending on market demand. The average rate of extraction would be approximately 400 tonnes per day, and at a maximum of 50 loaded trucks per day carrying loads of 32 tonnes would mean that up to 1,600 tonnes of sand product could conceivably be exported from the site on any one day.

3.5.2 Extraction Sequencing

The extraction of sand from the expanded sand extraction operation would be undertaken in six (6) stages. **Figure 3.1** presents the indicative sequencing of extraction of sand from the Project Site over the life of the sand quarry. Quarry quarry processing areas, overburden stockpile areas and infrastructure may move as the expanded sand quarry is progressively developed.

In summary, the expanded sand extraction operation (Braidwood Sand and Gravel Project) would continue from the established sand processing and sand washing area located in Stage 1a (refer **Figure 3.2**) in a generally anti-clockwise direction in numerical order as illustrated around the site from Stage 1b onwards. At any one time, and with the exception of Stage 1, two sand extraction stages would be operating at any one, allowing for one cell nearing the end of its extraction life and the commencement of establishment works on a new stage adjoining it.

Extraction within an area starts with the removal of topsoil and then subsoil. These soils are generally used on the bund on the sides of the quarry. A bund would be retained around each extraction stage, to enable appropriate water and fines management measures to continue. Internal barriers can be removed once the next stage of extraction is sufficiently progressed with bunding.

3.5.3 Method of Extraction and Processing

Extraction of sand from each extraction stage would be undertaken employing basically the same dry extraction methods currently employed on site, namely:

- The removal of sand resource from each extraction stage by excavator and transferred by front-end loader to stockpiles (refer **Photographs 3.1, 3.2**) located near the snd washing plant. Each pit will slowly fill with water, and de-watered where necessary.
- From the stockpiles sand is then screened for debris or rocks and then blended, if required, to produce a consistent feed material and would be loaded into a hopper and then the raw feed conveyor.
- Processing in the sand washing plant which facilitates the separation of silts and clays from the final washed sand product. The plant, an EvoWash sand washing plant (currently used-refer **Photograph 3.3** and **Appendix B** for technical specifications) or similar, including but not limited to the following components:
  - Hydrocyclone, which separates sand from finer particles like silt and clay, using centrifugal force generated by a swirling liquid flow fed by a pump. It achieves this by directing a slurry (mixture of sand, water, and fines) into a conical chamber, where heavier sand particles are forced outward and downwards, exiting through the bottom (underflow), while lighter, finer particles are carried upwards with the water and exit through the top (overflow).
  - Dewatering screen, which removes excess water from the snd, significantly reducing water content and producing a drier, more easily handled and transported sand product. It achieves this by using a vibrating screen to separate water from the sand particles.
  - Washing plant sump, which acts as a collection point for water and fine materials, like silts and clays, that are separated during the washing process. This material, held in suspension, is then pumped to the fines settlement ponds- refer **Photograph 3.4**.

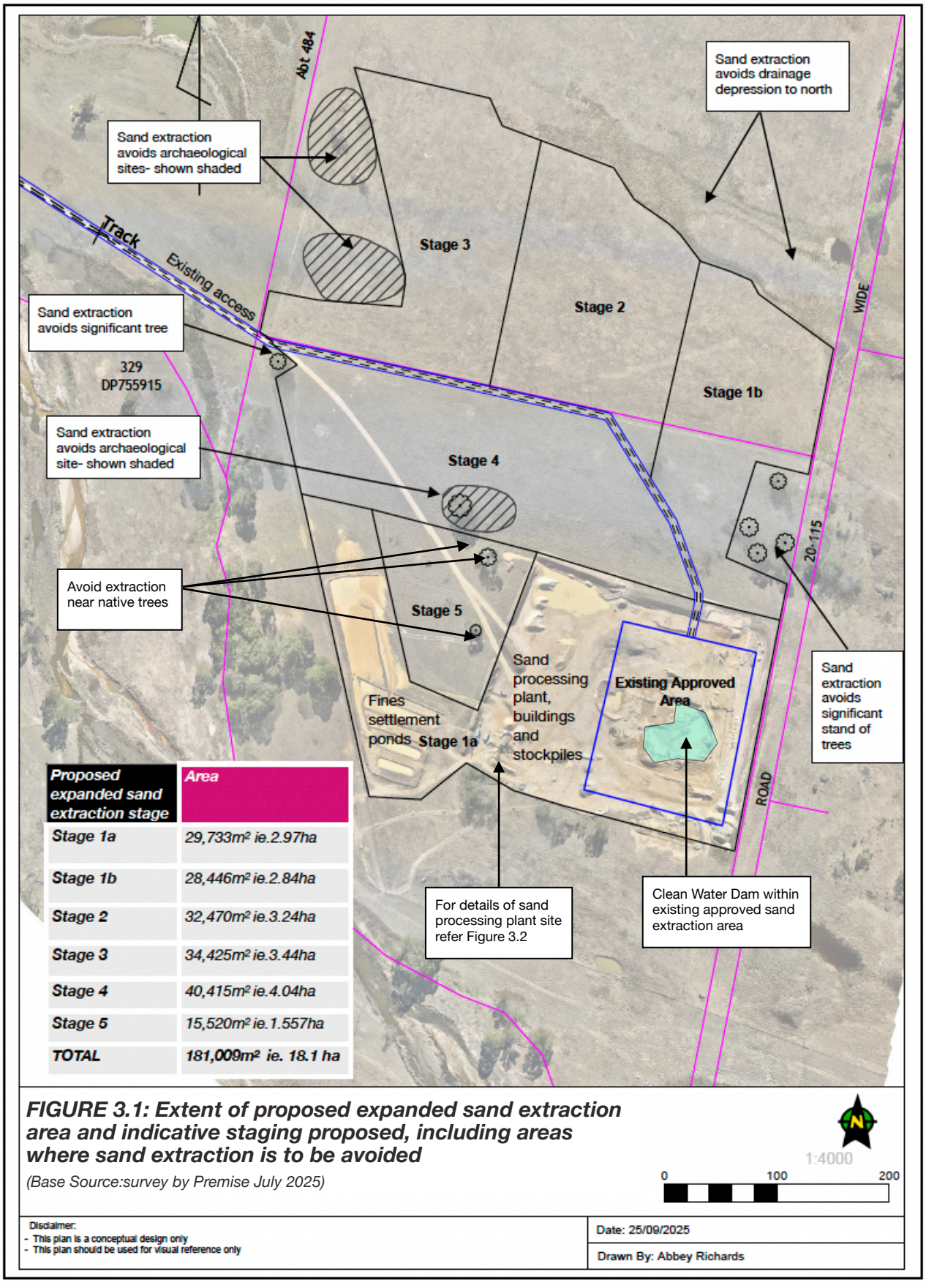


FIGURE 3.1: Extent of proposed expanded sand extraction area and indicative staging proposed, including areas where sand extraction is to be avoided

(Base Source:survey by Premise July 2025)

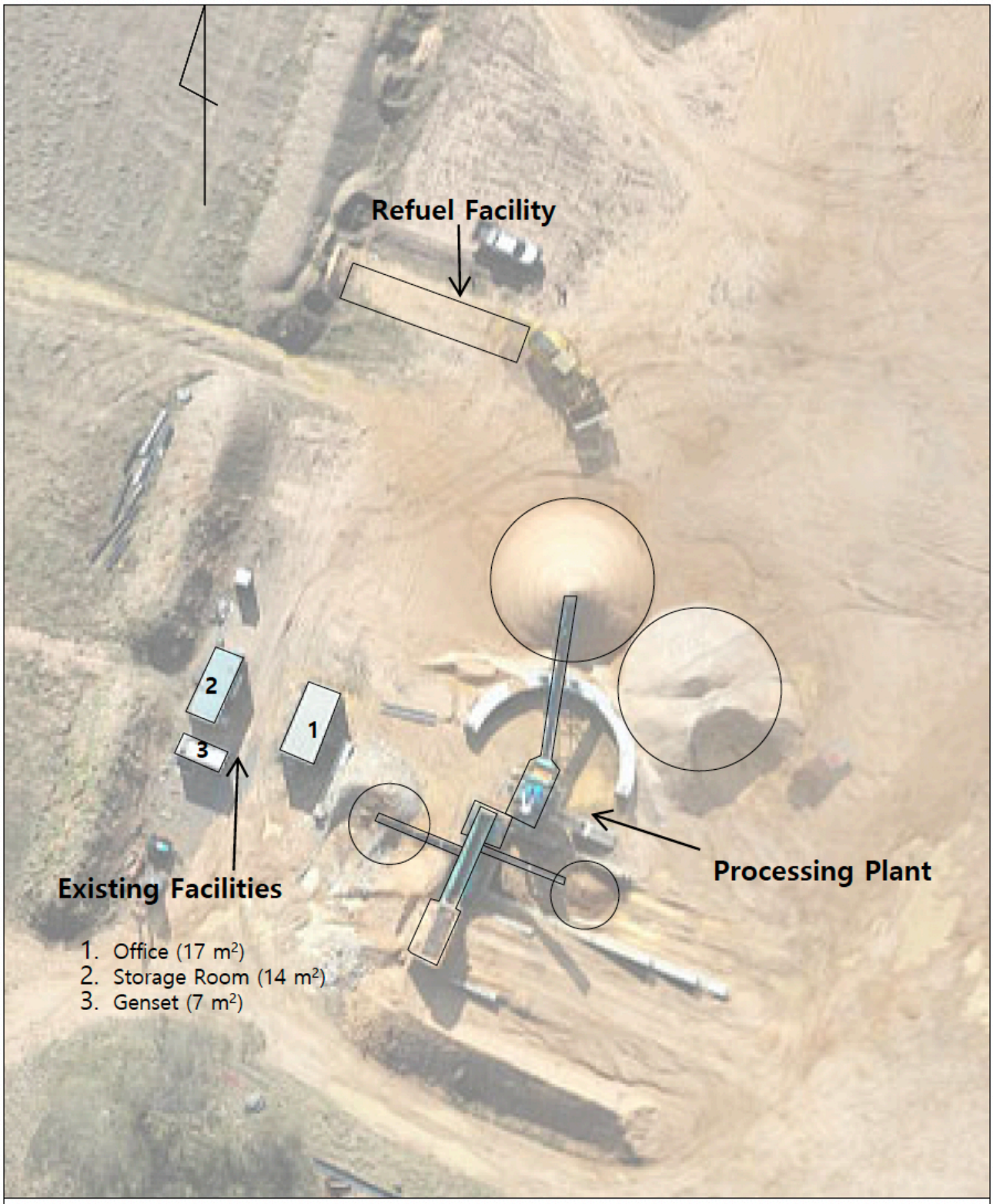


FIGURE 3.2: Site facilities and sand processing plant- existing and proposed

(Base Source:survey by Premise July 2025)

0 20 40

Disclaimer:
- This plan is a conceptual design only
- This plan should be used for visual reference only

Date:12/08/2025

Drawn By: Abbey Richards

PHOTOGRAPHS 3.1 & 3.2: The sand resource is removed from each extraction stage by excavator (left hand photo) and transferred by front-end-loader (right-hand photo) to stockpiles for processing and later storage, ready for transporting off-site. View of existing sand extraction operations on site

PHOTOGRAPH 3.3: The sand resource is fed into a raw feed hopper where it is screened and then washed prior to being stored for ultimate delivery to end users. Photograph of EvoWash sand washing plant and hopper/screen. Refer to Appendix B for technical specifications of EvoWash sand washing plant

PHOTOGRAPH 3.4: The sand classifying process described in Section 3.5.3 uses water to remove clay and silt from the sand to achieve the required size grading. As a consequence, the water discharged from the sand washing plant contains high concentrations of particles as suspended solids in the water, referred to as "fines. It is proposed that fines would continue to be placed into existing or proposed extraction fines settling ponds- photo of existing pond located adjoining the existing sand processing facility on site. Water in the end section of this settlement pond, beyond the boom, is capable of re-use in the processing plant or other parts of the sand extraction operation.

Currently no changes to the existing sand washing plant are proposed, however, additions and modifications may be made over time to accommodate upgrades to the plant used as well as accommodating the demands associated with increased production at the site and end-user specifications for sand products. Ultimately, with increased production the existing plant will be progressively upgraded to allow for larger volumes of sand to be processed. Within the Stage 4 area, one Aboriginal heritage site (Larbert Quarry AFT IF1) is present with an associated area of PAD. Design has been undertaken to remove impacts from this site and contain the site within a conservation area.

3.5.4 Water and Fines Management

The water management system for the proposed expansion project will rely on clean water for sand washing being sourced from the exiting pit in Stage 1a, with overflow from the sand processing plant being redirected to the fines settlement ponds, to allow the silt to settle and the water being reused on-site in the sand washing plant or for other extraction-related purposes within the Project Site, including dust suppression. This water is pumped to where it is required. Runoff from within the processing area is directed to the processing area sediment basin in Stage 1a. The final volume of material available in each settling pond will be dependent on the proportion of clays and silts received during the sand extraction process. Scope exists for the commissioning of additional fines settling ponds adjoining the existing ponds, avoiding one known Aboriginal site. Given the nature of material deposited into the fines settlement ponds they are unsuitable for vehicular traffic and will need to be either fenced off or bunded, once completed. Braidwood Sand and Gravel currently pumps water from active sand extraction pits to the settlement pond system in order to ensure that each active sand pit remains dry and enables ongoing access for sand quarry mobile plant. This water contains a combination of rainfall runoff together with seepage from groundwater. Refer **Photograph 3.5**.

PHOTOGRAPH 3.5: Active sand extraction pit is regularly de-watered so that it remains dry, enabling ongoing access to the sand resource for sand quarry mobile plant. In Stages 1b and later this excavation becomes the Clean Water Dam, with water to from here to be used in processing of sand

A clean water diversion bund system has been installed around the current sand extraction operation, directing upslope runoff around the sand quarry- refer **Photograph 3.6**. This will be expanded as the sand extraction area is progressively expanded.

PHOTOGRAPH 3.6: A vegetated bund system has been installed around the current active sand extraction area (right hand side of photo), directing upslope drainage around the active quarry area, and minimising erosion and upslope runoff impacts.

The proposed water management layout for the expanded sand extraction by Braidwood Sand and Gravel Project is provided in **Figure 7.20**. A site water balance has been prepared for the Project- refer to **Appendices F** for further details. Each progressive extraction area stage will contain rainfall run-off within the extraction area, although a temporary sediment basin maybe required during the initial stages if topsoil is stripped over the whole stage area. Any preliminary sediment basins are to be sized for the 5-day 95th percentile rainfall, noting that any initial sediment basin if required would be temporary and would ultimately become part of the extraction area.

Proposed new sand extraction areas avoid any Aboriginal heritage sites. The existing sites within the area currently utilised for fines settlement and the associated containment of water servicing the sand extraction operation will be a 'no-go' area in terms of vehicle access, with only foot traffic in these areas to be allowed.

3.5.5 Erosion and Sediment Controls

Measures are proposed to prevent soil erosion and to capture sediment before it leaves the site. The key aspects of erosion and sediment controls to be applied to the Project include the following, drawn in part from the approved *Soil and Water management Pla*n (SWMP) applicable to the existing site operations, prepared by SEEC and dated 35 November 2021. Details of the updated Soil and Water Management Plan is provided in **Appendices F**.

- Best practices: Erosion and sediment controls in general compliance with 'Blue Book' Volumes 1 and 2E, namely, *Managing Urban Stormwater – Soils and Construction Volume 1* (Landcom, 2004) and *Volume 2E: Mines and quarries* (Department of Environment and Climate Change, 2008). The Blue Book is a current recommended practice, so compliance is deemed to demonstrate a neutral effect on water quality during the operational phases of the Project.
- Planning and design:
  - The stages of the proposed Project will ensure adequate space for vegetated bunding, water storage and fines settlement to be provided.
  - The limits of disturbance are to be clearly defined, ideally with marker tape or similar.
  - Access track construction is to be staged as much as possible to minimise the amount of disturbance at any one time.
- Sediment control structures:
  - Bunding to be provided around each active sand pit stage in order to divert surface runoff from upslope areas being diverted around the pit, reducing stormwater runoff that would ordinarily have run through the site during major rainfall events. All bunds to be suitably vegetated and stabilised.
  - Bunds also contain water generated from within the active sand quarry, avoiding runoff into nearby watercourses, in particular, Durran Durra Creek.
  - Progressively stabilise and backfill pits to specification.
  - Stabilise all earthworks and disturbed areas no longer required for Project- related activities in order to minimise erosion and sedimentation and the potential for dust generation.
  - Silt fences, coir log bunds or mulch bunds will be placed around the lower perimeter of the site compound, any storage areas and downslope of stockpile areas.
  - Any water accumulating within sand pits is to be regularly de-watered into the silt pond system operational at the time.
- Monitoring and maintenance:
  - Erosion and sediment controls to be regularly inspected to ensure that they are functioning properly, and to maintain controls within each stage of the project until full stabilisation and/or revegetation is achieved: at least weekly; prior to forecast rainfall of greater than 50% chance of more than 10mm of rain; and following any rainfall that causes runoff.
  - Any actions requiring attention identified in a site inspection will be rectified within a reasonable timeframe.
  - Weather conditions and forecasts (including rainfall predictions) will be monitored daily to allow for adequate planning for forecast wet weather. Daily rainfall records (in mm/day) will be collected and recorded onsite.

Through the implementation of the above these erosion and sediment control measures, environmental impacts can be satisfactorily minimised. Should the Project be approved, the currently approved Soil and Water management Plan (SWMP) applicable to the existing site operations, prepared by SEEC and dated 35 November 2021, would be updated where required.

3.5.6 Groundwater Management

Sand extraction is proposed to extend below the water table, however, appropriate de-watering strategies are already in place on the Project Site, described in Section 3.5.4 f this EIS and discussed in the following.

Ground Doctor Pty Ltd was commissioned to prepare a groundwater impact assessment (refer **Appendix G**) involving The assessment determined that the proposed Project would intersect water within an alluvial aquifer and therefore would be an aquifer interference activity requiring an 'integrated development' approval from WaterNSW. Potential impacts on groundwater associated with the proposed project would not exceed the "minimum impact considerations" outlined in the NSW *Aquifer Interference Policy* (NSW DPI, 2012). Braidwood Sand and Gravel will Implement ongoing monitoring programs to track groundwater levels, quality, and the effectiveness of implemented management practices.

Potential risks to water quality can be managed by implementing appropriate procedures for storage and use of chemicals, refuelling and maintenance of plant and machinery, and implementing appropriate spill response plans, all of which Braidwood Sand and Gravel has committed to undertaking. It is a condition of the current consent (DA.2022.1181) that no on-site wastewater management system shall be constructed on the site in conjunction with the quarry without the written approval of Council and Water NSW (consent condition 2b). Portable toilets shall be hired if required. Braidwood Sand and Gravel already has in place water management techniques that give priority to the recycling of water on site and minimising adverse impacts on groundwater. Further information regarding groundwater impacts from the Project can be found in Section 7.3.10.

▪ 3.6 Traffic

The existing internal access route to the quarry from Larbert Road will continue to be relied upon, including site entrance and intersection with Larbert Road, the existing transportation route over larbert Road back to the Kings Highway and proposed vehicle types and movements. Section 7.3.7 provides a traffic impact assessment for the Project.

3.6.1 Internal Access Route and Parking

The internal sand quarry access route linking the currently approved sand extraction development to Larbert Road is an unsealed, two lane, all weather road. The internal access route is currently and would continue to be used for light and heavy vehicle access to the sand quarry site. Braidwood Sand and Gravel apply water as required to this road surface to suppress dust arising from sand quarry truck traffic.

In compliance with a condition of the current consent (DA.2022.1181) the intersection of the internal sand quarry access route with Larbert Road was upgraded a rural type access to the standard of a Private Access/Right of Way as specified in Table D1.7 D1 Geometric Road Design as amended by Council, with sealed pavement from larbert Road to the cattle grid. Refer **Photograph 3.7**. Car parking would continue to be provided for all staff and visitors in the vicinity of the Braidwood Sand and Gravel office and washing plant. The proposed quarry is projected to have up to four(4) staff. Based on these characteristics two(2) onsite parking would be required, however, informal parking for 10 or more spaces is currently provided on site.

3.6.2 Transport of Sand Product

All trucks carrying processed sand product will turn left onto Larbert Road back to the intersection with the Kings Highway, some 5km away. The transport of processed sand product will continue to predominantly by way of 19m + truck and trailer ('dog') heavy vehicles, however smaller configurations or rigid vehicles may also be used from time to time.

PHOTOGRAPH 3.7: View of entry to internal access route from Larbert Road, looking east towards existing Braidwood Sand and Gravel sand extraction operations (not visible due to screening effect of vegetation)

All processed sand quarry products destined for despatch from the sand quarry would be sourced from the various product stockpiles within the sand quarry. The stockpiled material would be weighed and loaded onto haulage vehicles prior to existing the site from the existing haul road that runs from the Project Site to Larbert Road. Within the sand quarry site plant and vehicles are be operated and driven safely at a speed not exceeding 30km/hour. Traffic signage will be employed accordingly.

The rate of transportation in any one year would be dependent on demand for quarry product and the rates of extraction.

It is proposed that all haulage truck operations on all public roads shall cease during the period when school buses may be encountered on public roads, between the hours of 7.30am to 9.00 am, and 3.00pm to 5.00pm on school days.

The intersection of Kings Highway with Larbert Road performs well and currently operates at excellent level of service, with sufficient spare capacity to accommodate additional sand quarry traffic. A code of conduct for the transport of sand material on public roads is to be prepared to the satisfaction of Council, to ensure that all truck drivers associated with haulage to and from the Braidwood Sand and Gravel sand quarry comply with the code of conduct.

▪ 3.7 Waste Management

The main general waste products which will be generated at the sand quarry would include conveyor belts, screens, waste oils and greases from plant, equipment and vehicle servicing, unserviceable machinery parts, used containers, drums, bags and packaging, chemicals, solvents and paints, and site office and lunch room wastes (e.g. paper, plastic, food scraps). Waste avoidance relates to preventing the generation of waste or reducing the amount of waste generated.

PHOTOGRAPH 3.8: Typical self-bunded fuel tank

(Source: client: Schmidt Quarries Queanbeyan 2018).

Reasonable and practicable measures for achieving waste avoidance at the quarry site may include:

- Ensuring that all fuel is wholly contained on site in self-bunded fuel tanks- refer to **Photograph 3.8**.

  Self-bunded fuel tanks, certified to Australian Standards, are double-walled and incorporate a built-in containment system for ruptures and leaks, thus negating the need for any bunding to be provided on the ground around the perimeter of the fuel tank. Self-bunded fuel tanks also offer a high level of built-in security, with a lockable hatch across all access points that can be secured with a heavy padlock when the tank is not in use.
- Improved maintenance and operation of equipment, and in particular, keeping equipment in good working order to reduce wear and tear and the need for excessive maintenance.
- Identify waste minimisation opportunities once the quarry becomes operational.
- Product redesign and upgrades.

Reasonable and practicable measures for achieving waste reuse at the sand quarry site may include:

- Recovering and using overburden, not suited to use in rehabilitation works, for constructing bunds, barriers, internal roads and other land-forming uses on site.
- Recovering and separating solvents, metals, oil, or components or contaminants and reusing separated solvents for degreasing plant and equipment.

Reasonable and practicable measures for achieving waste recycling at the quarry site may include:

- Providing for waste bins for various categories of waste on site. Separation of recyclable materials (e.g. paper, glass, plastics) will be carried out wherever possible.
- Reuse of parts and equipment where practicable.

Reasonable and practicable waste disposal measures would include:

- Waste oil will be taken to an oil recycler.
- Disposal of effluent to a licensed facility.
- Waste metal will be sold to a scrap metal merchant.
- All other general waste materials, not suitable for reuse or recycling, to be taken to a licensed landfill for disposal.

It will be the responsibility of the quarry operator and contractors to take responsibility for the disposal of any waste that they create on site. It is concluded that waste can be appropriately managed during construction and operation of the quarry.

▪ 3.8 Hours of Operation of Sand Quarry

The accompanying Table 3.2 sets out the proposed hours of operation for activities planned for the Project, including the existing processing and sand extraction activities located within the currently approved sand quarry.

Table 3.2: Proposed Hours of Operation

Activity	*Monday to Friday*	*Saturday*	*Sunday, Public Holidays*
Extraction, Processing of Sand Product, Maintenance, Truck Movements	*6.00am to 6.00pm Monday to Friday*	*7.00am to 2.00pm on Saturdays*	*Nil*
Administration	*6.00am to 6.00pm*	*7.00am to 2.00pm*	*Nil*

The above hours of operation are the same as for the recently approved sand extraction operations by Canberra Sand and Gravel situated a short distance away on the same land holding, subject to Development Consent DA.2024.004, approved in April 2025.

▪ 3.9 Sand Quarry Plant and Infrastructure

The sand quarry plant and equipment currently used by Braidwood Sand and Gravel on the Project Site comprises the following:

- Excavator- refer **Photograph 3.1**.
- Front-end loader- refer **Photograph 3.2**. Front-end loaders with calibrated scales will be used for loading and weighing of the sand resource won from the site into road trucks. This method of record keeping has been successfully employed at other quarries elsewhere in NSW.
- Sand washing plant- currently a EvoWash 151 sand washing plant- refer **Photograph 3.3** and **Appendix B**.
- Hoppers and feed bins- refer **Photograph 3.3**.
- Conveyors and screens- refer **Photograph 3.3**.
- Diesel=powered generator- refer **Photograph 3.9**.
- Haulage trucks utilising an existing internal access route back to Larbert Road.
- Office, storage container and toilet- refer **Photograph 3.9**.

Additional plant and equipment likely to be required as the rate of extraction and/or production increases include:

- An additional front-end loader and/or haul truck for sand loads being hauled back to the processing plant from each active sand pit.
- Additional sheds and buildings- typical dimensions 10m x 5m x 2.9m high. It is envisaged that quarry sheds may be added at a later date, however, these can be facilitated under the Exempt Development provisions of *State Environmental Planning Policy (Resources and Energy) 2021*.
- Self-bunded fuel storage- refer **Photograph 3.8**.

PHOTOGRAPH 3.9: Existing office building, storage, generator and toilet provided on site

▪ 3.10 Flexible Elements to Proposed Sand Quarry Plant

Extractive industry developments undergo changes over time, commensurate with changes in demand for quarry products, technology and the like. Those components of the Project likely to be subject to changes or refinements throughout the Project life include but would not be limited to the following:

- The construction, maintenance and use of car parking facilities in existing extractive industry developments are Exempt Development in accordance with clause 2.13(3)(b) of *State Environmental Planning Policy (Resources and Energy) 2021*. There is currently more than sufficient parking space to be provided on the site for workers, contractors and visitors associated with the existing, as well as the proposed Project.
- The location of sand quarry plant and equipment, sediment basins, silt traps and bunds, when and where employed on the site, would be shifted or upgraded periodically, depending on the staging of the quarry sequence, life of the plant or equipment and project needs.
- The location of and need for any additional sheds may change over time, depending on project needs. It is relevant to note that under the provisions of clause 2.13(f) of *State Environmental Planning Policy (Resources and Energy) 2021* sheds required for an existing extractive industry development are Exempt Development provided that the following requirements are satisfied:
  - "*(i) the shed is set back at least 100 metres from any public road and at least 200 metres from any dwelling that is not associated with the mine, petroleum production facility or extractive industry, and*
  - *(ii) the shed does not cover an area of more than 300 square metres, and*
  - *(iii) the shed is not more than 10 metres high, and*
  - *(iv) any spillage from chemicals or fuel stored in the shed will be caught by an appropriate and adequately sized bund, and*
  - *(v) the shed is located on land that has been lawfully cleared of vegetation, and*
  - *(vi) the shed meets the relevant deemed-to-satisfy provisions of the Building Code of Australia*,"
- Larger sheds of up to 500 square metres are permitted as Exempt Development under clause 2.14(2)(b) of of *State Environmental Planning Policy (Resources and Energy) 2021* provided that the land is not within an environmentally sensitive area of State significance (NOTE: the Project Site is not so designated).
- Clause 2.14(2)(a) of of *State Environmental Planning Policy (Resources and Energy) 2021* provides that the construction, maintenance and use of toilet and shower facilities are also Exempt Development provided that they meet ss 68 and 68A of the *Local Government Act 1993*.

- Provision for wheel-wash facilities in existing extractive industry developments. Clause 2.13(h) of *State Environmental Planning Policy (Resources and Energy) 2021* provides that construction, maintenance and use of wheel or vehicle wash facilities in a quarry are Exempt Development provided that the following requirements are satisfied:
  - "*(i) waste water is treated and reused on site or disposed of at an approved waste management facility, and*
  - *(ii) the wheel or vehicle wash facilities are located on land that has been lawfully cleared of vegetation,*"
- Provision for the water storage tanks in the quarry. Clause 2.13(i) of *State Environmental Planning Policy (Resources and Energy) 2021* provides that construction, maintenance and use of water storage tanks in an extractive industry development are Exempt Development provided that the following requirements are satisfied:
  - "*(i) the storage tank capacity does not exceed 100,000 litres, and*
  - *(ii) the storage tank is located on land that has been lawfully cleared of vegetation.*"
- The installation, maintenance and use of infrastructure for the drainage of water at the existing sand quarry are Exempt Development(clause 2.14(2)(c) of *State Environmental Planning Policy (Resources and Energy) 2021).*
- Internal haul road locations. Throughout the life of the Project, the internal haul roads within the active sand quarry footprint may be periodically relocated in order to satisfy the requirement for safe access to sand quarry plant and equipment to active sand quarry working faces.
- Any boom gates or security booths or fencing that may be subsequently installed are Exempt Development for the purposes of clause 2.13(3)(a)(i) of *State Environmental Planning Policy (Resources and Energy) 2021*.
- Overburden emplacement. During the life of the Project overburden will be moved to various locations within the sand quarry pit in order to enable safe access to the sand quarry resource, to enable the site to be properly drained, and to enable subsequent rehabilitation. The placement of overburden (including soil) is an activity that would rely upon areas being available at the time when the overburden is being removed.
- Extraction sequencing and staging. Minor changes may be made to the areas being worked over time, given changes in demand for quarry product, however, such changes would still be in accordance with the overall approved sand quarry footprint.

3.11 Services

Mains electricity, telephone and satellite NBN are not connected to the Project Site, nor is the site connected to any reticulated water or sewage services. The sand quarry amenities will be serviced by a pump-out septic system proposed as part of the application. However, in the event that a septic system is subsequently proposed to be installed, it is proposed that as a part of the s.4.55 modification application process an additional consent condition would be inserted, requiring the proponent to obtain the necessary approval pursuant to the provisions of sections 68 and 68A of the *Local Government Act 1993* prior to the future installation of any on-site sewage management facility proposed- also a requirement of clause 2.14(2)(a) of *State Environmental Planning Policy (Resources and Energy) 2021*. Such a wastewater management system would be in accordance with Designing and Installing On-Site Wastewater Management Systems (WaterNSW, 2023) and include the following:

- Septic tank with a minimum volume of 3,000 litres and be fitted with an outlet filter.
- An effluent distribution pipe from the tank to the absorption bed and buried at a minimum depth of 300 mm (500 mm under access way), and laid out in a manner that provides protection against mechanical damage or deformation.
- An absorption bed that has a total base area of 30 square metres e.g. one bed 20m long x 1.5m wide and protected from livestock and vehicles.
- Effluent is fully assimilated within the boundaries of the property, with switching valves and/or a dosing/ distribution mechanism installed to ensure to evenly distribute the effluent to different parts of the bed, with water from sand quarry buildings t be diverted away from any effluent bed, if constructed.

The extraction operations proposed would operate with limited services, with water for human consumption supplied and transported to the site on an individual basis or from water tanks.

Initially, all communications within the Project Area would be undertaken with mobile phones and VHF radios.

Stormwater runoff is to be managed and maintained throughout the life of the proposed development, relying on a recycling process already in place at the existing Braidwood Sand and Gravel operation, coupled with fines management and use of bunds in diverting stormwater flows around the active sand pit areas. Extending this system to the proposed expanded sand extraction area will ensure that stormwater runoff will be satisfactorily mitigated in terms of downstream impacts, including flooding, or erosion and sediment impacts, and will thus ensure that there are minimal risk of runoff polluting the Shoalhaven River.

All mobile plant and equipment within the Project Site would be diesel powered, with power for the operation of any office/amenities block and other minor ancillary needs produced by diesel-fueled generators. A parking area for light vehicles will also be utilised and will be designed adjacent to the existing demountable office.The annual water requirement for dust suppression within the Project, including the internal gravel access route, would be satisfied for all stages of the project. Refer **Appendix J**.

▪ 3.12 Dust Management

Dust can be generated by a variety of different activities that are carried out at the sand quarry site including: sand extraction, truck movements and operation of machinery. Measures proposed to reduce dust nuisance include:

- Use of water sprays on processing plant and materials stockpiles, as required. The sand quarry can draw water from the fines settlement ponds, as is the current practice.
- Quarry trucks leaving the site to the public road system are to have covered loads, with tailgates effectively sealed. All vehicles on site are to be confined to designated roads with a signposted speed limit
- Potentially dusty activities not to be carried out when weather conditions may give rise to potential offsite dust emissions eg.windy conditions likely to carry visible dust emissions beyond the sand quarry boundary.
- Miscellaneous dust sources such as spillages from trucks and silt are to be regularly cleaned up.
- Proper maintenance and tuning of the vehicles and equipment also assists in avoiding any off-site effects.
- Completed extraction areas will be stabilised and revegetated as soon as practical after completion of each stage of the project.

▪ 3.13 Management of the Sand Quarry

The sand quarry operator, Braidwood Sand and Gravel, will be responsible for all activities on-site and managing all other site personnel. It will be their responsibility to ensure all environmental measures are in place and are being managed according to the development consent, once issued. Responsibilities will include, but are not limited to, the following:

- Comply with the requirements of the development consent, once issued, as well as any EPL conditions.
- Implement controls for on-going management of the sand quarry in accordance with the above.
- Manage sand quarry pit works on a daily and longer terms basis, with oversight of production, onsite water and soil management, stockpile management, disposal of materials, and rehabilitation.
- Develop and maintain environmental performance of the sand quarry operation. This includes ensuring that site safety protocols are in place and development or implementation of control plans for hazards, including incident management.
- Ensure proper training and oversight of quarry staff and monitor performance of contractors. In this regard all personnel working across the quarry site undertake Cultural Sensitivity Training given the presence of Aboriginal heritage sites and the potential for Aboriginal burials.
- Undertake appropriate updates, reviews and audits of the sand quarry operation to measure progress and to ensure compliance with the relevant conditions of consent imposed by Queanbeyan Palerang Regional Council and the requirements of the NSW EPA. Includes the lodgement of annual reports and attendance at site inspections.

- Managing customer or community complaints, and work with local residents if major issues arise, to ensure that an adequate response is given when environmental issues are raised.
- Respond to environmental incidents and arrange remedial measures to overcome the incident.

▪ 3.14 Employment, Training of Employees

At full production, the Project will employ up to 4 full-time employees, the workforce largely drawn from the local community. This calculation does not include truck drivers employed by contractors, or suppliers and other sub contractors periodically engaged or relied upon by Braidwood Sand and Gravel.

The *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022* (NSW),administered by the NSW Resources Regulator, provides a framework to protect the health, safety and welfare of all workers and others in relation to NSW workplaces and work activities, including this sand quarry. All health and safety measures to be applied will be in accordance with the NSW Resources Regulator guide *Health and Safety at Quarries* dated November 2018. The sand quarry operator will have the responsibility of site induction including but not limited to the following:

- Roles and responsibilities. All employees will be required to act responsibly and not cause or allow anything to occur that may harm the environment (such as fuel spills,, uncontrolled dirty water runoff, or excessive noise).
- Environmental incident management, emergency response plans and reporting procedures.

▪ 3.15 Emergencies and Hazards Management

Hazards and emergencies can be appropriately managed during construction and operation of the sand quarry. The following measures are to be taken to minimise the risks arising from the above types of emergencies.

In this regard the sand quarry operator already has in place a Council-approved plan entitled *Braidwood Sand and Gravel 552 Larbert Road Emergency and Evacuation Management Pan*, prepared by 4Pillars Environmental Consulting dated February 2024, prepared in satisfaction of consent condition 30 of DA2022.1181. The plan addresses:

- Emergency response procedures during an emergency or hazard.
- Evacuation procedures, evacuation route.
- Fuel spill emergencies, immediate response actions and post hazard reporting. All fuel to be stored within self-bunded tanks with the storage, handling and transport of dangerous goods to be in accordance with Australian Standards and the *Australian Dangerous Goods Code*.
- Fuel spill emergencies, immediate response actions and post hazard reporting.
- Fire/explosion emergencies, immediate response actions and post hazard reporting.
- Gas leaks, immediate response actions and post hazard reporting.
- Flooding, immediate response actions and post hazard reporting. It is noteworthy that the lands proposed for extraction are above the 1% flood level.
- Other extreme weather or other events, immediate response actions and post hazard reporting.
- Bushfire, immediate response actions and post hazard reporting. Immediate response to include the following:
  - Coordinate the safe evacuation of employees, visitors and others from hazardous conditions.
  - Establish perimeter security to prevent unauthorised access.
  - Activate response to safeguard at-risk equipment.
  - If necessary, notify and guide RFS to the location of any fire.
- Unauthorised access: Access to the quarry site is through gates that are to be locked after hours. The quarry itself is not visually prominently from any public viewing location and the threat of unauthorised access is slight.
- Major truck/aircraft accident: Potential vehicle accidents on the site include collisions. Should a vehicle be involved in a major accident on the premises, staff will initially attend to the needs of any injured personnel. If there is a spill of fuel, emergency response procedures will be initiated as described above. Should there be a spill of extracted material, steps will be taken to recover the material as far as practicable. The Police will be notified where necessary.

Other potential occurrences such as power failure, pump failure or spillage within the quarry would be unlikely to present a threat to the environment or public health as the effects would be contained within the sand quarry, allowing rectification to be planned and implemented in a co-ordinated manner. Should a major pollution incident occur affecting the external environment, the EPA will be advised by telephone as soon as possible and provided with written details as required.

3.16 Fire Management

Surrounded as it is by lands cleared for agriculture the Project Site is mapped by the Rural Fire Service (RFS) as being category 3 bushfire prone land, which includes grasslands, considered to have a medium bush fore risk- refer to **Figure 2.9**. The act of creating lands cleared for sand extraction and water storage area means that the risk of fire within the Project Site itself are minimal. Provided the following additional measures are applied, as outlined below, the fire risk on the site can be managed to an satisfactory degree. Refer also to Section 4 and Section 7.3.10 for further details. The fire management measures proposed include the following:

- Fire fighting equipment to be stored at the sand quarry site, with extinguishers to be kept on all mobile plant and site vehicles. The extinguishers are to be serviced regularly.
- All mobile equipment fitted with spark arresting mufflers.
- Retention of water run-off from the quarry in the sediment basins, suitable for use in fighting fires.
- Access to the quarry to enable safe access and egress for both the quarry operator and staff attempting to leave the area and RFS and emergency service personnel arriving at the site to undertake firefighting operations. The existing internal access route is of gravel construction, maintained in a good condition providing all weather access to the site, formed to a minimum width of 4 metres, thus satisfying the fire fighting vehicle turning requirements as set down in the RFS's *Planning for Bush Fire Protection*. [NOTE: *Planning for Bush Fire Protection* does not specifically refer to extractive industries.]
- If tanks are provided to service the sand quarry buildings, they must be suited to fore suppression activities eg. 65mm Storz connection with a ball valve is fitted to the outlet, a hardened ground surface for truck access is supplied within 4m of the water outlet or access hole, unobstructed access can be provided at all times, fire hose reels, if provided, are constructed in accordance with AS/NZS 1221:1997, and installed in accordance with the relevant clauses of AS 2441:2005.
- The company's work instructions to include emergency response and evacuation procedures including:
  - Rural Fire Service contact details.
  - Regular visual check and testing of equipment.
  - Staff training for fire emergencies, including training in fire awareness and basic fire fighting procedures.

3.17 Site Security

A locked farm gate is currently provided to prevent entry to the existing sand quarry by unauthorised persons from Larbert Road. This measure will be ongoing. Further site security and fencing will comprise:

- The working sand quarry site is to be fenced, to keep farm animals from straying into the sand quarry.
- Security lighting of the quarry office area and immediate surrounds.
- Appropriate signage is currently provided at the entry to the quarry, advising of:
  - The need for all visitors to report to the office.
  - Prohibition on access without permission and without obtaining notification of any hazards on the quarry site. Refer **Photograph 3.10**.

PHOTOGRAPH 3.10: Entry sign to existing sand quarry Braidwood Sand and Gravel sand extraction operation

3.18 Rehabilitation

3.14.1 Overview

An extraction operation is a temporary land use, and is expected to cease at some point in the future. The closure of the sand quarry operation typically occurs when the sand resource is exhausted, and provides opportunities for land disturbed by extractive operations to be rehabilitated and revegetated. The key project rehabilitation completion criteria to be applied to the project site are summarised in the accompanying Table 3.3. Refer also to **Figure 3.3**.

Table 3.3: Project rehabilitation completion criteria

Feature	Rehabilitation completion criteria
Decommissioning	*All sand quarry plant and equipment and other infrastructure decommissioned and removed.*
Landform	*Achieve a stable landform on a progressive, staged basis, with no erosion, free of any hazardous materials associated with past use of site as a sand quarry. Land returned to agriculture, with two small (200m2) dams to be provided as a water source for stock.*
Soil	*Topsoil or a suitable alternative to be spread uniformly over the identified rehabilitation surfaces, supplemented with the importation of clean ENM and VENM.*
Water	*Pits retained for water supply for future agricultural use and erosion control. No runoff to pose a threat to downstream water quality.*
Revegetation, control of feral pests	*Progressive revegetation of sand pit edges as sand extraction proceeds,. Weed control measures to be implemented. Control of feral weeds and pests to be undertaken by landowner/quarry operator.*
Bushfire hazard	*Appropriate bushfire hazard controls to be implemented- refer Section 3.16 for details.*
Ongoing public safety	*Appropriate mechanisms established to control access and manage public safety during operation and post-closure.*

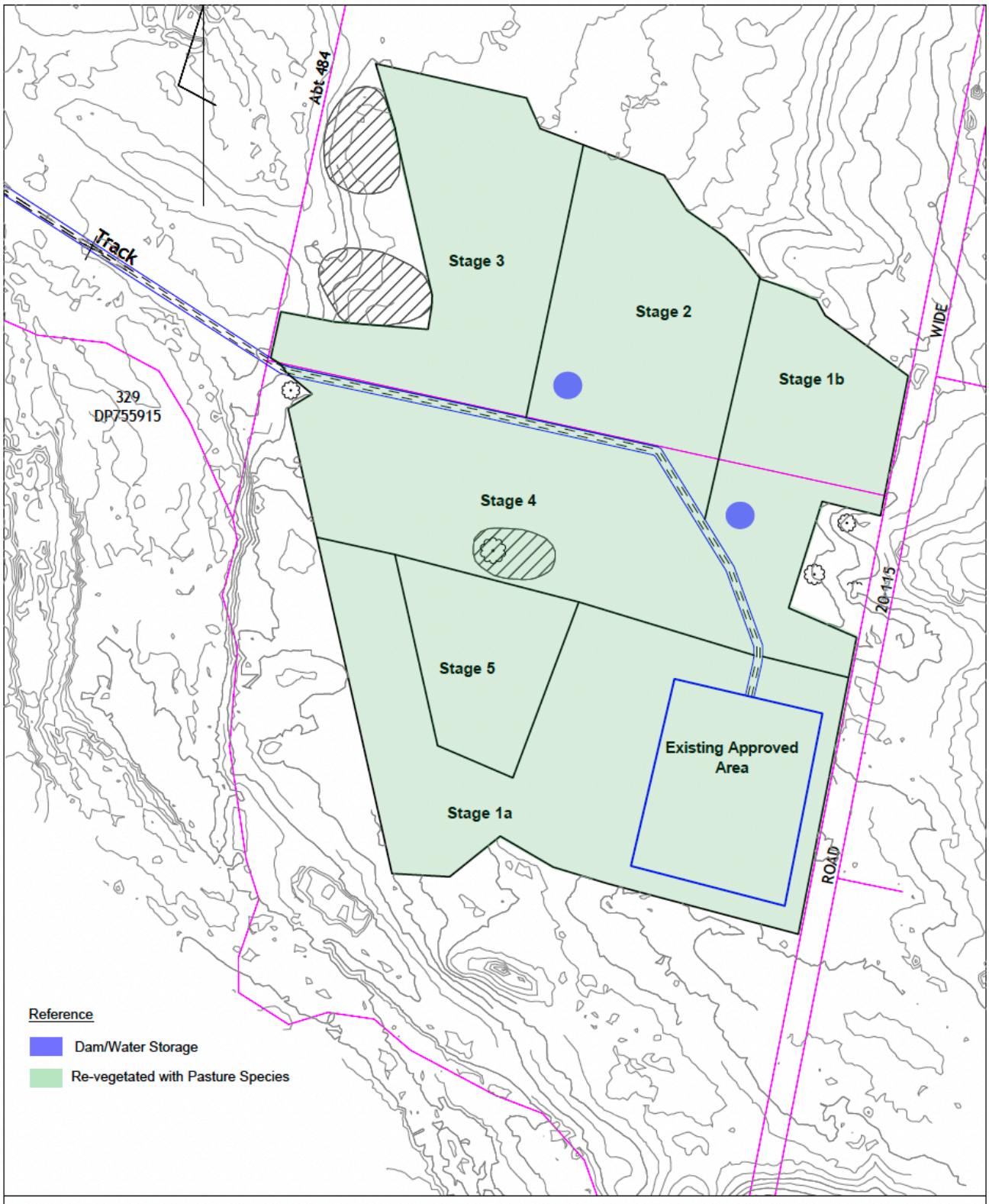


FIGURE 3.3: Rehabilitation plan

1:4000

0 100 200

Disclaimer:
- This plan is a conceptual design only
- This plan should be used for visual reference only

Date: 25/09/2025

Drawn By: Abbey Richards

Once completed, the aim will be to rehabilitate the quarry site to a stable condition. The relevant guidelines note that the primary aim of the closure and rehabilitation phase of a quarry is to minimise long-term erosion through effective revegetation (source: *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries* (DECC, 2008).

Following granting of development consent the quarry operator would prepare a *Quarry Development and Rehabilitation Plan*, outlining in detail how the proposed expanded sand extraction area would be progressively rehabilitated over the life of the sand quarry and following project completion. The aim will be to achieve decommissioning consistent with current land use, namely for agricultural purposes comprising open pasture with some water storage for stock.

The Project includes a preliminary rehabilitation plan, in concept form- refer **Figure 3.3**.

In general, the progressive steps in rehabilitation will entail:

- The stripping of topsoil and overburden (approximately 0.3 m) for later use in rehabilitation. Stockpile management will involve the revegetation of topsoil and overburden until required for rehabilitation purposes. These stockpiles will be established for progressive rehabilitation works, and checked regularly for weeds.
- Back-filling of excavated sand pits with a dozer using stockpiled topsoil and overburden rom soil stockpiles or bunding, supplemented by imported fill, once extraction is completed in each sand pit stage/cell. Once each stage of sand extraction is completed the decommissioned area will be rehabilitated and shaped to stable, post-extraction landforms, using clean ENM and VENM fill when available.
- All supplementary imported fill delivered to the site will be either Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM) within the meaning of the *Protection of the Environment Operations Act* and free of weeds and weed seeds.[NOTE: This is a condition of the April 2025 development consent issued to Canberra Sand and Gravel for their sand extraction operation adjoining the Project Site]
- The final walls of each extraction stage/cell leading down to a water source would be shaped to achieve a maximum slope of 1:3 (V:H) to ensure that the walls are stable and will not erode. The shaping of the final walls would be undertaken by a front-end loader and/or excavator in order to achieve effective water drainage towards each batter. It is also proposed to construct drainage swales around each each completed stage.
- Once topsoil and overburden is applied and spread over the reformed final landform it would be seeded with an appropriate pasture mix, with fertiliser applied where required. The rehabilitated quarry areas will be maintained by site personnel engaged by the quarry operator or owners until vegetation is well established. Regular inspections shall be carried out to monitor the progress of rehabilitation and identify areas that require maintenance. This maintenance activities will include soil erosion control, control of noxious and environmental weeds, fencing repairs for access control, feral pest control, and bushfire hazard management.
- Declared plants, environmental weeds and animal pests are to be controlled in accordance with best practice land management practices. At the end of quarrying operations all declared weed spaces will be eradicated. The quarry operator is responsible for the control or eradication of noxious weeds in and around the quarry site. The landowners are familiar with noxious weeds in the area and regularly inspect the site for the presence of noxious weeds. Weed control measures are employed at regular intervals or as required as a regular part of farm maintenance. Weed regrowth is controlled through suitable spray such as Round-up.

3.19 Monitoring and Recording

3.19.1 Monitoring records

The results of any monitoring required as a condition of consent or EPL are to be recorded and retained including:

- Monitoring of discharges from any licensed discharge point, where required.
- Monitoring of the rate of sand extraction and production, as well as truck numbers.

All records required to be kept by the quarry operator will be:

- In a legible form, or in a form that can readily be reduced to a legible form.
- Kept for at least 4 years after the monitoring or event to which they relate took place.

3.19.2 Responsible contact person

The name and contact details for the person with the responsibility and authority to respond to Queanbeyan Palerang Regional Council, authorised government departments and/or members of the public with respect to management of quarry operations, compliance with this consent and any complaints, will be provided to Council, prior to commencement of quarry operations.

3.19.3 Annual reporting

An annual report of quarry operations must be completed and a copy of the report provided to Queanbeyan Palerang Regional Council within 2 months of each 12 months operation of the quarry. The annual report is to contain details of compliance with the conditions of the consent issued, together with a description of quarry operations undertaken during the 12 month period.

3.19.4 Records of extraction and volumes of material leaving the site

The quarry operator will be responsible for:

- Recording the volume/tonnage of sand won from the quarry site.
- Recording the amount of processed quarry material leaving the site and the number of loaded vehicles.

The above records are to be provided with the annual report referred to in Section 3.15.2 above.

3.19.5 Recording of pollution complaints

The quarry operator will keep a legible record of all complaints made to the owner, operator or any employee or agent of the operator in relation to pollution arising from any activity applicable to the quarry operation, including details of the following:

- Date and time of the complaint.
- The method by which the complaint was made.
- Personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect.
- The nature of the complaint.
- Action taken by the quarry operator in relation to the complaint, including any follow-up contact with the complainant.
- If no action was taken by the licensee, the reasons why no action was taken.

The quarry operator will operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities associated with the quarry, including truck traffic

4. Mitigation Measures

4.1 Introduction

Section 192(1)(e) of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) requires:

> "*(e) a compilation, in a **single section** of the environmental impact statement, of the measures referred to in paragraph (d)(iv)*". [our emphasis in **bold**]

Section 192(1)(d)(iv) of the EP&A Regulation 2021 requires:

> "*(iv) a full description of the measures to mitigate adverse effects of the development, activity or infrastructure on the environment*."

In accordance with the above requirements of the EP&A Regulation, the following section comprises details of the measures proposed to mitigate the adverse effects of the Braidwood Sand & Gravel Project. These measures will be incorporated into and form a part of an overall sand quarry management plan, once consent has been granted.

4.2 Mitigation Measures Proposed

The following Table 4.1 provides details of the mitigation measures proposed for the Project.

Table 4.1: Mitigation measures proposed

Environmental Issue	***Potential environmental impact***	***Mitigation measures proposed: Braidwood Sand & Gravel Project***
Hazards and risk, including fire, fuel spills	*Fires, fuel/ chemical leaks and spills, landslides.*	▸ *Fire extinguishers are in all site vehicles and mobile equipment. The extinguishers are to be serviced regularly.* ▸ *When in operation, the maintenance of a water truck suitable for dust suppression and fire fighting at the site.* ▸ *Quarry buildings and fuel storage located in bunded cleared area of the Project Site, with good emergency access to Larbert Road.* ▸ *Any chemical and fuels stored in bunded areas, located and designed to prevent potential fire hazards, as required by AS1940-2017- The Storage and Handling of Flammable and Combustible Liquids.* ▸ *All oil/fuel spills to be immediately cleaned up and the spilled material disposed of in a proper manner.* ▸ *RFS vehicle access capable of being provided to the site.* ▸ *Regular cleaning of litter on site.* ▸ *The quarry site to be secured to ensure public safety. Appropriate signage, fencing, bunding or the like must be installed to prevent visitor and unauthorised vehicle access to working areas of the sand quarry.* ▸ *All mobile equipment fitted with spark arresting mufflers.* ▸ *Employees are to be trained in fire awareness and instructed in basic fire fighting procedures.* ▸ *Protocols to be followed if a major traffic accident occurs.* ▸ *As excavation of the quarry progresses, additional investigation and assessment be undertaken to inform any alterations to the proposed layout design and slope stability.* ▸ *All excavation and backfilling to comply with SafeWork requirements.*
Management of waste	*Generation of waste during operation of the quarry.*	▸ *Collect recyclable material (waste oil, metal, glass, and plastic) for collection by Council or appropriate recycling contractor. Dispose of non-recyclable domestic waste via council collection service.* ▸ *No building, plant and machinery, or putrescible wastes to be disposed of on site. Inert waste materials to be collected and removed from this site for recycling or to an appropriate licensed waste facility.* ▸ *Unexpected finds protocols to be established.*

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: expanded quarry cont.
Air quality	*Generation of dust during operation of the quarry.*	▸ *All activities to be be managed in accordance with the Protection of the Environment Operations Act (1997) and EPL, once approved.* ▸ *Bunds and soil stockpiles are to be revegetated or suitably treated, to limit the potential for dust generation and sand drift.* ▸ *Dust-generating activities during adverse weather conditions (eg. strong winds from the north-west) are modified or halted in the event that dust is observed leaving the project site.* ▸ *Sufficient water to be stored on site for dust suppression activities required on internal access road, stockpiles and other disturbed land surfaces during excessively dry or windy conditions.* ▸ *Care to be exercised during the handling of the sand resource, to limit dust generation, ensuring that material is dampened prior to handling.* ▸ *All loads leaving the site are covered, with tailgates effectively sealed, to minimise dust and debris.* ▸ *Maintain a high level of repair and servicing for all quarry trucks.* ▸ *Regular use of water carts as required.* ▸ *Signposted speed limit of 30km/hour to be strictly maintained on site.* ▸ *Quarry plant and equipment to be cleaned frequently, with the turning off all vehicles and plant when not in use, where practicable.* ▸ *Monitoring and reporting of dust complaints. All complaints are to be recorded, investigated and responded to within a reasonable timeframe.* ▸ *No more than 50 laden trucks to be dispatched from the site in any one day.* ▸ *Sand extraction will be undertaken in a staged approach with a progressive rehabilitation and expansion of the existing sand extraction area.*
Soil and water	*Need to control sedimentation and erosion, stormwater.*	▸ *All stages of extraction and lands proposed for site disturbance to be clearly delineated by survey on site. All excavation, backfilling, construction and other activities associated with the development must be carried out within the area so surveyed.* ▸ *All activities to be managed in accordance with the Protection of the Environment Operations Act (1997) and EPL, once approved.* ▸ *All measures to control erosion and sediment transport are to be maintained during the works in accordance with the NSW Landcom publication Managing Urban Stormwater - Soils and Construction (4th Edition 2004- "Blue Book") and for as along as necessary after the completion to prevent sediment and dirty water leaving the site and/or entering the surface water system outside of the site.* ▸ *Ensure that active sections of the Project Site are fully bunded and potentially sediment laden water is not permitted to be discharged to natural drainage. As the operator proposes that disturbed sections of the Project Site would be a nil-discharge site, no Erosion and Sediment Control Plan would be required.* ▸ *All areas disturbed by quarrying, such as excavations, processing areas, haulage routes, stockpile areas, will be treated with a water spray or suitable dust suppressant as required.* ▸ *Appropriate stripping and stockpiling controls and procedures to be applied for stored soil used in rehabilitation of the site. Vegetation clearing and topsoil stripping will be staged in order to minimise disturbance of the sand extraction footprint until areas are required by the operation.* ▸ *Monitoring of water use.* ▸ *Pollution Incident Response Management Plan to be prepared for the sand quarry.* ▸ *Soil and water management plan provided in EIS as part of overall quarry management plan.* ▸ *All fuels and chemicals are to be stored in bunded areas.*

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: quarry cont.
Noise and vibration	Noise and vibration from construction vehicles and works.	▸ Noise emissions from the quarry, when measured at the nearest sensitive receptor, are predicted to not exceed the applicable noise level limits - confirmed by Vipac in Appendix C. ▸ Sand extraction and processing operations to strictly comply with the proposed hours of operation: 6.00 am and 6.00 pm Monday to Friday, Saturdays: 7.00am to 2.00pm. No work will be undertaken on Sundays or Public Holidays. Approval from EPA or Council for access and operation outside of these periods, for emergency purposes only. ▸ Quarry plant and equipment are located within the quarry pit, suitably buffered from nearby sensitive receptors. ▸ Maintain the internal quarry haul road in good condition to prevent corrugations which can contribute to truck road noise. ▸ Driver Code of Conduct to apply. ▸ Limits on quarry trucks numbers permitted to enter and leave the quarry each working day ie. maximum of 50 loaded sand quarry trucks per day. ▸ Plant and equipment will be regularly maintained and serviced, to minimise the potential for excessive noise impacts. All machinery to meet current guideline noise levels, including haulage vehicles. Regular upgrading to quieter plant and equipment. ▸ A register of noise complaints shall be maintained. If noise complaints occur, they will be registered, investigated and responded to in a timely manner to ensure issues are not repeated.
Traffic and transport	Heavy truck traffic on roads, road safety.	▸ Restriction of 50 loaded sand quarry trucks per day to apply. ▸ Driver Code of Practice to apply, to be prepared as a condition of consent, aimed at ensuring the safety of employees, contractors, and the general public in and around the project site. ▸ A low (max.30km/hour) speed limit to be applied to haulage vehicles within the sand quarry site. ▸ All trucks hauling quarry product on public roads are to be fitted with a dust cover, and such dust cover shall be utilised to cover the load during haulage. ▸ All quarry truck movements within the site will be restricted to designated routes marked out by appropriate signage. ▸ Condition of internal quarry haul road to be regularly maintained, to ensure a satisfactory road surface. ▸ Payment of annual road contribution to Queanbeyan Palerang Regional Council.
Biodiversity	Clearing of trees and impact on habitats.	▸ No tree clearing outside of approved quarry footprint- all quarry works to be undertaken within approved extraction area. Impacts to be restricted to the sand quarry development site and will not encroach into the retained native vegetation areas. ▸ Sand extraction avoids drainage depression to north and most stands of native vegetation (trees) on site. ▸ Trees nominated to be retained in the Biodiversity Development Assessment Report (Area, September 2023) must be protected in accordance with 'AS4970-2009 Tree Protection on Development Sites' and/or a minimum of 1.5 m, whatever is the greater. ▸ Limits on truck speeds limits potential for conflict with fauna. ▸ No groundwater dependent ecosystems affected by quarry. ▸ Prior to the clearing trees on site, an inspection shall be made of all trees to be removed for signs of wildlife. Trees containing wildlife are to be retained until vacated. ▸ Management of weeds. ▸ Rehabilitation of the worked sand pits on a progressive, staged basis.

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: quarry cont.
Rehabilitation	*Achieving a satisfactory rehabilitation of the sand quarry site, once extraction is completed*	▸ *The site will be rehabilitated progressively, that is, as soon as reasonably practicable following disturbance to ensure the disturbed land is returned to a safe, stable and sustainable land use.* ▸ *All reasonable steps must be taken to minimise the area exposed at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion and weed incursion cannot be permanently rehabilitated.* ▸ *Appropriate stripping and stockpiling controls and procedures proposed to maximise the value for stored soil/overburden used in rehabilitation of the site.* ▸ *A Rehabilitation Strategy will be prepared for all land disturbed by the Braidwood Sand & Gravel Project.* ▸ *When completed, the quarry will be a large excavation into the ground. Most of these excavated pits will be progressively filled with clean ENM and VENM within the meaning of the Protection of the Environment Operations Act, with ponds retained in part for future agricultural use. Any fill, soil, mulch and plant brought onto the site must be certified as free of weeds and weed seeds.* ▸ *Final land surfaces will be reshaped to stable landforms, with any exposed sand quarry walls battered to a slope of 1V:3H.* ▸ *The rehabilitated areas will be maintained by site personnel until the vegetation is well established.* ▸ *Regular inspections shall be carried out to monitor the progress of rehabilitation and identify areas that require maintenance. This maintenance activities will include soil erosion control, control of noxious and environmental weeds, fencing repairs for access control, feral pest control, and bushfire hazard management.*
Cultural heritage	*Impact on archaeological sites potential.*	▸ *Archaeological sites within project area to be protected by inclusion in identified 'no-go' areas, with barrier fencing installed where required to prevent accidental impact during works in the vicinity* ▸ *No sand extraction in fines settlement pond area. No vehicles permitted, with maintenance works or access provided on foot only, with barrier fencing installed to prevent accidental impact* ▸ *The development is to proceed with caution. If any Aboriginal objects are found, works should stop and DECCW – NSW Heritage notified. If human remains are found work is to stop, the site is to be secured and the NSW Police and NSW Heritage are to be notified.* ▸ *Cultural awareness training of quarry staff required.* ▸ *In the unlikely event that human remains are discovered, all activities must stop, the affected area cordoned-off and NSW Police and the Heritage NSW Environment Line must be contacted on 1315 55 or (02) 9995 5555.*
Community	*Complaints management.*	▸ *Braidwood Sand and Gravel to be responsible for receiving comments and complaints from local residents, owners and government authorities.* ▸ *A register of complaints shall be established at the commencement of quarrying activities within the extension area and maintained for the life of the quarry. The register shall record details of the complaint, contact information and action taken to address the complaint.*
Visual	*Views of the quarry.*	*No special measures are required to ameliorate visual impacts associated with quarrying the site, as no significant visual impacts arise.*
Annual return	*Annual reporting requirements.*	*An annual report to be submitted to Queanbeyan Palerang Regional Council, containing a statement of compliance with conditions of approval and monitoring/complaints summary.*

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: expanded quarry cont.
Greenhouse gas management	*Quarries contribute to carbon emissions through the use of heavy machinery, transportation of materials, and energy-intensive processing. These activities release greenhouse gases.* *It is noteworthy, however, that most of the quarry product exported from the site will be used in urban developments in the Canberra region.*	▸ *Reduced Scope 1 and 2 emissions by servicing, in the main, regional urban development, roads and infrastructure projects, extracting optimal quarry product and by regular monitoring of the quarry, to optimise quarry management and planning for each quarry stage.* ▸ *Use of fit for purpose plant and equipment and operate and maintain in accordance with manufacturer's instructions. Regularly servicing of vehicles, plant and equipment such that exhaust systems and fuel consumption comply with manufacturers' specifications. Emissions from transport vehicles and on site machinery to comply with the relevant Australian Standards.* ▸ *Use of efficient processing plant technology, wherever possible, eliminating unnecessary idling and unproductive use of plant and equipment.* ▸ *Use of driver and operator training in relation to efficient operation of vehicles, plant and equipment.* ▸ *Operate and maintain air conditioning systems, if utilised, in accordance with manufacturer's instructions and Guide to Best Practice Maintenance & Operation of HVAC Systems for Energy Efficiency (Council of Australian Governments National Strategy on Energy Efficiency January 2012).* ▸ *Wherever practicable, source materials from local suppliers, to minimise traveling time and fuel use.* ▸ *Ensure product stockpiles and overburden/topsoil are stockpiled efficiently around the site to ensure that onsite re-use can occur with the minimum of fuel consumption.* ▸ *Loading haul trucks to the correct payload.*
Emergencies	*Emergency response to events or incidents that my threaten the environment or public health*	*A quarry emergency and evacuation management plan is already in place, pollution, to be supplemented by the following measures:* ▸ *Containment of any fuel spills or leaks. The EPA to be contacted in the event of a major pollution incident. Any contamination arising from fuel spills to be collected and disposed of at a licensed landfill.* ▸ *Off-site discharges.* ▸ *Inundation of the quarry during major storm events or floods including relocation of plant, checking of drainage controls and condition of fines settlement basins and sand pits.* ▸ *Fires.* ▸ *Excessive generation of dust within the quarry and/or internal quarry haul route.* ▸ *Unauthorised access.* ▸ *Protocols to be implemented in the event of a major truck accident.* ▸ *Training and induction protocols. Induction will be provided to all staff and subcontractors outlining their responsibilities in the event of an emergency or incident.* ▸ *Notification requirements and timeframes to applicable authorities in the event of an emergency or incident.* ▸ *Review regimes of the quarry management plan. Regular reviews and updates will be made for the quarry management plan as required.*

5. Statutory & Strategic Policy Context

The following section identifies relevant local, State and Commonwealth planning and environment legislation and discusses the application of these planning provisions relevant to the Project.

5.1 Environmental Planning & Assessment Act 1979 (EP&A Act)

5.1.1 Consistency with Objects of the EP&A Act

The Project is considered to be consistent with the objects of the EP&A Act, as summarised in the following Table 5.1.

Table 5.1: Checklist of the Project against objects of EP&A Act 1979

Objects	Compliance of the Project
"(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,"	*The Project seeks to maximise the recovery of a valuable sand resource known to underlay the site. It will increase the supply of construction materials critical to the construction of housing and infrastructure project located in and around the Canberra region. In so doing, the project will promote social and economic benefits to the local and regional economy, creating further local job opportunities.*
"(b) to facilitate ecologically sustainable development …,"	*The proposed project achieves satisfactory traffic, ecological, water quality, bushfire, air quality, noise and quarry impacts generally. Additional safeguards and mitigation measures have been proposed to minimise potential impacts during the operation of the Project, consistent with the principles of ESD.*
"(c) to promote the orderly and economic use and development of land,"	*The sand quarry project promotes the orderly and economic use of a site already used in part for an approved sand extraction operation, known to be underlain by an extractive resource.*
"(d) to promote the delivery and maintenance of affordable housing,"	*The project will increase the supply of construction materials critical to the construction of housing and infrastructure projects located in and around the Canberra region, and in so doing, also help to promote the delivery of affordable housing.*
"(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,"	*The land proposed for the expansion of the existing sand extraction area is cleared land used for agriculture, with no threatened species likely to be affected by the Project. It has been sited and designed to minimise the impacts to the environment.*
"(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),"	*The site has no heritage listing. Following on site investigations, a number of Aboriginal sites were found within or near the proposed sand quarry expansion area. No sand extraction is proposed within these sites.*
"(g) to promote good design and amenity of the built environment,"	*One additional shed is proposed, of a size and scale in keeping with the rural character of the locality.*
"(h) to promote the proper construction and maintenance of buildings…,"	*Not applicable to this project, given that it is for the purpose of a sand extraction operation with one additional shed proposed.*
"to promote the sharing of responsibility for environmental planning between the different levels of government in the State, and"	*Noted. Once approved, the monitoring of the quarry will be the shared responsibility of both Queanbeyan-Palerang Regional Council (regarding the conditions of consent generally) and the EPA (regarding 'scheduled activities' under any license issued under the Protection of the Environment Operations Act, 1997)).Moreover, a Controlled Activity Approval will be required from the Resources Regulator/Water NSW (regarding groundwater).*
"(j) to provide increased opportunity for public involvement and participation in environmental planning and assessment."	*The EIS has been prepared following consultation with local and state government and others, in accordance with the requirements of the issued SEARs.*

Based on the above assessment the proposed sand extraction project is considered to be consistent with the objects of the EP&A Act.

5.1.2 Section 4.15 matters

Section 4.15 of the EP&A Act requires that a variety of matters be taken into consideration when determining a development application. A checklist of these matters and where they have been addressed in the EIS is outlined in the accompanying Table 5.2.

Table 5.2: Section 4.15 Checklist: Summary

Matters for Consideration s.4.15	***Relevant EIS Section***
(a) The provisions of: ***Any environmental planning instrument***	*Refer to Section 2.2 & Section 7.2 of this EIS.*
Any proposed planning instrument	*Not applicable.*
Any development control plan	*The applicable development control plan is the Palerang Council Development Control Plan 2015. Refer Section 2.3 and Section 7.2 of this EIS.*
Any planning agreement or draft planning agreement that has been entered into	*No planning agreements have been entered into under s.7.4 of the EP&A Act for this quarry project.*
The regulations (to the extent that they prescribe matters for the purposes of this paragraph)	*Refer to Section 7.2 of this EIS.*
Any coastal zone management plan	*Not applicable.*
(b) The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	*Refer EIS Section 7.3 in conjunction with Section 3 and Section 4 of this EIS- the latter containing details of mitigation measures proposed.*
(c) The suitability of the site for the development	*The project site is suitable for the proposed sand extraction project. Considered further in this EIS report. Refer also to Section 7.4 of the EIS.*
(d) Any submissions made in accordance with this Act or the regulations	*Comments to be received during the EIS exhibition process.Refer Section 7.5 of this EIS.*
(e) The public interest	*Refer Section 7.6 of this EIS.*

▪ 5.2 Environmental Planning Instruments etc.

5.2.1 Queanbeyan-Palerang Regional LEP 2022

The *Queanbeyan-Palerang Local Environmental Plan 2022* (LEP) is the comprehensive environmental planning instrument applying to the project site. The project site is zoned RU1 Primary Production.

In planning law, use must be for a purpose: *Abret Pty Ltd v Wingecarribee Shire Council* [2011] NSWCA 107 at [51]. "Extractive industries", as defined in the LEP, are a use permissible with the consent of Council in the RU1 Primary Production zone. All land within 1km of the project site is similarly zoned, with the Nadgigomar Nature Reserve, zoned C1 National Parks and Nature Reserves, located just over 1.6km away.

Refer to **Figure 5.1** illustrating the zoning of land in and around the project site.

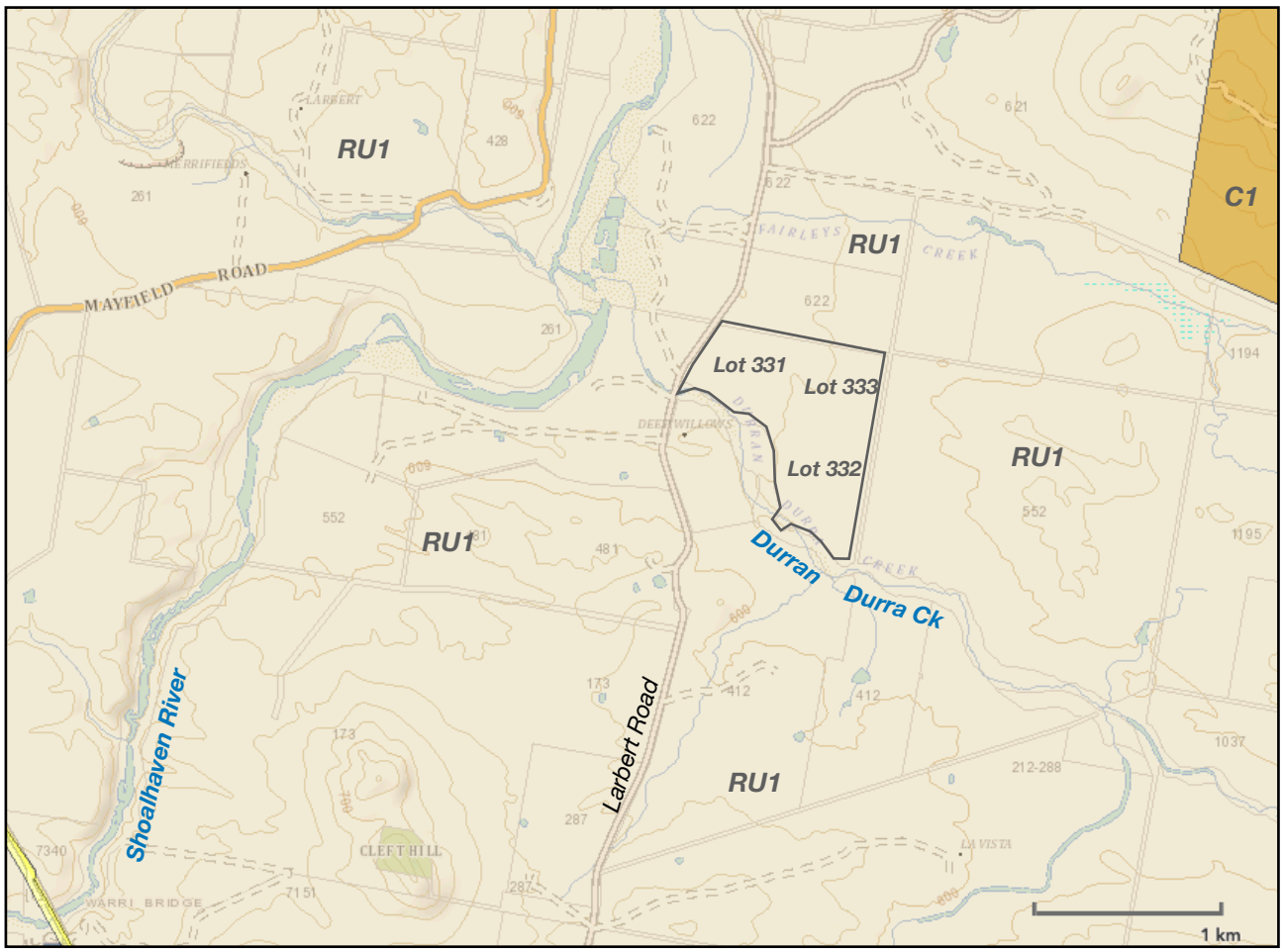


FIGURE 5.1: Lots 331,332 and 333 DP 755418, Larbert are zoned RU1 Primary Production zone, with "extractive industries", as defined, a permissible use in the zone

(Source: NSW Planning Portal Spatial Viewer & Queanbeyan-Palerang Regional Local Environmental Plan 2022 Land Zoning Map-Sheet LZN_004, lot boundaries approx. only)

RU1 Primary Production C1 National Parks and Nature Reserves

The objectives of the zone are a relevant consideration when considering the merits of a development application, as highlighted by the NSW Land and Environment Court in *Codling v Central Coast Council* [2019] NSWLEC 1158 at [84] as follows:

> *"84. It is clear from the terms of clause 2.3(2) that there is no requirement for development within the zone to comply with, or to achieve, each of the objectives of the zone. Nevertheless, the clause requires that the consent authority "have regard to" those objectives. They are therefore a mandatory consideration in the assessment process and a proposed development ought not be antipathetic to those objectives."*

In *Abret Pty Ltd v Wingecarribee Shire Council* [2011] NSWCA 107 at [42] the NSW Court of Appeal held that zone objectives are "are not provisions of the LEP that control development" (at [42]) but merely establish a framework in which an LEP operates. They are, however, relevant when determining the proper construction of provisions in the LEP because they reveal the intended operation and effect of the LEP as a whole. However, the Court held that the zone objectives cannot influence whether or not a development is permissible. In circumstances where LEP zone objectives themselves are not mutually consistent and inherent inconsistencies are evident the NSW Land and Environment Court has held that consistency with zone objectives "*should not be given significant weight*": Robson J in *Trevor Allan McBride v MidCoast Council* [2021] NSWLEC 100 at [69].

The compliance of the sand quarry project with the objectives of the RU1 zone are set out in Table 5.3.

Table 5.3: Compliance of the Project with RU1 Zone Objectives

RU1 Zone Objectives	Compliance
"To encourage sustainable primary industry production by maintaining and enhancing the natural resource base"	*Extractive industries form an important part of the resource base of any local area. Proposed future urban development, along with planned roads, construction and infrastructure projects in and around Canberra will require readily accessible quarry products, in particular sand for concrete, to support the growth in demand- hence the need for the project.*
"To encourage diversity in primary industry enterprises and systems appropriate for the area"	*Not applicable to the project*
"To minimise the fragmentation and alienation of resource lands"	*The proposed development does not involve the fragmentation and alienation of resource lands. It seeks to establish an expanded sand extraction area and to win sand products from a known sand resource.*
"To minimise conflict between land uses within this zone and land uses within adjoining zones"	▸ *The proposed sand extraction area is within a locality where there are a number of existing approved sand extraction operations.* ▸ *The project site is sufficiently buffered from neighbouring residences, thus minimising acoustic and visual impacts.* ▸ *The quarry project will not restrict the use of other land uses in the locality, as satisfactory amenity, noise, traffic and air quality impacts are predicted to occur. These features will assist in minimising conflict with neighbouring land uses.* ▸ *The project has direct access to a local road system via an existing approved internal sand quarry access route.*
"To minimise the impact of development on the natural environment."	▸ *The proposed sand extraction area is cleared and used for agricultural uses, and has no ecological values of significance.* ▸ *A number of stands of trees are proposed to be retained.* ▸ *As such, the proposed development satisfies this objective in minimising impacts on the natural environment.*
"To ensure development does not unreasonably increase the demand for public services or public facilities."	*The proposed sand extraction development will not unreasonably increase the demand for public services or facilities. The proposal will generate the ability to contribute to the improvement of such services in the region generally in providing a much needed extractive resource.*

The LEP mapping indicates that the proposed sand extraction area is free from the following planning or environmental constraints:

- Conservation area or heritage item or archaeological item (source: *Queanbeyan-Palerang Local Environmental Plan 2022 Heritage Map - Sheet HER_004*).
- Visually sensitive land identified for scenic protection (source: *Queanbeyan-Palerang Local Environmental Plan 2022 Landscape Map - Sheet LSC_004*).
- Slopes over 18 degrees (source: *Queanbeyan-Palerang Local Environmental Plan 2022 Landscape Map - Sheet LSC_004*).
- Land prone to salinity (source: *Queanbeyan-Palerang Local Environmental Plan 2022 Landscape Map - Sheet LSC_004*).
- Erodible lands (source: *Queanbeyan-Palerang Local Environmental Plan 2022 Landscape Map - Sheet LSC_004*).

The LEP mapping does indicate that the proposed sand extraction area is subject to the following planning or environmental constraints:

- Is within an area mapped as being of Terrestrial Biodiversity (source: *Queanbeyan-Palerang Local Environmental Plan 2022 Terrestrial Biodiversity Map - Sheet BIO_004*).
- Is within the Sydney drinking water catchment (source: *Queanbeyan-Palerang Local Environmental Plan 2022 Drinking Water Catchment Map - Sheet DWC_004*).

In addition to the above, the site is also identified as being bushfire prone land. The land is not flood prone, however land nearest to Durran Durra Creek would be subject to flooding, and is identified as a "watercourse" (source: Queanbeyan-Palerang Local Environmental Plan 2022 Riparian Lands and Watercourses Map -Sheet WCL_004).

The following Table 5.4 summarises the compliance of the proposed quarry development with other relevant provisions of the LEP.

Table 5.4: Compliance with other provisions of Queanbeyan-Palerang LEP 2022

Other LEP provisions	***Compliance***
Clauses 2.4- 2.9	*These clauses is not relevant as the application does not involve:* ▸ *The proposed use of any unzoned land (cl. 2.4).* ▸ *Land identified in Schedule 1 of the LEP (cl.2.5).* ▸ *Subdivision (cl.2.6).* ▸ *Demolition (cl.2.7).* ▸ *Temporary use of land (cl.2.8).* ▸ *Canal estate development (cl.2.9).*
Clauses 3.1- 4.5	▸ *The proposed development is not exempt or complying development (cl .3.1, 3.2, 3.3).* ▸ *No rural housing or subdivision or boundary changes proposed (clauses 4.1, 4.1AA, 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.2, 4.2A.* ▸ *A 10 metre building height applies (source: Queanbeyan-Palerang Local Environmental Plan 2022 Height of Buildings Map - Sheet HOB_004), however, no buildings proposed other than a small one storey shed, fuel storage and a weighbridfe—considered to be in keeping with the character of the Larbert locality, dominated by agriculture and other extractive industries (cl.4.3).* ▸ *No floor space ratio restrictions apply (clauses 4.4, 4.5).*
Clause 4.6	*No exceptions to development standards are sought*
Clauses 5.1- 5.9AA	▸ *The site is not proposed for acquisition (cl.5.1) and is freehold land (cl. 5.2).* ▸ *No intention to utilise the provisions of clause 5.3. The application does not seek development consent for a land use that is permissible in an adjoining land use zone. The proposed development is permissible in the RU1 zone with consent* ▸ *The proposed development does not seek development consent for a miscellaneous use described by clause 5.4.* ▸ *No secondary dwelling is proposed (cl.5.5), nor affected by natural disaster (cl 5.9).* ▸ *No fire alarm conversion is required (cl.5.8).*
Clause 5.10 Heritage conservation	*A number of Aboriginal sites were identified on land within or near to the proposed sand quarry expansion area (cl.5.10(2)). Sand extraction avoids these sites. As such, the proposed development will not have a detrimental impact on the heritage items in relation to clause 5.10(4).*
Clause 5.11 Bush fire hazard eduction	*This clause is not relevant as the application does not involve bush fire hazard reduction works.*
Clauses 5.12-5.20	*Not applicable given that the proposed development does not involve existing buildings of the Crown (cl. 5.12), eco-tourist facilities (cl.5.13), the subdivision of land in certain areas (cl.5.16), intensive livestock agriculture (cl. 5.18) or pond-based, tank-based and oyster aquaculture (cl. 5.19) or a venue playing music (cl. 5.20).*
Clause 5.21 Flood planning	▸ *The site is not identified as being subject to flooding and is not located within any flood planning area identified in the LEP.* ▸ *The site is reasonably well removed from the Shoalhaven River and potential flood levels and flows, being a further 1km upstream on a local tributary: Durran Durra Creek. The proposed expanded sand extraction area is located on land above the 1% AEP flood level, with bunding provided around all extraction stages.*

Other LEP provisions	Compliance
Clauses 5.22-6.4	*These clauses is not relevant as the application does not involve:* ▸ *Special flood considerations (cl.22) or public bushland (cl.5.23)* ▸ *Farm stay accommodation (cl. 5.24) or farm gate premises (cl.5.25).* ▸ *Urban release areas (clauses 6.1-6.3) or development near the Googong Dam foreshore (cl.6.4).*
Clause 7.1 Earthworks ***(1) The objectives of this clause are—*** ***(a) to ensure earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items and features of the surrounding land, and*** ***(b) to allow earthworks of a minor nature without requiring separate development consent.***	*The proposed development will involve earthworks, defined in the LEP to mean:"excavation or filling" as a part of the proposed excavation and rehabilitation of the various proposed sand quarry working stages.* *Approximately 16ha of land is proposed for and expanded sand extraction development, with a number of defined extraction cells.* *The proposed development complies with the applicable provisions of this LEP provision in that:* ▸ *Minor site establishment works only are required to establish and additional site shed, weigh-bridge, and fuel storage on land that has been leveled. Minimal excavation is required to accommodate these proposed ancillary uses, and will not have a detrimental impact on environmental functions and processes as set out in Clause 7.1(3).* ▸ *The proposed expanded sand extraction area is removed from watercourses, with the Shoalhaven River more than 1km away, and set back between 123m-229m from Durran Durra Creek. These are considered to be more than acceptable setbacks that will ensure that there will be minimal disruption or detrimental impacts on drainage patterns in the locality of the development (cl. 7.1(3)(a)) with acceptable impacts on nearby waterways, drinking water catchment or environmentally sensitive area (clause 7.1(3)(g)).* ▸ *The development proposal includes progressive rehabilitation work to return the land to open grazing for stock in compliance with clause 7.1(3)(b).* ▸ *Earthworks (reshaping, topsoil and vegetation) will be carried out to provide safe and stable final landform, utilising unwanted excavated material. Given the above, and the existing flat terrain and proposed containment of disturbed areas on site, it is considered that the proposed development will have a minimal disruption or detrimental impacts on soil stability in the locality of the development (cl. 7.1(3)(a)).* ▸ *It seeks approval for the expansion of an existing, established sand extraction operation that will continue to provide a source of high-quality sand products to meet the needs of housing and construction markets in the region in compliance with clause 7.1(3)(c).* ▸ *The quarry is effectively screened from view from neighbouring residences not associated with the development, resulting in minimal/zero visual impacts. The operational noise level predicted by Vipac at each of the receivers for day, evening and night conditions wound not exceed the relevant criteria at any residence. The results of predictive dust dispersion modelling by Vipac concludes that the Project would comply with all impact assessment criteria. The traffic impact assessment by Streetwise concludes that the existing road network would accommodate the proposed traffic levels with acceptable impacts to the capacity, efficiency and safety of the road network. Having regard for the above, and the fact that the locality is alrady the subject of a number of other sand extraction operations nearby, it is concluded that the proposed development will have an acceptable impact on development on the existing and likely amenity of adjoining properties, thus satisfying clause 7.1(3)(d).* ▸ *The nature of the sand extraction proposed is described in detail in this EIS, thus satisfying clause 7.1(3)(e).* ▸ *The archaeological investigation finds no evidence of any relics within the proposed expanded sand extraction area, thus satisfying clause 7.1(3)(f).* ▸ *Various measures are proposed to to avoid, minimise or mitigate the impacts of the development, in satisfaction of clause 7.1(3)(h). Refer to EIS Section 4 for a full list of mitigation measures proposed.*

Other LEP provisions	Compliance
Clause 7.2 Terrestrial biodiversity ***(1) The objective of this clause is to maintain terrestrial biodiversity by—*** ***(a) protecting native fauna and flora, and.*** ***(b) protecting the ecological processes necessary for the continued existence of native fauna and flora, and*** ***(c) encouraging the conservation and recovery of native fauna and flora and their habitats.***	*A review of the LEP Map – Terrestrial Biodiversity Map - Sheet BIO_004 confirms that the proposed expansion area is identified as "Biodiversity". However, this does not represent the actual land use of the site, being cleared land for cropping, with isolated stands of trees in and around the proposed sand extraction expansion area.* ► *The Project would require clearing of isolated trees within the proposed expansion area, however, significant stands of native trees will be retained and an appropriate buffer provided around themto protect the root systems.* ► *No part of the the proposed expansion area is identified on the NSW Government's Biodiversity Values Map.* ► *All other areas planned for disturbance is cropping land.* ► *An ecological assessment of the Project was undertaken by Macrozamia. No threatened species were recorded during field surveys.* ► *Almost all of the proposed sand extraction expansion area is relatively low quality vegetation that is likely the result of historical clearing for agriculture.* ► *It is proposed rehabilitate the site once sand extraction is complete.* ► *No threatened species were recorded during field surveys.* ► *It is concluded that the Project would operate with minimal risk of adverse biodiversity-related impacts.* *[NOTE: Any assessment of biodiversity impacts under Pt 7 of the BC Act prevails over inconsistent provisions in the EP&A Act, as well as any LEP made under the Act, under s.7.5(1) of the BC Act: Vigor Master Pty Ltd v Northern Beaches Council [2025] NSWLEC 1520 dated 1 July 2025]*
Clause 7.3 Drinking water catchments ***(1) The objective of this clause are*** ***(a) to protect drinking water catchments by minimising the adverse impacts of development on the quality and quantity of water entering drinking water storages, and.*** ***(b) to maintain water quality and the natural environment in the Sydney… drinking water catchments.***	*A review of the LEP Map – Drinking Water Catchment Map - Sheet DWC_004 confirms that the proposed expansion area and the Project Site as a whole falls within the Sydney Drinking Water Catchment (Shoalhaven River).* *The assessment by SEEC finds that the proposed development will have a neutral or beneficial effect on water quality:* ► *As the Project is not expected to result in controlled or uncontrolled discharges it is considered to have a neutral effect on the Shoalhaven River catchment water quality.* ► *The Project will have an adequate and reliable water source.* ► *All surface water runoff will be captured within the water detention ponds within the proposed sand extraction expansion area, thus preventing the contamination of water sources.* ► *The loss in catchment yield associated with the Project is considered to be negligible.* ► *The water balance modelling indicates that rainfall, runoff and groundwater seepage inflows will provide an adequate and reliable supply of water to meet operational water demands for the Project.*
Clause 7.4 Riparian land and watercourses	*A review of the LEP Map – Riparian Lands and Watercourses Map -Sheet WCL_004 confirms that Durran Durra Creek is defined as a "Watercourse" for the purposes of the LEP. However, no part of the proposed expansion area falls within the land so designated, the Project sufficiently buffered from the creek by at least 40 metres.* *The Project contains mitigation measures to protect and maintain water quality, aquatic habitats and bank stability of watercourses generally.*
Clause 7.5 Salinity	*This clause of the LEP is not relevant as the proposed expansion area is not identified as "Salinity" on the LEP Map-Landscape Map - Sheet LSC_004.*

Other LEP provisions	Compliance
Clause 7.6 Highly erodible soils	*This clause of the LEP is not relevant as the proposed expansion area is not identified as "Erodible Lands" on the LEP Map-Landscape Map - Sheet LSC_004.*
Clause 7.7 Slopes over 18 degrees	*This clause of the LEP is not relevant as the proposed expansion area is not identified as "Slopes over 18 degrees" on the LEP Map-Landscape Map - Sheet LSC_004.*
Clauses 7.8, 7.9 and 7.10 Airspace operations, aircraft noise	*This clause of the LEP is not relevant as:* ▸ *The Project will not penetrate the Obstacle Limitations Surface Map for the Canberra Airport and, as such, is not required to be notified to the relevant Commonwealth body for comment. (LEP clause 7.8)* ▸ *The Project Site is not located near the Canberra Airport or within an ANEF contour of 20 or greater.(LEP Clause 7.9)* ▸ *The Project Site is not located in the South Jerrabomberra Urban Release Area.(LEP Clause 7.10)*
Clause 7.11 Development in areas adjoining national parks and nature reserves	*This clause of the LEP is not relevant as the Project Site does not adjoin a national park or nature reserve.*
Clause 7.12 Essential services	*Having regard for the nature of the proposed development:* ▸ *The site already has an adequate existing approved vehicle access in place to support the Project.* ▸ *The Project will be self-contained and will be reliant on on-site sewage, rainwater and diesel power to support the project- all considered to be sufficient for the Project.*
Clauses 7.13-7.27	*These clauses of the LEP is not relevant as:* ▸ *No sex services premises are proposed. (Clause 7.13)* ▸ *The Project Site is not identified on the Scenic Protection map as "Scenic Protection Area".(Clause 7.14)* ▸ *Does not involve any E2 Commercial Centre zoned land.(Clause 7.15)* ▸ *The Project Site is not located anywhere near Cooma Road Quarry. (Clause 7.16)* ▸ *The Project Site is not located within 2 kilometres of HMAS Harman or within Zone E4 General Industrial.(Clause 7.17)* ▸ *The Project Site is not located near an arterial road. (Clause 7.18)* ▸ *The Project Site is not located near Hume Industrial Area or the Goulburn to Bombala Railway Line. (Clause 7.19)* ▸ *The Project does not involve animal boarding or training establishments (Clause 7.20), development in in Zone C4 Environmental Living (Clause 7.21), the erection of rural workers' dwellings on land in Zones RU1 and C3 (Clause 7.22), the replacement of a lawfully erected dwelling house in Zones E1 and E4 (Clause 7.23), any development at 202 Goolabri Drive, Sutton (Clause 7.24), development on certain land at Braidwood, Bungendore and Googong (Clause 7.25) or land at South Jerrabomberra (Clause 7.26) or South Jerrabomberra Regional Jobs Precinct (Clause 7.27).*

A recent decision by the Land and Environment Court of NSW has clarified the approach to be taken by a consent authority when assessing a development application that is compliant with key development controls within the applicable local environmental plan. In *Gunnamatta Bay Holdings Pty Ltd v Sutherland Shire Council* [2025] NSWLEC 1230 the Senior Commissioner of the Land and Environment Court confirmed at [139], that the Court has made it clear:

> "*when a development has fulfilled all relevant controls in the* [applicable LEP]*, there must be an expectation that it has achieved the objectives of the controls – including the "desired future character" for that site.*"

5.2.2 Palerang Development Control Plan 2015

In addition to the LEP, the provisions of *Palerang Development Control Plan 2015* (DCP) also applies to the Project Site and the Project. The most recent amendment of the DCP commenced from 10 November 2021. The DCP "*expands on the aims, objectives and other provisions of the* [Queanbeyan-Palerang Regional Local Environmental Plan 2022] *and provides detailed development provisions for development in the former Palerang LGA*."(p.6 of the DCP)

The purpose and status of development control plans are set down in s.3.42 of the EP&A Act:

> *"3.42 Purpose and status of development control plans (cf previous s 74BA)*
>
> *(1) The principal purpose of a development control plan is to provide guidance on the following matters to the persons proposing to carry out development to which this Part applies and to the consent authority for any such development—*
>
> *(a) giving effect to the aims of any environmental planning instrument that applies to the development,*
>
> *(b) facilitating development that is permissible under any such instrument,*
>
> *(c) achieving the objectives of land zones under any such instrument."*

In *Hillcrest Rose Bay Pty Ltd v Woollahra Municipal Council* [2021] NSWLEC 1662 dated 28 October 2021 the Land and Environment Court made it clear that where a development control plan contains relevant provisions— and those provisions set standards with respect to an aspect of the development s.4.15(3A) of the EP&A Act requires that the consent authority "*is not to require more onerous standards with respect to that aspect of the development*", confirmed in the 15 April 2025 decision of Robson J in *Fabcot Pty Ltd v Newcastle City Council* [2025] NSWLEC 35 at [68].

The DCP does not contain any provisions specifically relating to extractive industries *per se*, however, there are provisions contained in the DCP that apply to matters that apply to all types of development, relating to biodiversity, soils and watercourses, services, on-site car parking provision, Aboriginal and European heritage, landscaping, contaminated land, erosion and runoff controls, and filling of land. The compliance of the proposed quarry with relevant parts of the DCP is summarised in the following Table 5.5.

Table 5.5: Compliance of the Project with Council Palerang DCP 2015

Relevant Clause of DCP	***Applicability to Project***
Part B1 Site analysis	*Numerous site investigations and assessments have been undertaken as a part of preparing this EIS, including ecology, noise, contamination, visual impact and archaeology.*
Part B3 Flora, Fauna, soil and watercourses	*The Project is considered to satisfy the DCP in terms of management of assets such as native flora and fauna, soil and watercourses given:* ▸ *The ecological assessment by Macrozamia finds that the site is, in the main, cleared for cropping and agriculture the result of historical clearing, of limited ecological significance, with only scattered stands of trees remaining. The Project calls for the removal of a limited number of isolated trees, avoiding a stand of trees on the eastern boundary considered to be of any ecological significance. (B3.5)(B3.1)* ▸ *The Project Site is flat t undulating land and does not comprise any steep slopes. (B3.2)* ▸ *Erosion potential is very low.(B3.2)* ▸ *The proposed expansion area is set back more than 40 metres from defined watercourses.(B3.3)* ▸ *The habitat potential of the land proposed for the Project is very low. Moreover, the project does no have any impact on habitat corridors.(B3.4) Proposed vegetation clearing would result in minimal disturbance of potential habitat areas.* ▸ *Sand extraction and rehabilitation works proposed will be undertaken in a manner that benefits the natural environment, building on the already approved Quarry Rehabilitation Plan prepared by 4 Pillars Environmental Consulting dated February 2024 as a condition of the original July 2023 consent for the existing approved sand extraction operation.Potential habitat within and in the vicinity of the disturbance footprint would be retained where possible. (B3.6)*

Part B4 Bush fire prone land	*The site of the proposed quarry is designated as being bushfire prone land, however, no s.100B authorisation is required from the RFS. Various bushfire management strategies are proposed, including emergency response and evacuation procedures.* ▸ *Fire extinguishers are in all site vehicles and mobile equipment.* ▸ *Any chemical and fuels stored in bunded areas, located and designed to prevent potential fire hazards, as required by AS1940-1993- The Storage and Handling of Flammable and Combustible Liquids.* ▸ *RFS vehicle access is capable of being provided to the site.* ▸ *Retention of water run-off from the sand extraction area in the sediment basin system- an additional source of water for fire fighting purposes.* ▸ *An emergency and evacuation plan is already in place- a condition of the original July 2023 consent for the existing approved sand extraction operation, prepared by 4Pillars Environmental Consulting entitled Braidwood Sand and Gravel 552 Larbert Road, Larbert Emergency and Evacuation Management Plan dated February 2024.*
Part B7 Engineering	*In terms of the matters set down in this part of the DCP:* ▸ *No potable water service is available for the property. Water supply will be from on-site rainwater collection and/or delivery from water cartage.* ▸ *The quarry amenities will be serviced by an onsite sewage management system. Toilet currently provided at the Project Site servicing the existing approved sand extraction operations.* ▸ *Stormwater runoff is proposed to be managed and maintained throughout the life of the development. Offsite drainage to be directed around the sand extraction areas proposed.* ▸ *The land is not identified as being flood prone land.* ▸ *The existing road network would accommodate the proposed traffic levels with acceptable impacts to the capacity, efficiency and safety of the road network. Payment to Council of a road contribution.*
Part 3 Erosion, sediment controls	▸ *The proposed development seeks to manage runoff, erosion and sediment by implementing a raft of measures including, building on the already approved Soil and Management Plan (SWMP) prepared by SEEC dated 25 November 2021 as a condition of the original July 2023 consent for the existing approved sand extraction operation.The SWMP describes the general principles and practices to be used during construction and operation of a proposed sand quarry at Lots 331 & 332 in DP 755915, No. 552 Larbert Road, Larbert.* ▸ *In addition, the proposed development will also build on the already approved Quarry Rehabilitation Plan prepared by 4 Pillars Environmental Consulting dated February 2024 as a condition of the original July 2023 consent for the existing approved sand extraction operation.* ▸ *Clean' water to be diverted away from areas of disturbance, thus minimising impacts on existing drainage areas outside of the active sand quarry area and avoiding contamination or flooding.* ▸ *All stormwater from within the sand pit (ie. 'dirty' water) is to be contained onsite.*
2.2 Tree clearing	*An ecological assessment has been undertaken as part of the EIS assessment process. It finds that satisfactory ecological impacts will ensue as a result of the proposed sand extraction development. Refer* ***Appendix H*** *and Section 7.3 for further details, as well as Section 4 for a summary of mitigation measures proposed.*
2.3, 2.4 Heritage	*A number of Aboriginal sites were identified on land within or near to the proposed sand quarry expansion area. Sand extraction avoids these sites. As such, the proposed development will not have a detrimental impact on the heritage items. Refer* ***Appendix I*** *and Section 7.3 for further details, as well as Section 4 for a summary of mitigation measures proposed.*
2.9 Parking	*Ample parking to be provided within sand extraction area with adequate access to/ sight distances to Larbert Road.Intersection of quarry entry with Larbert Road has already been upgraded as a condition of the July 2023 development consent.*

5.2.3 Southeast and Tablelands Regional Plan 2036, 2041 Draft

The *Southeast and Tablelands Regional Plan 2036* applies to the Queanbeyan-Palerang Regional Council local government area (LGA) and surrounding LGAs. The plan sets out a broad strategy guiding land use planning for the next two decades in the region. It aims to leverage the region's assets, including its natural environment and infrastructure, to foster balanced growth. The vision for the region is a borderless area within Australia's most diverse natural environment, with Canberra at its heart. The plan integrates and aligns with the strategic planning for Canberra.

Currently, the plan is under review, with the aim of updating priorities and extending its reach to 2041. The draft *Southeast and Tablelands Regional Plan 2041* is currently on exhibition for comment.

The plan is not meant to be detailed land use plan, but rather, it provides an overarching framework to guide subsequent and more detailed rezonings/draft LEPs, development proposals and infrastructure funding decisions. Some provisions of the 2041 draft REP relevant to the project are summarised below:

- The REP seeks a minimisation of impacts of development on Groundwater Dependent Ecosystems: Strategy 5.1. In this regard the Project Site does not comprise land comprising a Groundwater Dependent Ecosystem.
- Protecting biodiversity corridors and koala habitats: Strategy 6.1. In this regard the Project Site does not comprise land comprising either a biodiversity corridor or koala habitat.
- Promote economic diversity and prosperity: Strategy 7.1. In this regard the Project Site promotes economic diversity and prosperity by working a proven, valuable additional sand resource capable of providing much-needed processed sand to urban development and local infrastructure projects in the Canberra region.
- Integrate emergency management and planning including evacuation planning: Strategy 7.1. In this regard the Project Site provides for emergency access and evacuation during emergencies, like major flood events or bushfires.
- Minimise impacts on water resources: Strategy 9.1. In this regard the Project can achieve a neutral or beneficial effect (NorBE) on water quality within the Sydney Drinking Water Catchment, and will minimise impacts on groundwater.
- The Project complies with REP Strategy 10.1 that requires: "*Consider existing, approved and potential areas of mineral and energy resources in strategic planning and local plans*." and with Strategy 10.2 in that it provides for a rehabilitation strategy for the Project Site, once sand extraction is completed. The project also complies with Strategy n10.4 in that it avoids any threatened, endangered and critically endangered species and habitat and acceptable impacts on water and air quality.
- The Project will provide much-needed sand resource to service the significant population growth envisaged in the REP.

5.2.4 State Environmental Planning Policy (Resources and Energy) 2021

State Environmental Planning Policy (Resources and Energy) 2021 (SEPP) aims for the sustainable operation and management of mineral, petroleum and extractive material resources. This SEPP allows extractive industries on any land where agriculture is permissible- as is the case here. It requires that determining authorities consider the following when assessing any development application for an extractive industry:

- The compatibility with surrounding land uses. The Project is compatible with in that it is surrounded by other approved and operating sand extraction operations.
- The efficiency of resource recovery. The Project seeks to secure access to a proven quarry resource that is strategically placed in terms of its proximity to major roads and to urban areas of the Canberra region.
- Rehabilitation of the site will occur in once quarrying is completed within each of the various stages.
- To encourage ecologically sustainable development through the environmental assessment, and sustainable management of extractive material resources. The Project contains numerous measures that, taken as a whole, will assist in ensuring that this outcome is achieved.

An assessment of the compatibility of the proposed proposed sand extraction area expansion with the provisions of this SEPP are considered in the following Table 5.6.

Table 5.6: Compliance of Braidwood Sand & Gravel Project with SEPP (Resources and Energy) 2021

Relevant clause in SEPP	Applicability to proposed expanded sand extraction proposal
Clause 2.9 - Permissibility	*Extractive industries are permissible on the Project Site (s.2.9(3)). The proposed expanded sand extraction operation includes the processing of the extracted sand resource material using a wet screening/sand washing plant that processes raw sand to meet specific quality and size requirements for various applications. This plant scrubs, washes, classifies and dewaters sand, removing impurities and unwanted fines producing clean, saleable sand products.(s.2.9(4)).*
SEPP Clause 2.17 - **(a) consider:** **(i) the existing uses and approved uses in the vicinity, and** **(ii) potential for significant impact on the preferred uses of land in the vicinity of the development, and** **(iii) compatibility with any existing, approved or likely preferred uses**	▸ *The proposed expanded sand quarry is satisfactorily buffered from surrounding rural dwellings and agricultural uses, with acceptable, compliant impacts anticipated. Refer Section 4 of the EIS, which outlines the environmental setting and surrounding rural land uses.* ▸ *Much of the land in the vicinity is also used for the purposes of sand extraction. The land proposed for the expanded sand extraction operation is compatible with this land use.* ▸ *The land proposed for the expanded sand extraction operation comprises land with a low land capability (LSC Class 5) and correspondingly low agricultural suitability- overall impact on on agriculture will be low.* ▸ *Extractive industries are a permissible use in the RU1 zone.* ▸ *Sand extraction is recognised as a "preferred use of land" as outlined in Queanbeyan Palerang Regional Council strategic planning documents entitled "Towards 2040, QPRC Local Strategic Planning Statement the 20-year vision for land-use in the local area, (July 2020) and in the Palerang Rural Lands Strategy 2016-2036 (December 2016).* ▸ *Careful site selection and design of the quarry ensures that the quarry operation can achieve a satisfactory degree of compatibility with surrounding land uses. The proposed quarry has been located to minimise visual dust, and noise impacts on adjacent sensitive uses in order to reduce the potential for environmental nuisance.* ▸ *Section 7.3 of this EIS provides an assessment of the potential environmental impacts of the proposal and outlines the measures that will be implemented to minimise those potential environmental impacts.*
(b) public benefits of the development and the land uses referred to in paragraph (a) (i) &(ii) **(c) measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a)(iii)**	▸ *Various specialist assessments have been undertaken regarding the potential impacts from the development on adjoining land uses and habitats. These studies conclude that acceptable impacts will ensue.* ▸ *The project will promote social and economic benefits to the regional economy, in particular the need for sand for concrete serving construction, roads and infrastructure projects in the region. This will create further local job opportunities, at the same time as minimising impacts on the natural environment and local amenity.*
Clause 2.19-Compatibility with mining, petroleum production or extractive industry	*The proposed expanded sand extraction operation is proximate to existing extractive industries, all related to the extraction of sand. The proposed expanded sand extraction operation is considered compatible noting the existing extractive industries in the locality and the existing approved sand extraction development on site.*

Clause 2.20 ***(a) Impacts on water resources*** ***(b) Impacts on threatened species, biodiversity avoided or minimised to the greatest extent possible*** ***(c) Greenhouse gas emissions are minimised***	▸ *Soil and water management plan already in place on the site, applicable to the existing sand extraction operations.* ▸ *The Project is not expected to result in controlled or uncontrolled discharges and have a neutral effect on Shoalhaven River.* ▸ *The water balance modelling by SEEC (refer **Appendix F**) indicates that rainfall, runoff and groundwater seepage inflows will provide an adequate and reliable water supply to meet operational demands for the proposed expanded sand extraction project.* ▸ *Rainfall runoff from upslope catchment will be diverted around the area proposed for the expanded sand extraction project- no increased flows or impact on flow regimes and water availability to downstream water users.* ▸ *Adverse impacts on groundwater will be minimised. Monitoring of groundwater proposed.* ▸ *The land proposed for the expanded sand extraction operations lies above the high flow 1% AEP flood level. Bunding proposed to reduce potential impacts from flooding on the extraction cells.* ▸ *The proposed development will have minimal impact on threatened species and biodiversity No significant stands of trees impacted by the project. The Project seeks the retention of a stand of trees on the eastern boundary of the site.* ▸ *The proposed expanded sand quarry will have an acceptable impact on greenhouse gas emissions.*
Clause 2.21 -Resource recovery	▸ *The proposed expanded sand quarry will enable the optimisation of extraction from a known sand extraction resource.* ▸ *Proposed measures in the EIS (reuse of water, overburden from screening and reuse of topsoil for rehabilitation) would minimise the creation of waste from the proposed expanded sand quarry.*
Clause 2.22 - transport	▸ *Transportation of quarry product will be along the internal quarry haul route back to Larbert Road.* ▸ *The traffic assessment by Streetwise (refer **Appendix J**) finds that the proposed access arrangements, including existing intersection treatments and capacities of haul routes along Larbert Road and the Kings Highway, will be satisfactory.*
Clause 2.23 - Rehabilitation	▸ *Quarry rehabilitation plan already in place on site, applicable to the existing sand extraction operations.* ▸ *Sand extraction, once completed on a progressive, staged basis, will be rehabilitated. A preliminary rehabilitation plan has been prepared in support of the Project- refer EIS Section 3.18 for details.*

State Environmental Planning Policy (Resources and Energy) 2021 (and all SEPPs) overrides the provision of any local environmental plan (LEP) generally (s.2.6). Additionally, it overrides any such provisions of an LEP that may require the consent authority to be: "*satisfied as to certain matters specified in the plan, development for that purpose may be carried out on that land with development consent without the consent authority having to be satisfied as to those specified matters*." (s.2.10(2)).

The Project thus complies with relevant provisions of *State Environmental Planning Policy (Resources and Energy) 2021*.

5.2.5 State Environmental Planning Policy (Primary Production) 2021

State Environmental Planning Policy (Primary Production) 2021 has the following objects:

"*(a) to identify State significant agricultural land and to provide for the carrying out of development on that land,*

(b) to provide for the protection of agricultural land—

(i) that is of State or regional agricultural significance, and

(ii) that may be subject to demand for uses that are not compatible with agriculture, and

(iii) *if the protection will result in a public benefit*."

Land is State significant agricultural land if it is listed in Schedule 1 of the SEPP. Schedule 1 is blank.

In terms of the proposed sand quarry development and impact on agriculture the following factors are relevant:

- The SEPP does not set down any requirements for extractive industries.
- The Project Site does not form a part of land mapped as Biophysical Strategic Agricultural Land (BSAL) (source: SEED online mapping July 2025).
- The dominant land use of the site and surrounding area is primarily for sand extraction, with some grazing.
- The site assessment finds that the soils encountered on the project site are sandy soils with a low land capability and low agricultural worth, not suited to cultivation and suitable only for grazing.
- The site is located within a rural landscape where uses such as extractive industries are specifically nominated as being permissible, and are a dominant land use.
- As has been shown to be the case with many other quarries approved and operating nearby, the proposed expanded sand quarry would not be incompatible with agriculture.
- Potential impacts arising on agriculture could result from noise dust, traffic, and water. These potential impacts have been considered in detail within the EIS and satisfactorily addressed in the technical assessments and in EIS Section 7.3. Accordingly, it is considered that the proposed expanded sand extraction project provides adequate mitigation measures to reduce or resolve likely impacts.
- The potential conflict with nearby agricultural uses is considered to be low. Accordingly, it is considered that there will be no land use conflict arising from the proposal on nearby agricultural land uses.

5.2.6 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 6 "Water Catchments" of *State Environmental Planning Policy (Biodiversity and Conservation) 2021* applies to the Project as the site is located within the Sydney Drinking Water Catchment. The objectives of this part of the SEPP are as follows:

> "*(a) to provide for healthy water catchments that will deliver high quality water to the Sydney area while also permitting compatible development, and*
> *(b) to provide for development in the Sydney Drinking Water Catchment to have a neutral or beneficial effect on water quality.*"

Section 6.61(1) provides that consent must not be granted to development relating to any part of the Sydney Drinking Water Catchment unless the consent authority is satisfied the carrying out of the development would have a neutral or beneficial effect on water quality, to be tested using the NorBE Tool, by reference to the definitions under s.6.59 to mean:

> "*In this Part—*
> *NorBE Guideline means the document titled Neutral or Beneficial Effect on Water Quality Assessment Guideline 2022 published by Water NSW on the date on which State Environmental Planning Policy Amendment (Water Catchments) 2022 commences.*
> *NorBE Tool means the tool titled Neutral or Beneficial Effect on Water Quality Assessment Tool set out in Appendix 1 to the NorBE Guideline*."

The project is captured by the provisions of Section 6.62 given that it is for a development application seeking consent to extend or expand the continuing sand quarry development. In assessing neutral or beneficial effect on water quality Section 6.62(2) provides that:

> "*For section 6.61(1), the carrying out of the additional development will have a neutral or beneficial effect on water quality if it will have the same or a lesser adverse impact on water quality than the adverse impact the continuing development would have if it were extended or expanded under similar conditions to the existing development consent*."

Section 6.64 of the SEPP requires that prior to determination of any development application within the Sydney Drinking Water catchment that the concurrence of the Regulatory Authority must first be obtained, with sub-section (2) requiring the Regulatory Authority to consider the NorBE Guideline (a) and whether the development will have a neutral or beneficial effect on water quality (b). This requirement has been satisfied- refer **Appendices F and G** for details.

5.2.7 Compliance with Other State Environmental Planning Policies

The accompanying Table 5.7 provides a summary of the compliance of the Project with other, relevant State environmental planning policies (SEPPs).

Table 5.7: Compliance of the Project with State Environmental Planning Policies (SEPPs)

Relevant SEPP	Summary of SEPP provisions	Compliance: Project
State Environmental Planning Policy (Transport and Infrastructure) 2021	*The SEPP provides a planning regime for the assessment of traffic generating development across NSW- principally that having a frontage to a classified road.*	▸ *The site does not have have a frontage to any classified road. Therefore s.2.119(2) of this SEPP is not triggered.* ▸ *Extractive industries are not listed as traffic generating development under s.2.121(4) of the SEPP however "Industry" with an area of more than 20,000sq m is listed in Schedule 3 as a development to be referred to TfNSW for comment.* ▸ *The safety, efficiency and operation of the road system is unlikely to be adversely affected by the proposed project. Refer **Appendix J** for details.*
State Environmental Planning Policy (Resilience and Hazards) 2021	▸ *Requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive'.* ▸ *Consider contamination and remediation prior to the determination of a development application.* ▸ *Planning controls for the remediation of contaminated land.*	▸ *The proposed sand quarry development is not considered to be potentially hazardous or offensive, as the only hazardous materials to be stored at the quarry will be restricted to diesel fuel and hydrocarbon products. Any fuel storage will be self-bunded and in full conformance to AS1940-2017.* ▸ *Stormwater will be confined to the sand quarry pit.* ▸ *The Project Site is not on land identified by EPA records under the Contaminated Land Management Act 1997.* ▸ *The contamination assessment finds that there are no significant on site contamination constraints that would preclude the development proposed. As such, the matters as set out in s.4.6(1) of the SEPP have ben satisfied- refer **Appendix K**.*
State Environmental Planning Policy (Biodiversity and Conservation) 2021	▸ *Encourages the conservation and management of natural vegetation areas.* ▸ *Assessment of any likely impact on koalas or koala habitat.* ▸ *Water catchments*	▸ *The project will result in quarrying over cleared and/or disturbed previously used for agricultural purposes, avoiding significant stands of trees or ecological communities.* ▸ *The land proposed for the expanded sand extraction development does not comprise land identified on the NSW Government's Biodiversity Values mapping.* ▸ *The Project will not result in the clearing of native vegetation that exceeds the biodiversity offsets scheme threshold pursuant to the Biodiversity Conservation Act 2016. The ecological assessment (**Appendix H**) demonstrates that sufficient steps have been adopted to avoid and minimise the biodiversity impacts of the development as required under s.6.4 of the BC Act.* ▸ *The project site is not core koala habitat for the purposes of the SEPP nor is it within proximity to core koala habitat. There is no bar to the issue of consent under s.4.9(5) of this SEPP.* ▸ *The project site lies within the Sydney Drinking Water Catchment. The Project is unlikely to significantly affect water flow or runoff or aquatic ecology or the watertable- refer **Appendices F and G** for details.*
State Environmental Planning Policy (Planning Systems) 2021	*Defines certain developments that are projects of state or regional significance.*	▸ *The project is of a type that triggers the relevant criteria for Regionally significant development requiring the consent of the Southern Region Planning Panel.* ▸ *The project is not State significant development.*

The Project thus complies with the relevant provisions of the State environmental planning policies cited above.

▪ 5.3 Applicable Legislation and Other Guidelines

5.3.1 Protection of the Environment Operations Act 1997

The granting of development consent under the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable development of the proposed sand quarry will not exhaust the approvals process necessary for the expansion of sand extraction operations on the project site.

The *Protection of the Environment Operations Act, 1997* (POEO Act) requires licensing for industries, like sand quarries, once consent has been obtained, for extractive industries that extract in excess of 30,000 tonnes per annum. A sand quarry, once consent is issued, would be classified as a scheduled activity if more than 30,000 tonnes per annum of sand was won from the site, requiring the issue of an Environment Protection Licence (EPL) under the provisions of Section 55 of the POEO Act.

ss7 (1) and 50 (2) of the POEO Act make it clear that it and the EP&A Act-under which this DA is to be determined- are interlocking, parallel schemes of regulation. The interlocking nature of the scheme is even more evident when the EP&A Act is considered, in particular Division 5 of Part 4 concerning integrated development (which applies here). The scheme envisages that a development consent will need to be first obtained under the EP&A Act prior to any EPL being issued: *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Limited (No2)* [2010] NSWLEC 104 per Preston CJ, and more recently by the NSW Court of Appeal in *Hunter Industrial Rental Equipment Pty Ltd v Dungog Shire Council* [2019] NSWCA 147 decision dated 20 June 2019 in the matter of a quarry operation at Martins Creek, in the Hunter Valley region of NSW) which at [166] and [177] states, inter alia:

> *"166. Land usage is subject to a range of statutory controls which, in broad terms, operate cumulatively. Thus, for the purposes of the operations carried out at Martins Creek, the appellants needed development consent under the Planning Act and also a licence under the Protection of the Environment Operations Act 1997 (NSW) (the 1997 Act)….*
>
> *177. The evident purpose of s 50, and indeed s 58(6) of the [Protection of the Environment Operations Act 1997: "the 1997 Act"], is to ensure that the [EP&A Act] and the 1997 Act operate in tandem and do not result in conflicting permissions. Thus, if consent is required under the [EP&A Act], and has not been obtained, the EPA cannot grant a licence under the 1997 Act."*

However, an EPL cannot be lawfully issued if it is inconsistent with the issued development consent: per the decision of Justice Pain in *Hy-Tec Industries (Queensland) Pty Ltd v Tweed Shire Council* [2019] NSWLEC 175 dated 14 November 2019. More recently, Pepper J in *Verde Terra Pty Ltd v Central Coast Council; Central Coast Council v Environment Protection Authority (No. 9)* [2022] NSWLEC 29 dated 25 March 2022 expressed this limitation in similar terms: "*The EPA has no power under the EPAA to modify the scope, nature and purpose of activities approved under a development consent*." To do so would subvert the regime contained in the EP&A Act at [248-249]. "*Second, neither the POEOA (including s 50), nor any other statute administered by the EPA, confers power on the EPA to modify the ambit of the activities approved under a development consent*.": *Verde Terra Pty Ltd v Central Coast Council; Central Coast Council v Environment Protection Authority (No. 9)* at [250].

5.3.2 Water Management Act

The *Water Management Act 2000* (WM Act) provides formal means for the protection and enhancement of the environmental qualities of waterways and their in-stream uses as well as to provide for the protection of catchment conditions. It also governs the issue of new water licences and the trade of water licences and allocations for those water sources (rivers, lakes and groundwater) in NSW where water sharing plans have commenced. The object of this Act is to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.

The WM Act regulates the use of land where there may be interference with groundwater or where it involves works within 40m of of a river watercourse: termed 'waterfront land'.

"Waterfront land" is defined in the Dictionary to the WM Act to include:

> "*(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or*
>
> *…*
>
> *where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. …*"

Any proposed extractive industry development within 40m of 'waterfront land' triggers the need for an 'integrated development' approval under the EP&A Act. In this regard, the Project is located near a depression to the north, however, the depression has no defined bed or bank. Although this depression receives waters from upslope it cannot be properly described as a natural watercourse. As this depression does not exhibit the features of a defined channel with bed and banks it does not answer the description of a river, and so the land is not 'waterfront land' for the purposes of the WM Act.

Durran Durra Creek is a perennial watercourse, located more than 40 metres away from the 1st order and 2nd order watercourse located to the south of the proposed quarry footprint. Schedule 1 of the *Water Management (General) Regulation 2018* (WM Regulation) identifies classes of dam which are exempt from licensing requirements, including dams used to contain sediment or to control erosion, which includes quarry sediment basins, that are located on a minor stream. Part 2 of Schedule 4 of the *Water Management (General) Regulation 2018* provides exemptions for water storage structures in accordance with a harvestable rights order.

In terms of groundwater, and on the basis of previous drilling carried out on the Project Site, it is likely that the proposed quarry will encounter groundwater. The proposed development is integrated development under s.4.46 of the EP&A Act as it requires authorisation under s.91 of the *Water Management Act 2000* for reasons related to the proposed excavation levels being below the depth of the standing groundwater table. Refer Appendix G for further details.

5.3.3 Biodiversity Conservation Act 2016

The matters relating to the listing of threatened species, threatened ecological communities, key threatening processes. biodiversity impact assessment, offsetting and related offences are now contained within the *Biodiversity Conservation Act 2016* (BC Act). Recent changes have been made by the *Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act 2024*, most of which came into effect on 7 March 2025.

The Project has regard for the March 2025 amendments to the BC Act in terms of the following:

- Reasonable measures have been taken to **avoid** the impacts of the development on biodiversity values. This has been the course of action adopted here, where the quarry footprint has been reduced from that proposed, avoiding all significant stands of trees and avoiding vegetation/habitat found within the drainage depression located to the north of the (revised) sand extraction area footprint. Moreover, the resultant proposed quarry development footprint has been selected and positioned within areas of lower biodiversity value pasture/cleared land within the subject land.
- Additionally, the proponent has taken all reasonable measures to **minimise** impacts that have not been avoided. In this regard it is proposed to revegetate at Stage 1 the cleared/disturbed land that adjoins and lies to the south of the proposed quarry footprint. The areas affected by the proposed sand extraction project development relate primarily to areas of pasture vegetation dominated by exotic species. As the proposed activities would be consistent with activities already undertaken within the Project Site, indirect impacts including noise and dust effects are unlikely to have significant adverse impacts on adjacent vegetation and fauna habitat.
- Finally, having taken the measures to minimise the impacts, the proponent is then to take biodiversity conservation measures under the biodiversity offsets scheme **to offset** or compensate for any residual impact on biodiversity values. This has been addressed in detail in the Macrozamia Environmental Consulting ecological report in **Appendix H**.

Despite the mention of the mitigation hierarchy in the BC Act, further details as to its direct interpretation are absent. The most that can be understood from the Act (and BC Regulation) is that *reasonable* steps taken to firstly avoid impacts need to be identified and reported on, and that avoidance and mitigation has to occur prior to contemplation of offsets (or other conservation measures).

The mitigation hierarchy established under the BC Act has been tested in the NSW Land and Environment Court, and the outcomes provides further nuance to how the hierarchy is to be interpreted and applied. Relevant cases include:

- *IRM Property Group (No. 2) Pty Ltd v Blacktown City Council* [2021] NSWLEC 1306.
- *Tomasic v Port Stephens Council* [2021] NSWLEC 56.
- *Planners North v Ballina Shire Council* [2021] NSWLEC 120.
- *Blake v Ku-ring-gai Council* [2021] NSWLEC 1461.

Across the cases, the courts consistently emphasised the necessity for proponents to prioritise avoidance of impacts on biodiversity before considering offsetting. Adherence to the mitigation hierarchy—avoiding, minimising, and then offsetting impacts—is a critical requirement. As would be expected, the question of what is 'reasonable' is also a key theme within the cases. For instance, in *IRM Property Group (No. 2) Pty Ltd v Blacktown City Council* [2021] NSWLEC 1306, the proponent was required to 'reasonably consider' the environmental constraints of the site at [72], whilst in *Tomasic v Port Stephens Council* [2021] NSWLEC 56 required the proponent to avoid and mitigate to an 'acceptable degree' at [79].

In this instance an ecological assessment report has been prepared by Macrozamia Environmental Consulting. It discusses the avoidance and minimisation measures proposed from an ecological perspective.Refer Section 7.3.9 of this EIS for a more detailed consideration and assessment

5.3.4 Rural Fires Act 1997

Bush fire prone land is recorded on maps prepared by local councils and certified by the Commissioner of the NSW Rural Fire Service (RFS).

The land proposed for the expansion of the existing approved sand quarry is cleared land, however, it is identified as Vegetation Category 3 medium bushfire risk bushfire prone land on Council's bushfire mapping.

Section 100B of the *Rural Fires Act 1997* requires that a bush fire safety authority is required from the Commissioner for uses including residential development or 'special fire protection purpose' including schools, child care centres and seniors housing. No such authority is required to be issued for an extractive industry.

Under the EP&A Act, development on bush fire prone land must generally meet the requirements of the RFS document entitled *Planning for Bush Fire Protection* unless the consent authority has consulted with RFS. However, there are no specific requirements set down in this document relating to extractive industries or facilities associated with this use. The Project Site is mapped as comprising bushfire prone land- refer to Section 2.2.2 of this EIS.

Various bushfire management measures are proposed to effectively control any fire threat at the proposed quarry including but not limited to the following:

- Siting sand quarry buildings within an already cleared and/or disturbed area of the Project Site.
- Fire fighting equipment to be stored at the sand quarry site. Includes fire extinguishers. Fire extinguishers are to be provided in all mobile equipment. The extinguishers are to be serviced regularly.
- Any fuel storage facilities to be located and designed to prevent potential fire hazards, as required by *AS1940-1993- The Storage and Handling of Flammable and Combustible Liquids*. Any fuel storage areas to be bunded/self-bunded.
- Work instructions to employees to include emergency response procedures, applicable during a fire emergency.

5.3.5 Contaminated Land Management Act 1997

The NSW *Contaminated Land Management Act 1997* is administered by the EPA. It establishes a process where the significant contamination of land is investigated and, where appropriate, remediated. The Project Site is not identified as 'contaminated' under this Act- refer to the Contamination Report in **Appendix K** for further details.

5.3.6 Mining Act,Work Health and Safety (Mines & Petroleum Sites) Act 2013

Quarry rock, stone, gravel or sand is not defined as a "mineral" for the purposes of the *Mining Act*, and is therefore not regulated by this legislation.

However, under the provisions of the *Work Health and Safety (Mines & Petroleum Sites) Act 2013* quarry rock, stone, gravel or sand is defined as a "mineral" and is thus covered by this Act and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022*.

Accordingly, work health and safety practices at the proposed quarry and other quarries in New South Wales are regulated by the NSW Mines Regulator (currently called the NSW Resources Regulator). The NSW Resources Regulator has released health and safety guidelines for the operation of quarries in NSW, in the document entitled *Health and safety at quarries*, dated November 2018. It is proposed that these guidelines will be adhered to, once the proposed quarry is approved.

5.3.7 Local land Services Act 2013

In 2017, the NSW Government introduced amendments to the *Local Land Services Act 2013* (LLS Act) and the then new *Biodiversity Conservation Act 2016* (BC Act), designed to ensure a balanced approach to land management and biodiversity conservation in NSW.

The LLS Act focuses on providing flexibility to landholders in rural land management through a risk-based Land Management Framework, while the BC Act aims to increase biodiversity conservation through investment in private land conservation, native plants and animals and biodiversity offsets.

Under the LLS Act Land Management Framework rural land in NSW is categorised into three main categories:

- Category 1 (Exempt land). Exempt land is land where native vegetation can be cleared without approval from Local Land Services. Exempt land includes land cleared of native vegetation as at 1 January 1990 or lawfully cleared after 1 January 1990, low conservation grasslands, or land containing only low conservation ground cover (not being grasslands).
- Category 2 (Regulated land). Regulated land includes land not cleared as of January 1990, grasslands that are neither low nor high conservation grasslands. Vulnerable regulated land, being a sub-category of Category 2, includes highly erodible land and land susceptible to erosion. In this case Durran Durra Creek has ben so listed. Pursuant to s.60J(2) of the LLS Act when considering these criteria, native vegetation that comprises grasslands or other non-woody vegetation is taken to have been cleared if the native vegetation was significantly disturbed or modified.
- Excluded land is land where the *Land Management (Native Vegetation) Code 2018* and allowable activities do not apply.

Most of the Project Site has been mapped under the draft *Native Vegetation Regulatory Map* (NVR map) which maps the various categories of land, as Category 2 land. The NVR Map is published on the department's website, accessed on the SEED portal. Virtually all of Lots 332 and 333 are mapped as being Category 2 (Regulated land), notwithstanding the fact that all of the lands here was cleared as of January 1990 and has been used as pasture for many decades. All of Lot 331 and the western fringes of Lot 333 are mapped as Category 1 (Exempt land).

Section 60O of the *Local Land Services Act 2013* authorises clearing of vegetation by a development consent under Part 4 of the EP&A Act.

5.3.8 Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EBPC Act)

The EPBC Act regulates actions that could lead to significant impacts to Matters of National Environmental Significance (MNES). Relevant MNES includes threatened and migratory species, and threatened ecological communities. Under the EPBC Act, proponents are required to 'refer' the project to the Commonwealth Department of Agriculture, Water and the Environment (DAWE) if the project is likely to result in significant impacts to MNES. If upon review of the referral documentation, DAWE assess the project as a 'non-controlled action' no further assessment under the EPBC Act is required. Alternatively, if DAWE assess the project to be a 'controlled action', they will outline what further assessment will be required. Refer Section 7.3.9 of this EIS for a more detailed consideration and assessment.

5.3.9 Biosecurity Act 2015

The primary objective of the *Biosecurity Act 2015* is:"*to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers*".

Braidwood Sand and Gravel and the land owner are under a statutory obligation to comply with the general biosecurity duties under the Biosecurity Act through management of on-site weeds and pests. Prior to project commencement, a weed management procedure would be developed as part of any quarry management plan for the proposed quarry, to prevent and minimise the spread of weeds, including management protocols.

5.3.10 NSW National Parks and Wildlife Act 1974

An assessment of potential impacts on Aboriginal cultural heritage assessment report has been undertaken for the Project, as required by the SEARs. The Aboriginal cultural heritage assessment report, prepared by Past Traces ,is included as **Appendix H** to the EIS. It found a number of Aboriginal relics and potential sites in and around the proposed sand extraction footprint. It is proposed that none of these sites will be disturbed- the extraction area avoiding any identified Aboriginal site. As a result, no Aboriginal heritage Impact Permit (AHIP) under Section 90 of the NSW *National Parks and Wildlife Act 1974* is required.

5.3.11 Roads Act 1993

The primary purpose of the NSW *Roads Act 1993* is to establish a framework for the planning, management, and regulation of roads in NSW, including defining road authorities, procedures for opening and closing roads, and managing road-related activities. The Act defines and assigns responsibilities to road authorities, which include Transport for NSW (TfNSW) and local councils.

In this case, any the entry to the sand quarry from Larbert Road has already been upgraded, required as a condition of consent for the currently approved sand extraction development.

Road impacts arising from an expanded sand quarry operation is considered in the traffic impact assessment by Streetwise in **Appendix J** of this EIS.

6.Community Engagement

6.1 Overview

Larbert is a sparsely populated rural area, with relatively few rural residences in the near vicinity. Moreover, the proposed sand quarry itself is visually buffered from surrounding residences, either obscured by intervening topography or screened by intervening timbered country. The consultation undertaken reflects this fact.

The SEARs issued by the Department of Planning, Housing and Infrastructure (EAR 1993) requires that: "*In preparing the EIS, you should consult the relevant local, State and Commonwealth government authorities, infrastructure and service providers and any surrounding landowners that may be impacted by the development.*"

In this regard the project team, including the Proponent, has carried out consultation with various stakeholders and in particular:

- Queanbeyan Palerang Regional Council. A pre-DA meeting was held with Council planning officers on 25 March 2025. The issues raised at the 25 March 2025 meeting with Council officers have been addressed in EIS Sections 7.3.7 (traffic), 7.3.9 (biodiversity), 7.3.10 (groundwater), Section 3 (the proposed quarry), 5.2 (LEP provisions, SEPPs), 7.3.2 (hazards and risk, including bushfire hazard), and 7.3.4 (visual impacts).
- Neighbouring landowners. Refer **Appendix C** for details of the newsletter distributed to nearest neighbours to the south in October 2025.
- Local Aboriginal community and government agencies, as part of a Aboriginal consultation process undertaken by Past Traces- refer to EIS Section 7.3.3 and **Appendix I**.

Details of the consultation carried out by the project team are set out in the following sections. It describes the consultation process and the issues raised, and response to these issues. Where amendments have not been made to address an issue, a short explanation is provided.

6.2 Consultation Undertaken

Outline Planning Consultants Pty Ltd initially consulted with the t Department of Planning, Housing and Infrastructure as required under Clause 3 of Schedule 2 of the EP&A Regulation to obtain the Planning Secretary's Environmental Assessment Requirements (SEARs) for the Project. This consultation involved providing the Department with a Scoping Report, dated November 2024, introducing the Project and providing an overview of the Project, its environmental setting, strategic and statutory context and proposed community engagement.

The Department circulated the Scoping Report to Queanbeyan Palerang Regional Council and to various State Government agencies seeking their requirements relating to respective issues to be addressed in the EIS for the Project. The Secretary's requirements were forwarded to Outline Planning Consultants Pty Ltd on 13 June 2025, with advice also received from the Department of Climate Change, Energy, the Environment and Water (Heritage, Water), the EPA, and Queanbeyan-Palerang Regional Council.

Outline Planning Consultants Pty Ltd and specialist consultants engaged to undertaken various assessments for the EIS subsequently followed up with a number of the government agencies seeking further comments or clarification relating to the Project.

The accompanying Table 6.1 lists all agencies and other organisations consulted, either as a part of the SEARs process or subsequent to the issue of the SEARs.

Table 6.1: Consultation process and outcomes

Government agency or party consulted	Consultation and outcomes
Queanbeyan-Palerang Regional Council (Council)	*This EIS has been prepared in accordance with SEARs comments received from Queanbeyan-Palerang Regional Council, followed up by a pre-DA lodgement meeting with Council town planning officers on 25 March 2025. Follow up advice was also provided to traffic consultants Streetwise by Council's Engineering Department regarding Larbert Road.*
Aboriginal Community	*The SEARs required preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR), prepared by Past Traces in accordance with relevant policy and guidelines with the involvement of 8 Registered Aboriginal Groups (RAPs) including Batemans Bay Local Aboriginal Land Council, Didge Ngunawal Aboriginal Corporation, Kamilaroi-Yankuntjatjara Working Group and Individuals. Refer* ***Appendix I****.*
Neighbouring owners and occupiers of land	*In June 2025 a Fact Sheet about the proposed quarry was circulated by Braidwood Sand and Gravel (proponent) to neighbouring residences within proximity to the Project Site by way of letter-boxing. Refer to* ***Appendix C*** *for a copy of the newsletter that was distributed during that time period.*

6.3 Proposed Future Consultation

The proponent will maintain a proactive approach to ongoing engagement, in particular with near neighbours, once the Braidwood Sand and Gravel Project is approved. This will include the following:

- Direct contact with its fence-line neighbours at a frequency agreed upon with those neighbours, including an invitation for a site visit to view the proposed activities operating within the quarry.
- Direct contact with other surrounding rural property owners when approached or at a frequency that is otherwise reasonably requested by any property owner.
- Receiving and responding to any complaints. The quarry operator will keep a legible record of all complaints made to the operator or any employee or agent of the operator in relation to pollution arising from any activity applicable to the quarry operation.

Under the provisions of the EP&A Act the development application and accompanying EIS will be placed on public exhibition for comment. During the exhibition period, anyone may make a written submission on the quarry project.

Relevant Government agencies will also be notified for comment and, in the case of the EPA and Department of Climate Change, Energy, the Environment and Water (Water) for the issue of 'integrated development' approvals.

The proponent will respond to any submissions received by Queanbeyan-Palerang Regional Council, the public and government agencies during the public exhibition period, which may include follow up consultation with interested parties.

7. Environmental Assessment

7.1 Overview

The identification of environmental issues associated with the proposed Braidwood Sand & Gravel Project has enabled the impact assessment in this EIS to focus on key impacts and mitigation strategies. Details of all sand quarry mitigation measures are contained in Sections 3, 4 and 7 of the EIS report and comprise a fundamental part of the sand quarry development proposed: *per* Preston CJ in *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Limited* [2010] NSWLEC 48 at [83]. They are to be be read in conjunction with the following assessment.

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) form the statutory framework for planning approval and environmental assessment in NSW. The approvals pathways and assessment requirements are set out in environmental planning instruments (EPIs) made under Division 3.3 (State environmental planning policies) or Division 3.4 (local environmental plans) of the EP&A Act.

7.1.1 Compliance with Section 4.15 of EP&A Act

Section 4.15(1) of the EP&A Act applies to the determination of this development application.

The duty imposed by s. 4.15(1) is a duty to take the identified matters "into consideration" as they are "of relevance to the development" the subject of the application. Moreover, a duty to consider a matter does not carry with it a duty to "refer to every piece of evidence and every contention made" in respect of that matter: Robson J in *Monaltrie Area Community Association Incorporated v Santin and Anor* [2025] NSWLEC 38 at

dated 23 April 2025. Section 4.15(1) provides:

> *"(1) In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:*
>
> *(a) the provisions of:*
>
> *(i) any environmental planning instrument, and*
>
> *(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and*
>
> *(iii) any development control plan, and*
>
> *(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and*
>
> *(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),*
>
> *(v) Repealed*
>
> *that apply to the land to which the development application relates,*
>
> *(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,*
>
> *(c) the suitability of the site for the development,*
>
> *(d) any submissions made in accordance with this Act or the regulations,*
>
> *(e) the public interest."*

A summary of the overall compliance of the quarry development with the preceding s.4.15 matters for consideration is set out in the accompanying Table 7.1.

Table 7.1: Compliance of Braidwood Sand & Gravel Project with Relevant Section 4.15 Matters

Relevant matters for consideration s.4.15	Compliance of Proposed Quarry Development (Summary)
(a)(i) The provisions of: Any environmental planning instrument	*The quarry development is permitted by Queanbeyan Regional Local Environmental Plan (LEP) 2022 and is also permissible with consent under State Environmental Planning Policy (Resources and Energy) 2021. It also complies with the provisions of applicable SEPPs. Refer Section 5.2 and Sections 7.1-7.3 of this EIS for details.*
(a)(iii) Any development control plan	*The proposed development is generally consistent with the Palerang Development Control Plan 2015. [NOTE: There are no provisions within this DCP that specifically apply to extractive industries.] Refer Section 5.2.2 for details.*
(a)(iv) The regulations	*The details required to accompany this development application under s.24 of the EP&A Regulation 2021 are contained in this EIS report, accompanying specialist reports, and application form.*
(b) Likely impacts	► *The Project optimises the sand quarry operation and enables full economic recovery of a valuable sand resource, enabling the servicing of urban development and infrastructure projects in the Canberra region, and providing employment for workers -positive social and economic impacts.* ► *The sand quarry management and mitigation measures proposed will minimise impacts generally, in particular in terms of noise, water, air quality and visual impact.* ► *The truck numbers/volumes proposed can be satisfactorily accommodated by the internal quarry haul route, Larbert Road, and the intersection of Larbert Road with Kings Highway.* ► *There will be no likely adverse impacts on the environment or agriculture. Almost all of the proposed expanded sand extraction area has limited agricultural suitability.* ► *The sand quarry is sited on land that is either cleared, disturbed or sited on land with lower ecological or habitat significance. Any significant stands of trees are proposed to be retained.* ► *No sand extraction is proposed over lands identified as having archeological significance.* ► *The quarry will not be visible from any nearby residence. Visual impacts are considered to be Nil to Low.* ► *Stormwater flows can be satisfactorily accommodated with the quarry footprint.* ► *Acceptable air quality impacts are predicted. A raft of dust abatement measures are to be implemented on site.* ► *Acceptable noise impacts are predicted. Noise levels generated by the quarry or by quarry traffic will comply with the relevant noise criteria.* ► *Quarry buildings and infrastructure sited on cleared/disturbed land with good access to Larbert Road for quarry truck traffic or, in the event of a bushfire, to RFS fire fighting vehicles.*
(c) Suitability of the site	*The proposed expanded sand extraction area comprises, in the main, cleared land. The site is suitable for the sand quarrying activities proposed, being reasonably separated from residential areas in a relatively remote rural location. It has safe and adequate access arrangements, with the road system able to cater to the sand quarry traffic proposed.*
(e) Public interest	► *The Project is considered to be in the public interest as it has positive social and economic outcomes, and has satisfactory environmental impacts.* ► *The proposal would contribute to the economy locally and through employment generation and the provision of materials for roads and other infrastructure projects in the region, in particular to provide material to service planned future urban growth within the Canberra region.*

7.1.2 Compliance with ESD Principles

The Project complies with the objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act)- refer to Section 5.1.4 of this EIS for further details. In addition to the above, the objects of the EP&A Act at s.1.3 include (b) "*the facilitation of ecologically sustainable development*" (ESD). ESD is defined in s 4 of the EP&A Act by reference to the definition in s 6(2) of the *Protection of the Environment Administration Act 1991* (NSW). The accompanying Table 7.2 shows that the proposed quarry development satisfies the principles of ecologically sustainable development.

Table 7.2: Compliance of the Braidwood Sand and Gravel Project with ESD principles

ESD Principle	What the Principle provides	How the Project is consistent with the relevant ESD Principle
The Precautionary Principle	*Considers any threat of serious and irreversible environmental damage and uncertainty.*	*After a full evaluation of the project, as considered in this EIS, it is concluded that the proposed quarry can operate within acceptable noise, blasting, air quality, soil, water, environmental, archaeological, traffic and visual criteria. No serious or irreversible environmental damage results from the Project, nor does does it give rise to any uncertainty in terms of what is proposed, likely impacts, or relationship to adjoining development: Oates v Northern Beaches Council [2021] NSWLEC 1684 at [29].*
The Integration Principle	*The decision-making processes should effectively integrate both long-term and short-term economic, environmental and social considerations.*	*Sand quarry management measures have been proposed that will ensure that acceptable impacts will ensue in both the short-term and the long-terms. During the operation of the quarry, employment benefits will arise in terms of workers at the quarry itself and in the broader community, the sand resource being relied upon to fuel further urban development and growth within the Canberra region. The projects that the quarry development will serve will benefit all members of the community, as well as future generations.The sand quarry will be progressively rehabilitated and returned to agricultural, including as a source of water for livestock.*
Intergenerational Equity principle	*The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.*	*The proposed sand quarry development will provide benefits for future generations by providing a secure source of a valuable sand material close to committed urban development in the Canberra region in the short-medium term. The environmental management measures that are contained in the EIS have been developed to minimise the impact of the project on the environment and community to the extent reasonably practicable. The proposed expanded sand quarry was also designed such that elements of the existing environment available to this generation, including agricultural land and access to local waterways, would not be impeded and would continue to be available to future generations.*
Biological Diversity Principle	*Conservation of biological diversity and ecological integrity.*	*The Project Site is generally cleared land with low ecological values. As such, there is anticipated to be no significant adverse impacts on the surrounding biological environment arising from the proposed expanded sand quarry.*
Valuation & Pricing of Environmental Resources Principle	*Improved valuation, pricing and incentive mechanisms as well as environmental factors.*	*Satisfied in that the Project seeks to fully utilise a known sand resource- refer **Appendix H**. The Project optimises the valuation and pricing of the resource with minimal impact by maximising its efficient extraction. Moreover, the land the subject of the proposed expanded sand quarry has limited value to agriculture.*

▪ 7.2 Section 4.15(1)(a): Planning Instruments, DCPs, Regulations etc.

7.2.1 Background and Overview

In this case, the principal environmental planning instruments that are responsible for shaping the proposed Braid Sand & Gravel Project and in facilitating approval of the proposed expanded sand quarry development include:

- *Queanbeyan-Palerang Regional Local Environmental Plan (LEP) 2022* which specifically identifies 'extractive industries', as defined, as a use permitted with consent in the RU1 zone. Moreover, the Project Site is not located within any conservation zone. The project complies with applicable zone objectives: NSW Land & Environment Court in *Codling v Central Coast Council* [2019] NSWLEC 1158 at [84], referred to in *Ingenia Communities Pty Ltd v Mid-Coast Council* [2021] NSWLEC 1131 at [34]:

  "84. It is clear from the terms of cl 2.3(2) that there is no requirement for development within the zone to comply with, or to achieve, each of the objectives of the zone. Nevertheless, the clause requires that the consent authority "have regard to" those objectives. They are therefore a mandatory consideration in the assessment process and a proposed development ought not be antipathetic to those objectives).

- Various state environmental planning policies (SEPPs), and in particular, *State Environmental Planning Policy (Resources and Energy) 2021*. The project is consistent with all relevant SEPPs assessed in this EIS.

It is also noteworthy that the provisions of any state environmental planning policy relevant to the proposed quarry development prevail to the extent of any inconsistency with any other environmental planning instrument. In this regard s.2.6 of *State Environmental Planning Policy (Resources and Energy) 2021* states:

"(1) Subject to subsection (2), if this Chapter is inconsistent with any other environmental planning instrument, whether made before or after this Chapter, this Chapter prevails to the extent of the inconsistency." [NOTE 1: Sub clause (2) does not apply in this case. NOTE 2. As confirmed by Sheahan J in *Bella Ikea Ryde Pty Ltd v City of Ryde Council (No 2)* [2018] NSWLEC 204 in a decision dated 17 December 2018.]

The Project complies with the above relevant environmental planning controls and guidelines, including the provisions of the EP&A Regulation 2021. Refer also Section 5 of the EIS. No applicable proposed instrument applies to the Project or to the Project Site- refer Section 5.2.6 of the EIS.

7.2.3 Any Development Control Plan (s.4.15(1)(a)(iii))

In addition to the provisions of the LEP the provisions of *Palerang Development Control Plan 2015* (DCP) also applies. The purpose and status of development control plans are set down in s.3.42 of the EP&A Act:

"3.42 Purpose and status of development control plans(cf previous s 74BA)

(1) The principal purpose of a development control plan is to provide guidance on the following matters to the persons proposing to carry out development to which this Part applies and to the consent authority for any such development—

(a) giving effect to the aims of any environmental planning instrument that applies to the development,

(b) facilitating development that is permissible under any such instrument,

(c) achieving the objectives of land zones under any such instrument."

Section 4.15(3A) of the EP&A Act requires consent authorities to consider the provisions of any development control plan when determining any DA. It makes clear that if a development control plan sets standards with respect to an aspect of the development and the development application complies with those standards, then the consent authority is not to require more onerous standards with respect to that aspect of the development. These standards have been addressed in Table 5.3 of this town planning assessment report.

It is noteworthy that the DCP does not contain any provisions relating specifically to quarry developments. The quarry complies with the DCP, summarised in Table 5.5 in Section 5.2.2.of the EIS.

7.2.4 Any Planning Agreement (s.4.15(1)(a)(iiia))

No planning agreement has ben entered into with regard to the operation of the proposed quarry development.

7.2.5 "The Regulations" (s.4.15(1)(a)(iv)): NSW Environmental Planning & Assessment Regulation 2021

The term "the Regulations" refers to the *Environmental Planning & Assessment Regulation 2021* which commenced on 1 March 2022 (EP&A Regulation 2021). The proposed quarry operation is identified as 'designated development' in accordance with clause 26 of Schedule 3 of the EP&A Regulation 2021. As such, the application must be accompanied by an EIS. The application will be processed in accordance with the requirements of the regulations relating to Designated Development. The Project is also recognised as 'Integrated Development', as other approvals are required. Clauses 190 and 192 of the EP&A Regulation 2021 relate to the form and content of an EIS, respectively. These requirements, and where they are addressed in this EIS, are set out in the accompanying Table 7.3 and Table 7.4.

Table 7.3: Compliance with clause 190 of EP&A Regulation 2021: Form of an EIS

An environmental impact statement must contain the following information	*Where contained in the EIS*
(2)(a) the name, address and professional qualifications of the person who prepared the statement,	*Certification page.*
(b) the name and address of the responsible person	*Certification page.*
(c) the address of the land	*Cover page and Certification page, as well as Executive Summary.*
(d) a description of the development, activity or infrastructure	*Executive Summary and Section 3.*
(e) an assessment by the person by whom the statement is prepared of the environmental impact of the development, activity or infrastructure	*Sections 2, 3, 4 and 7.*
(3) EIS declaration	*Certification page.*

Table 7.4: Compliance with clause192 of EP&A Regulation 2021: Content of an EIS

An environmental impact statement must also include each of the following	*Where contained in the EIS*
(1)(a) a summary of the environmental impact statement	*Executive Summary.*
(b) a statement of the objectives of the development, activity or infrastructure	*Section 3.1.*
(c) an analysis of any feasible alternatives	*Section 2.8.*
(d) an analysis of the development, including- ***(i) Description of the development*** ***(ii) General description of the environment likely to be affected or significantly affected by the development*** ***(iii) Likely impact on the environment*** ***(iv) Full description of mitigation measures*** ***(v) A list of approvals that must be obtained***	 *Executive Summary and Section 3.* *Sections 2 and 7.* *Sections 3,4 and 7.* *Sections 3, 4 and 7.* *Section 5.*
(e) a compilation (in a single section of the environmental impact statement) of the measures referred to in item (d)(iv)	*Section 4.*
(f) Reasons justifying the carrying out of the development	*Executive Summary, and Section 8.*

The above tables show that the requirements of clauses 190 and 192 of the EP&A Regulation 2021 have been satisfied.

▪ 7.3 Section 4.15(1)(b): Likely Impacts

In determining a development application a consent authority is required to consider the likely impacts of that development, including social impacts in the locality, at s 4.15(1)(b) of the EP&A Act, which requires consideration of the following matters:

> *"(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,"*

As sand quarrying involves the clearing of land and the removal of the sand resource, the focus for any impact assessment here is on impact avoidance and minimisation: *Gunlake Quarries Pty Limited v The Minister for Planning* [2022] NSWLEC 1570. Refer also to **Figure 7.1**, which highlights some of the key impact avoidance and minimisation measures proposed. The development the subject of the development application is not just restricted to the nature, extent and other features of the development but also includes ameliorative measures to prevent, mitigate, remedy or offset impacts of the development, to be considered as part of the development application: per Preston CJ in *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Limited* [2010] NSWLEC 48 at [83]. In the same judgement the Chief Judge also found that:"likely" means "a real chance or possibility" and "significantly" means "important", "notable", "weighty" or "more than ordinary"" at [84].

Similarly, the Courts have determined that "the likely impacts of that development" should not be interpreted narrowly; encompassing not only the direct and immediate impacts of a proposed development on the site where development is proposed but also off- site impacts: *Ballina Shire Council v Palm Lake Works Pty Ltd* [2020] NSWLEC 41 at [6] per Preston CJ. Importantly, there is no legal requirement to further assess the current approved sand extraction operations on the Project Site, as this is not "the development the subject of the development application": *Vortex Developments Pty Ltd trading as Plannex Environmental Planning v The Council of the Municipality of Kiama* [2024] NSWLEC 1755.

Mitigating factors

The mitigation measures proposed form a functional part of the proposed Braidwood Sand & Gravel Project, described in Sections 3 and 4 of the EIS. Additionally, the following mitigating factors also need to be also recognised:

- Progressive rehabilitation of the quarry is proposed following the cessation of quarrying. Appropriate techniques and measures will be applied to ensure that appropriate species of grasses, trees and shrubs are planted out.
- No views are possible of the proposed quarry from neighbouring residences or from residences along Larbert Road back to the Kings Highway.
- The site of the proposed expanded sand quarry avoids known archaeological sites.
- The Project Site does not form a part of a region identified as BSAL agricultural land. The land proposed for the expanded sand extraction development comprises sandy soils of limited agricultural worth.
- The proposed expanded sand extraction area footprint is almost completely cleared land, extraction avoiding any significant isolated stands of trees.
- The Project Site is not subject to landslip hazard, or subsidence or acid sulphate soils.
- Due to its geology, and based on extensive drilling results associated with the approved mine, the proposed expanded sand extraction operation is likely to intersect with local groundwater.
- The land proposed for the expanded sand extraction development is above the 1:100 year flood level.
- The Project Site enjoys a direct link to Larbert Road via an existing formed internal access route serving the existing Braidwood Sand & Gravel sand extraction operation. The existing intersection with this road is needs no further upgrading in order that it can safely and efficiently accommodate the quarry truck traffic volumes proposed.
- The Project Site is sufficiently buffered from sensitive receivers.

Having regard for the above, any environmental impacts arising from the project can be adequately assessed and managed through the imposition of appropriate conditions of approval: NSW Land and Environment Court in *Dellara Pty Ltd v Minister for Planning and Penrith City Council* [2012] NSWLEC 1186 at [160].

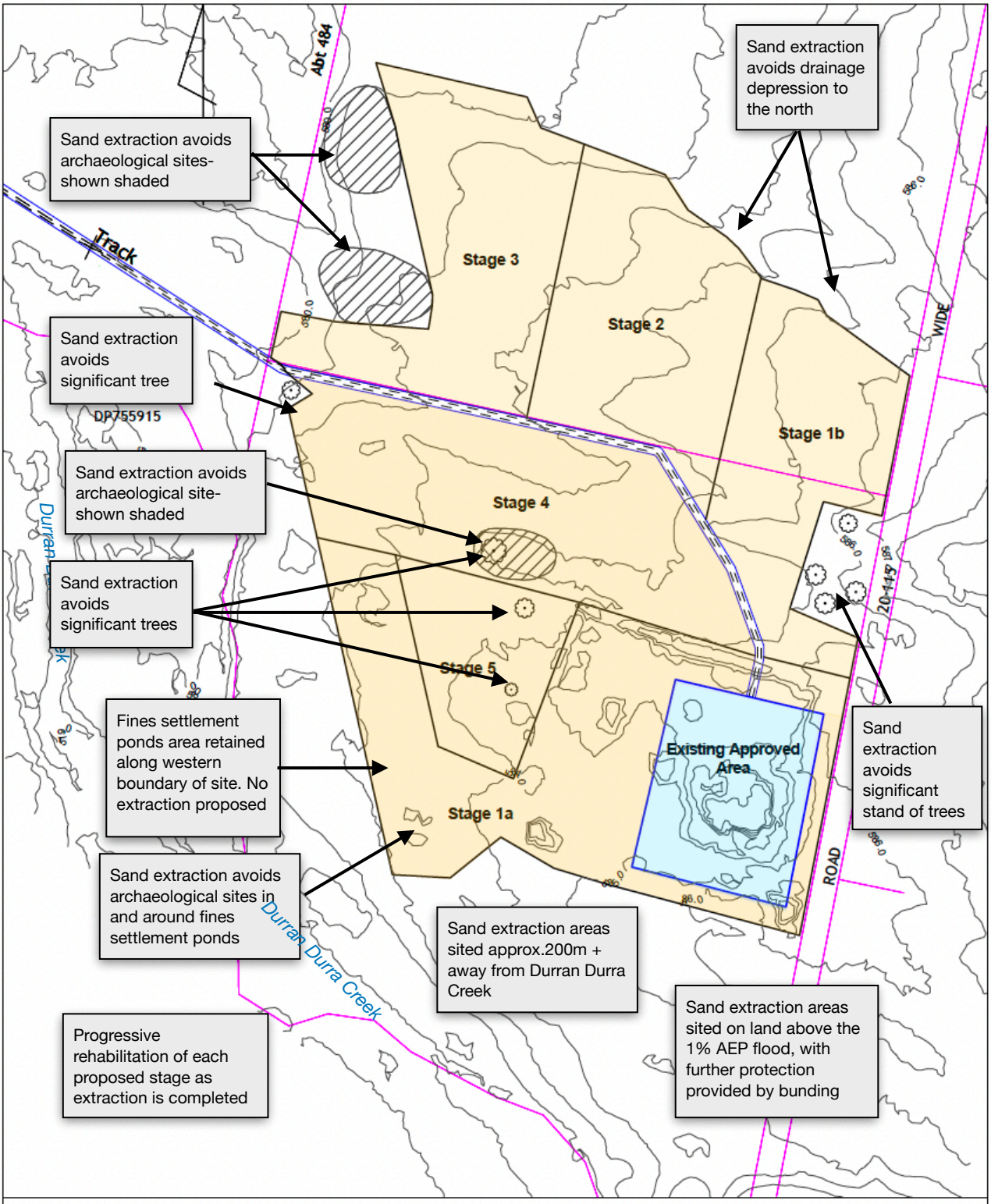


FIGURE 7.1: Extent of proposed expanded sand extraction area (shaded yellow), indicative staging proposed, including areas where sand extraction is to be avoided, mitigation measures

(Base Source:survey by Premise July 2025)

Disclaimer:
- This plan is a conceptual design only
- This plan should be used for visual reference only

Date: 25/09/2025

Drawn By: Abbey Richards

Key impacts to be assessed

The key impacts addressed in the this sub-section of the EIS focus on the following, in no particular order but addressing all relevant matters raised in the issued SEARs:

- **Land resources**. Potential impacts on soils and land capability and proposed mitigation, management and remedial measures.
- **Noise**. Noise impacts on sensitive receivers, including mitigation strategies to be adopted.
- **Air quality**. Air quality impacts on the surrounding Larbert Locality and measures to mitigate potential impacts.
- **Water**. Control of stormwater leaving the project site, impact on groundwater, and prevention of erosion.
- **Biodiversity**. Consideration of impacts on biodiversity values.
- **Heritage**. Consideration of heritage impacts of the Project.
- **Traffic and transport**. Consideration of existing and proposed traffic flows on the surrounding road network.
- **Waste**. Waste streams generated by the project and mitigation measures proposed.
- **Hazards and risk** including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks and the transport, storage, handling and use of any hazardous or dangerous goods.
- **Visual**. Consideration of visual impacts of the Project on surrounding properties in the Larbert locality.
- **Social and economic**. Likely social and economic impacts of the Project.
- **Rehabilitation**. Consideration of the rehabilitation measures proposed, justification of the final landform, and rehabilitation strategy.

7.3.1 Land Resources

Contamination Potential

Pursuant to s.4.6 of *State Environmental Planning Policy (Resilience and Hazards) 2021* a consent authority must consider contamination and remediation prior to the determination of a development application. Refer also to EIS Section 7.3.4. Ballpark Environmental Pty Ltd was commissioned to undertake Stage 1 contamination investigation ('PSI'-refer **Appendix K** in relation to the proposed Project, the results satisfying the relevant precondition under *State Environmental Planning Policy (Resilience and Hazards) 2021:* Preston CJ *Moorebank Recyclers Pty Ltd v Benedict Industries Pty Ltd* [2015] NSWLEC 40 and Dickson C in *Lippmann Partnership Pty Ltd v Canterbury – Bankstown Council* [2017] NSWLEC 1601 dated 9 February 2017 at paras [31-43]. The results of the Ballpark Environmental site investigation is summarised in the following:

- Disturbance from sand and gravel extractive activities adjacent to the southeast of this site is visible in the 2023 aerial photograph. Prior to this date the historical aerial photographs from the period 1960 to 2020 show no quarrying use and this site has been historically used for grazing purposes.
- No other buildings or structures were constructed on this site and therefore it is unlikely that waste building materials, including asbestos, are present on this site.
- A review by Ballpark Environmental of the NSW EPA Contaminated Land Record database revealed that no notices had been issued for the site under the *Environmentally Hazardous Chemicals Act (1985)* or the *Contaminated Land Management Act (1997)* (CLM). A search of the public register under section 308 of the *Protection of the Environment Operations Act (1997)* (POEO) found no licences, applications or notices for this area. A review of the licences, approvals and assessments identified no notices for the site or within the 1km buffer area of the site.
- An interview with the landowner reveals that [redacted] has owned the property since circa 1910 and has always been for rural grazing purposes, initially sheep, and now cattle. The landowner also advised that no waste materials have been disposed of or buried on this site.
- A review of the initial Conceptual Site Model (CSM) prepared for this PSI found no areas of environmental concern have been identified on this site.

- An unexpected fines protocol should be included as part of the quarry Environment Management Plan or as a stand-alone document if potentially contaminated material or buried unexpected finds, are encountered during future quarry earthworks on this site.

Ballpark Environmental conclude that:

> " *In consideration of the results from this PSI we conclude that this site on part of Lots 332 & 333 DP755418, at 552 Larbert Road, Larbert, has an acceptable low level of risk for site contamination and is suitable for its proposed industrial use as a quarry. The site is assessed to be suitable for its proposed industrial use, in accordance with Chapter 4 of the Resilience and Hazards SEPP (2021).*"

Impact on Agriculture

The following Table 7.5 summarises the potential impact of the proposed quarry development on agriculture and land resources generally.

Table 7.5: Impacts of the Quarry Project on Land Resources & Agriculture

Issue	Consideration of impacts
Zoning requirements	▸ *The proposed quarry development is permissible pursuant to the provisions of State Environmental Planning Policy (Resources and Energy) 2021 and Queanbeyan-Palerang Regional Local Environmental Plan 2022. The land use table in the RU1 zone specifically identifies extractive industries as a permissible use in that zone.* ▸ *The proposal complies with the LEP and relevant zone objectives.*
Land use conflict potential	▸ *Sand extraction has already been established on this site.* ▸ *Several other sand and gravel extractive industries are in the locality.* ▸ *The proposed quarry is not visible from any residence in the locality and has acceptable noise, vibration and traffic impacts.*
Land capability, agricultural worth	▸ *The land proposed for the expanded sand quarry has a very limited agricultural value.* ▸ *The proposed quarry development will not impact on high value (BSAL) agricultural land.*
Rehabilitation	*A satisfactory rehabilitation strategy has been devised, including requirements for stabilisation of batters, and importation of clean fill as a part of the rehabilitation process.*
Bush fire risk	*The land proposed for the expanded sand extraction development has been identified as being bush fire prone. Various mitigation measures are proposed to address fire hazards within the proposed quarry development, including evacuation procedures (already in place).*
Water	▸ *Based on extensive test drilling undertaken on the site, groundwater is likely to be encountered- an aquifer interference activity .* ▸ *No proposed controlled or uncontrolled discharges to the receiving surface water environment. No impacts to surface waters are anticipated.* ▸ *Recycling of water proposed. Minimal impact on flow regime of Shoalhaven River expected.* ▸ *The proposed sand extraction development can achieve a neutral or beneficial effect (NorBE) on water quality, subject to conditions.*
Traffic and livestock	▸ *No Travelling stock Routes affected by the proposed development.* ▸ *Low traffic speeds to be observed along the internal quarry haul route.*
Weed management	*Weed management measures have been proposed as a part of the management regime for the sand quarry development.*
Consultation	*Consultation with government agencies and local residents has been undertaken.*
Quarry management	▸ *A range of quarry management management measures are proposed.* ▸ *A quarry management plan is recommended to be implemented, to ensure that the sand quarry is operated in the future in accordance with 'best practice' quarry management measures. Some measures already in place. The basis for the quarry management plan is summarised in this EIS document.*

The land the subject of this proposed quarry development comprises land with a low land capability and low agricultural value. The soils are sandy. It is these features that makes the project site so suited to that of a sand quarry. The footprint of the proposed expanded sand quarry will ultimately be rehabilitated and returned to agricultural use.

The project is anticipated to have minimal impact on existing agricultural activities, and is capable of coexisting with the surrounding agricultural land uses in the locality, thus satisfying the 'compatibility' test set down in *Project Venture Developments v Pittwater Council* [2005] NSWLEC 191.

Impact on Landform, Geology, Soils

The following factors are relevant:

- The site has been used for agriculture since the early 1900s, altering the extent of native vegetation of the land. The potential for contamination is minimal.
- A sand quarry has already been approved on the Project Site, with an approved access back to Larbert Road. All transport movements associated with the quarry are accessed via an existing internal access route off Larbert Road over Lot 331 DP 755915.
- A soil and water management plan is already in place, prepared as a condition of the consent for the sand quarry development approved in July 2023.
- Soils found on the project site have signifiant limitations to agriculture and possesses limited land capability. No part of the project site or surrounding locality is identified as comprising Biophysical Strategic Agricultural Land (BSAL). The project will not impose or affect the ongoing use of adjoining agricultural land.
- Test drilling of the site confirms the existence of a valuable sand resource that continues at depth. The sand is suitable for various purposes including in the making of concrete.
- The proposed quarry is likely to encounter groundwater. It is proposed to recycle water on site, with use of fines settlement ponds and water storage.
- No watercourses or dams are likely to be directly impacted by the proposed quarry operation, with no impacts likely given that all water from quarrying will be retained within the proposed sand quarry. The drainage and sediment capture systems to be employed will prevent erosion, as well as ensuring that run-off does not contaminate offsite areas or downstream waterways.
- Extraction of the sand resource found on the site is proposed to be undertaken in stages, in order to minimise the area of disturbance at any one time.
- Erosion and sediment controls will be implemented in accordance with *Managing Urban Stormwater Soils and Construction – Volume 2e Mines and quarries* (Landcom, 2004).
- Emergency spill kits are to be available at site compounds, lay-down areas, chemical/fuel storage areas and wherever plant and machinery are operating.
- Progressive rehabilitation of each stage of the proposed sand extraction area.

Impact on Land Use

The site is zoned RU1 Primary Production under Queanbeyan-Palerang Regional Local Environmental Plan (LEP) 2022, as is land in the immediate surrounding area. Extractive industries are specifically identified as a permissible use in the RU1 zone, and as such the proposed sand quarry project is consistent with intended land use of the area.

The site has been lawfully cleared due to historical use for agriculture, with the proposed expanded sand quarry development footprint primarily located on cleared lands. Extraction of the sand resource is proposed to be undertaken in stages in order to minimise the area of disturbance at any one time.

The site has a low suitability for agriculture.

In short, it is concluded that the sand quarry project proposed will have minimal impact on adjacent existing agricultural activities, given that the quarry is capable of achieving acceptable land use impacts.

7.3.2 Hazard and Risk Potential

Overview

The risks associated with the proposed Braidwood Sand and Gravel Project have been considered in this EIS having regard for the nature of the proposed quarry development, the mitigation strategies that form a part of the Project, and certainty in the likely impacts arising: *Weal v Bathurst City Council & Anor* [2000] NSWCA 88. The mitigation measures proposed for the project are considered to be practical, feasible and reasonable from a cost, planning and design perspective, and form a fundamental part of this Project. It is important to note that a zero risk precautionary standard is inappropriate. Instead, precautionary measures should be taken to avert the anticipated threat of environmental damage, but they should be proportionate: Preston J in *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 33.

The SEARs requires the following risks to be considered as a part of the EIS assessment:

> "*Hazards – including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks and the transport, storage, handling and use of any hazardous or dangerous goods.*"

Potentially Hazardous or Offensive Industry

State Environmental Planning Policy (Resilience and Hazards) 2021 applies. It aims to achieve a number of outcomes, including:

- Amend the definitions of hazardous and offensive industries where used in environmental planning instruments.
- Renders ineffective a provision of any environmental planning instrument that prohibits development for the purpose of a storage facility on the ground that the facility is hazardous or offensive if it is not a hazardous or offensive storage establishment as defined in this Policy.
- To ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account.

The above SEPP defines potentially hazardous and potentially offensive industries as follows:

> "***potentially hazardous industry*** *means a development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality—*
> *(a) to human health, life or property, or*
> *(b) to the biophysical environment,*
> *and includes a hazardous industry and a hazardous storage establishment.*
>
> ***potentially offensive industry*** *means a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment."*

The Guidelines for this SEPP state that "*the key consideration in the assessment of a potentially offensive industry is that the consent authority is satisfied there are adequate safeguards to ensure emissions from a facility can be controlled to a level at which they are not significant*." In this regard it is considered that the project satisfies this objective in that it has adequate safeguards, and, as such, is not be hazardous or offensive given the following:

- The specialist reports and this EIS find that the proposed quarry development would not have any adverse impacts on the environment generally in the locality, or on the existing or likely future development of the land, in particular in terms of noise, water quality or air quality impacts.
- Management practices on the site during operation will ensure that there is no build up or emission of hazardous material on or from the site, as required by the Guidelines. The operator of the site will implement measures to limit any potential hazardous impact. Any potentially hazardous materials to be stored on site in

accordance with relevant standards.

- The proposed sand quarry, including the processing of the sand resource and transport of quarried material off site, is not considered to be offensive as it is to be carried out within relevant EPA noise limits.
- An "extractive industry" is not identified as being hazardous or offensive in the Queanbeyan-Palerang Regional LEP 2022, nor will it have a likely significant adverse impact on the locality or other development.
- The only hazardous materials to be stored at the quarry will be restricted to diesel fuel, a Class C1 combustible liquid, and hydrocarbon products including lubricating oils and combustible liquids. The diesel fuel will be stored separately from other Class C1 liquids and therefore is not considered to be potentially hazardous under the SEPP. Any fuel storage will be self-bunded and in full conformance to the Australian Standard AS1940-2017 *The storage and handling of flammable and combustible liquids* including appropriate separation distances from buildings or other storages of other combustible liquids. The fuel storage area proposed is to be located within a cleared area, suitably removed from any bushfire prone lands.
- The storage and transport of hazardous materials is not considered to be hazardous, and a Low risk has been determined accordingly- refer Table 7.7.
- Based on the findings of this EIS, the project will not result in significant adverse impacts on the biophysical environment in the project locality, or on the existing or likely future development on other land.

Risk Rating

The risk rating matrix commonly used is illustrated in accompanying Table 7.8, being a modified version of Standards Australia *HB 203-2006* Table 4(C) and *HB 89-2013*. The Risk Level for each activity, relevant to construction activities listed in the Planning Secretary's SEARS advice is then rated as Low (L), Moderate (M), High (H) or Extreme (E). It is similar to, but not the same as, the risk ranking matrix used by the DPI in its *Land Use Conflict Assessment Guide*.

Table 7.8: Risk Rating Matrix

(Source: modified after Standards Australia HB 203-2006 Table 4(C) and HB 89-2013)

Matrix	***Consequences (C)***				
Likelihood (L)	***1*** *Insignificant*	***2*** *Minor*	***3*** *Moderate*	***4*** *Major*	***5*** *Catastrophic*
A *(Almost Certain)*	***H***	***H***	***E***	***E***	***E***
B *(Likely)*	***M***	***H***	***H***	***E***	***E***
C *(Possible)*	***L***	***M***	***H***	***E***	***E***
D *(Unlikely)*	***L***	***L***	***M***	***H***	***E***
E *(Rare)*	***L***	***L***	***M***	***H***	***H***

LEGEND	RISK LEVEL
E	***Extreme****- Immediate action required.This level of risk likely to preclude any development proceeding*
H	***High****- In-depth assessment required.Ultimately, may result in development not proceeding*
M	***Moderate****- Management responsibility (specified).Unlikely to preclude development*
L	***Low****- Routine management required only. Unlikely to have significant impacts*

This section of the EIS provides a preliminary assessment of the hazards, risk and health aspects of the proposed quarry in accordance with the issued SEARs, as well as with relevant legislation and guidelines. The risks have been assessed having regard for the specific nature of the proposed quarry operations proposed on the Project Site for the quarry project, and after incorporating the mitigation measures as described in the EIS document.

Through the implementation of the various proposed management and mitigation measures a residual (ie. mitigated) risk rating for the project has been derived. In most cases the potential environmental impacts have been reduced significantly, and in all cases to an acceptable level (ie. Low to Moderate-Low). The accompanying Table 7.9. illustrates residual risk remaining, after these mitigation measures have been implemented .

- Instability of sand quarry working faces (category D-E likelihood, Minor consequence, Low risk).
- Transportation of dangerous goods and hazardous materials, impact on roads (category D-E likelihood, Minor consequence, Low risk).
- Storage of dangerous goods and hazardous materials on site (category D-E likelihood, Minor consequence, Low risk).

- Contamination of the site, existing or proposed (category D-E likelihood, Minor consequence, Low risk).
- Natural hazards, like bushfire risk (category C likelihood, Low/Moderate consequence, Low/Moderate risk).
- Unauthorised access to the quarry (category E likelihood, Minor consequence, Low risk).

Table 7.9: Potential Hazardous or Offensive Risks of Quarry project

Risk Item	Assessment	Risk level
Quarry stability	▸ *The overall slope of each sand extraction stage, once competed, achieve a safe, stable landform.* ▸ *Stability of the quarry and surround areas would be monitored during the project, to ensure a safe work environment.*	*LOW*
Transportation of hazardous/ dangerous goods, roads impacts	▸ *Intersection of internal access route with Larbert Road has already been upgraded as part of the 2023 consent for the existing sand extraction operations. A low (max. 30km/hour) speed limit to be applied to haulage vehicles within the sand quarry site.*	*LOW*
Storage of dangerous goods	▸ *The only hazardous materials to be stored at the sand quarry will be restricted to diesel fuel and hydrocarbon products. Any fuel storage will be self-bunded and in full conformance to the Australian Standard AS1940-2017.*	*LOW*
Sand to be won	▸ *Sand is is considered to be free of any contaminants.* ▸ *No acid sulfate soils potential.*	*LOW*
Contamination	▸ *The project site has an acceptable low level of risk for site contamination and is suitable for its proposed use as an expanded sand quarry.* ▸ *The likelihood of contamination resulting from the proposed sand quarry operations is considered extremely low as the proposed quarrying will remove naturally occurring sand from site only, with clean ENM and VENM used during progressive site rehabilitation.* ▸ *Fuel and oil storages on site will comply with relevant Australian standards to contain fuel spills and minimise the risk of soil contamination from any spills.*	*LOW*
Bushfires, flooding, drainage	▸ *The project site is identified by the RFS as comprising bushfire prone land. A raft of fire safety measures are proposed- refer to EIS Sections 3.11 and 4 for details. Suitable access to be provided to RFS fire vehicles in the event of a bushfire.* ▸ *The proposed expanded sand extraction area is free from flooding (1% AEP), with appropriate water management measures proposed.*	*LOW/ MODERATE*
Utlities	▸ *The proposed expanded sand extraction area is not within proximity to any power lines.*	*LOW*
Unauthorised access	▸ *The sand quarry site is protected by fencing and a locked gate on the western boundary, effectively limiting unauthorised, out-of-hours public access.*	*LOW*

Matters relating to occupational health and safety and bushfire threat are dealt with under the following separate sub-headings.

Bushfire

The EP&A Act and the *Rural Fires Act 1997* (RF Act) provides the legal framework for development assessments on bushfire prone land in NSW. All of the Project Site has been mapped by the RFS as comprising bushfire prone land (Category 1)- refer EIS **Figure 2.9**. This generalised mapping does not account for the lands within the project site that have already been comprehensively cleared of vegetation.

Pursuant to the provisions of clause 100B of the RF Act only development applications for subdivision, special fire protection purpose development or residential development require a bush fire authority from the RFS. No such bush fire authority is required to be issued for any extractive industry. In general, development on bush fire prone land must satisfy the requirements of the RFS document entitled *Planning for Bush Fire Protection* (PBP). However, there are no specific requirements set down in this document relating to extractive industries or facilities associated with this use, such as quarry offices/amenities buildings. Moreover, quarries are not identified in PBP as comprising 'hazardous industry' and, as such, no special Fire Safety Study is required in support of this project.

With the implementation of the proposed mitigation measures and safeguards, as set out in the following, it is considered that any bush fire hazard arising from the Project can be satisfactorily managed in terms of the quarry operation itself as well as for the surrounding community, and compliance with the the PBP guideline- refer Table 7.10. All mitigation measures proposed will be maintained for the life of the quarry project.

Table 7.10: Compliance with Planning for Bushfire Protection (PBP)

PBP Objective	Compliance
Afford occupants of any building adequate protection from exposure to a bushfire	▸ *Sand quarry infrastructure area will be appropriately protected via the implementation of maintaining cleared buffet around plant and use of firefighting equipment + other measures- refer EIS Section 3.11 for further details.* ▸ *The proposed expanded sand extraction area footprint also provides a further buffer to bushfires.*
Provide for a defendable space to be located around buildings	*Quarry infrastructure area will be appropriately protected via the maintenance of cleared buffers around buildings.*
Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent the likely fire spread to buildings	*Proposed quarry infrastructure areas to be appropriately separated from bushfire prone lands- refer EIS Section 3.11 for further details.*
Ensure that safe operational access and egress for emergency service personnel and occupants is available	▸ *The Project has direct access to Larbert Road, and access and egress enables satisfactory for emergency vehicles. The development provides for the movement of heavy articulated trucks through the project site.* ▸ *Work instructions to employees to include emergency response procedures, applicable during a fire emergency.[NOTE: An emergency evacuation plan is already in place.]*
Provide for ongoing management and maintenance of bushfire protection measures	▸ *To be managed in accordance with proposed quarry management plan and the measures as outlined in this EIS document.* ▸ *Sufficient cleared areas to be maintained around quarry buildings. Access will be clear of obstructions and maintained at all times. Appropriate firefighting equipment will be provided and maintained at all times.* ▸ *Any fuel storage facilities will be located and designed to prevent potential fire hazards, as required by AS1940-1993. Any fuel storage areas to be bunded/self-bunded.* ▸ *Fire fighting equipment to be stored at the sand quarry site. Fire extinguishers are to be provided in all mobile equipment. The extinguishers are to be serviced regularly.*
Ensure that utility services are adequate to meet the needs of firefighters	*Utility services would be installed and managed to meet the needs of firefighters (and others assisting in bushfire fighting). Quarry fines settlement and ponds provides water for fire fighting purposes.*

These measures are further discussed in EIS Sections 3 and 4.

Occupational health and safety

Responsible legislative compliance is fundamental to maintaining a safe workplace at any quarry. Under the provisions of the *Work Health and Safety (Mines & Petroleum Sites) Act 2013* quarry rock, stone, gravel or sand is defined as a "mineral" and is thus covered by this Act and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022*. All work health and safety practices at the proposed expanded sand quarry- and other quarries in New South Wales- are regulated by the NSW Mines Regulator (currently called the NSW Natural Resources Access Regulator). The sand quarry operator will be the person responsible for ensuring that the quarry operations are run in a proper and safe manner.

The NSW Natural Resources Access Regulator has released health and safety guidelines for the operation of quarries in NSW, in the document entitled *Health and safety at quarries* ,dated November 2018, addressing worker safety, hazard identification and risk management.

Summary: hazards and risks

In view of the generally Low hazard risk of the development and the implementation of mitigation measures proposed (refer also to Section 4), the risk hazards or offensive impacts will be adequately minimised. The proposed expanded sand extraction operation is therefore not likely to pose any significant risk to neighbouring land uses or the environment generally. Therefore, the proposed project is not considered a potentially hazardous or offensive development.

7.3.3 Waste

If the expanded sand extraction development is approved, and once the 30,000 tonnes per annum limit is triggered or likely to be triggered, an environment protection license (EPL) will need to be issued, providing enforceable conditions prohibiting the disposal of any waste generated by the sand quarry operation. All waste would be managed in accordance with the requirements of the *Waste Avoidance and Resource Recovery Act 2001*, the POEO Act, and the *Waste Classification Guidelines* (NSW EPA, 2014) and the principles of the waste management hierarchy. The sand quarry operator will be responsible for collecting recyclable material (waste oil, metal, glass, and plastic) for collection by Council or appropriate recycling contractor. Any non-recyclable domestic waste will be disposed of via the local council collection service.

7.3.4 Visual Impact

Overview: Landscape Character

The landscape character and visual significance of land needs to be considered in the context of a range of factors, including landscape features, visual prominence and context in the overall landscape. The general visual character of land is established through an assessment of its topographic characteristics, land use and settlement pattern, ability to be viewed by others and vegetation cover.

Landscapes found within the near vicinity of the proposed Project predominantly comprises:

- Numerous sand extraction pits located in a generally cleared valley in the immediate vicinity of the Project Site. The existing Braidwood Sand and Gravel sand extraction operations forms a part of this landscape, considered to have Low Scenic Quality.
- Cleared, modified pastures used for agricultural production activities, including cropping and grazing, found on the flat to undulating alluvial plain. Considered to have Low-Moderate Scenic Quality. Refer to Photograph 7.1.
- Patches of stands of trees within the flat to undulating alluvial plain, visible in patches along Durran Durra Creek and to the east and north of the Project area. Considered to have Moderate Scenic Quality. Refer to Photograph 7.3.
- Further removed from the Project Site, riparian vegetation along the Shoalhaven River to the west and with a woodland hill to the southwest— considered to have a High Scenic Quality.

The existing Braidwood Sand and Gravel sand extraction operation are on relatively flat terrain:

- Not clearly visible from the Larbert Road entry, located approximately 900 metres to the west, with the bunded areas barely visible from this viewing point. Refer to Photograph 7.1.
- Not visible from surrounding residences not associated with the Project. A farm shed, located to the north of the Project, is visible from the proposed expanded sand extraction area. Refer to Photograph 7.2

PHOTOGRAPH 7.1 Landscape viewed from Larbert Road looking back towards the existing Braidwood Sand & Gravel sand extraction operation

Flat to undulating alluvial flats with improved pasture and isolated stands of trees. Bunds associated with the existing Braidwood Sand & Gravel operations are barely visible. Photograph from Larbert Road near the entry to the existing sand quarry.

Low-Moderate Scenic quality. Minimal variety in the landscape, tolerant to visual change.

PHOTOGRAPH 7.2 Landscape viewed from proposed expanded sand extraction area looking back towards the west and existing farm shed building on property located to the north

Flat to undulating alluvial flats with improved pasture and isolated stands of trees, backed by hilly, forested landscape. B.

Low-Moderate Scenic quality on flat areas, tolerant to visual change. Moderate to High Scenic quality in hilly, forested areas, less tolerant to visual change.

PHOTOGRAPH 7.3 Landscape viewed from edge of project Site, near Durran Durra Creek, looking back towards the south-west

Flat to undulating alluvial flats with improved pasture and isolated stands of trees, backed by hilly, forested landscape. B.

Moderate Scenic quality on flat areas, tolerant to visual change. Moderate to High Scenic quality in hilly orforested areas, less tolerant to visual change.

The proposed expanded sand extraction operation is proposed to be set back a minimum of approximately 600 metres away from and to the east of Larbert Road, and will have a similar degree of visibility as that now existing. It will not visible from surrounding residences not associated with the Project. The existing topography of the Larbert locality, together with areas of vegetation, will generally obscure views of the Project from other public viewpoints, including Larbert Road back to Kings Highway. The assessed visual impact of the project is set down in accompanying Table 7.11.

Table 7.11: Visual Impact Assessment Criteria & the Project

Visual Impact	Significance of visual and landscape impact
Low	*The proposed quarry development would cause no or very minor changes to the existing view or landscape (Low-Moderate Scenic quality).* *Development would either be barely visible (elevated bunds surrounding the each stage of the project) or not visible (quarry buildings), with no evident changes in the shape of the overall topographic panorama.* *No significant adverse impact on overall visual character.*
Moderate	***Not applicable to the proposed expanded sand extraction area.*** *The development would cause minor changes to the existing view or landscape.* *Noticeable change to a significant proportion of the landscape, affecting some key characteristics and the experience of the landscape, and introduction of some uncharacteristic elements. Moderate impact on visual character. Impacts typically capable of mitigation in part or whole.*
High	***Not applicable to the proposed expanded sand extraction area.*** *The changes to the landscape and/or views would result in extensive, noticeable change and introduction of many incongruous elements into the landscape. Development highly visible within a direct line of sight from nearby residences and nearby public viewing places, typically within 1km from operations.* *Visual impacts not capable of being mitigated, with impacts more than likely being more permanent in nature.*

The visual impact of the proposed quarry project has thus assessed to be NIL to Low having regard to the planning, physical and visual context of the site and the sand extraction development proposed. No further mitigation measures are considered required in order to further reduce the visual impact of the Project.

7.3.5 Noise

Overview

Vipac Engineers and Scientists Ltd (Vipac) was engaged by Outline Planning Consultants Pty Ltd on behalf of Braidwood Sand and Gravel to prepare a noise impact assessment to support the proposed expansion of the approved sand extraction operation. Quarries have the potential, if unchecked, to produce significant levels of noise and vibration. This is more pronounced in hard rock quarries, involving as it does blasting of rock and crushing to produce a final end product. The noise generated by sand extraction and sand processing operations are, in contrast, much less than that generated by a hard rock quarry.

The sources of noise generated by a sand quarry relate to the following:

- Excavation activities.
- Loading and unloading activities.
- Screening and washing of sand.
- Transportation and despatch of sand from the site.

Importantly, typical daily noise generated by operational activities currently being undertaken on the site by Braidwood Sand and Gravel, including extraction, handling and haulage, processing and the transportation of processed sand is not expected to change substantially as a result of the proposed expanded sand extraction development, given the reliance on a continuation of existing operations and plant currently established on the site. The cumulative noise from the recently approved Canberra Sand & Gravel extraction operations is also considered in this assessment.

It is expected that the intensity of operations would, however, be at a higher level than that currently existing, given that it is proposed to increase the rate of extraction, from 25,000 tonnes per annum up to 200,000 tonnes per annum. The level of extraction (and implied increase in the rate of production) would result in an increase in total truck movements from the sand quarry site.

Mitigation measures are proposed to ensure that the impact of noise on neighbours is appropriately mitigated and managed. A noise assessment was undertaken by Vipac Engineers and Scientists Ltd to determine potential noise impacts on nearest sensitive receivers from the proposed Braidwood Sand and Gravel Project- refer **Appendix D** and **Figures 7.1-7.2** for details. This sub-section of the EIS provides a summary of the findings of Vipac's assessment in relation to potential impacts associated with the Project relating to noise.

Noise Sensitive Receptors (NSR)

The location of nearest noise receptors is summarised in the accompanying **Figure 7.1.** Note that NSR 4 is owned by the landowner, some 480m away. The next closest residence (NSR 1) is situated approximately 700m away from the edge of Stage 1a, with the next closest residences being situated some 860m (NSR 2) to 1,700m (NSR 3) away. In short, the proposed expanded sand extraction area is well buffered in terms of separation distance from nearest residences in the locality.

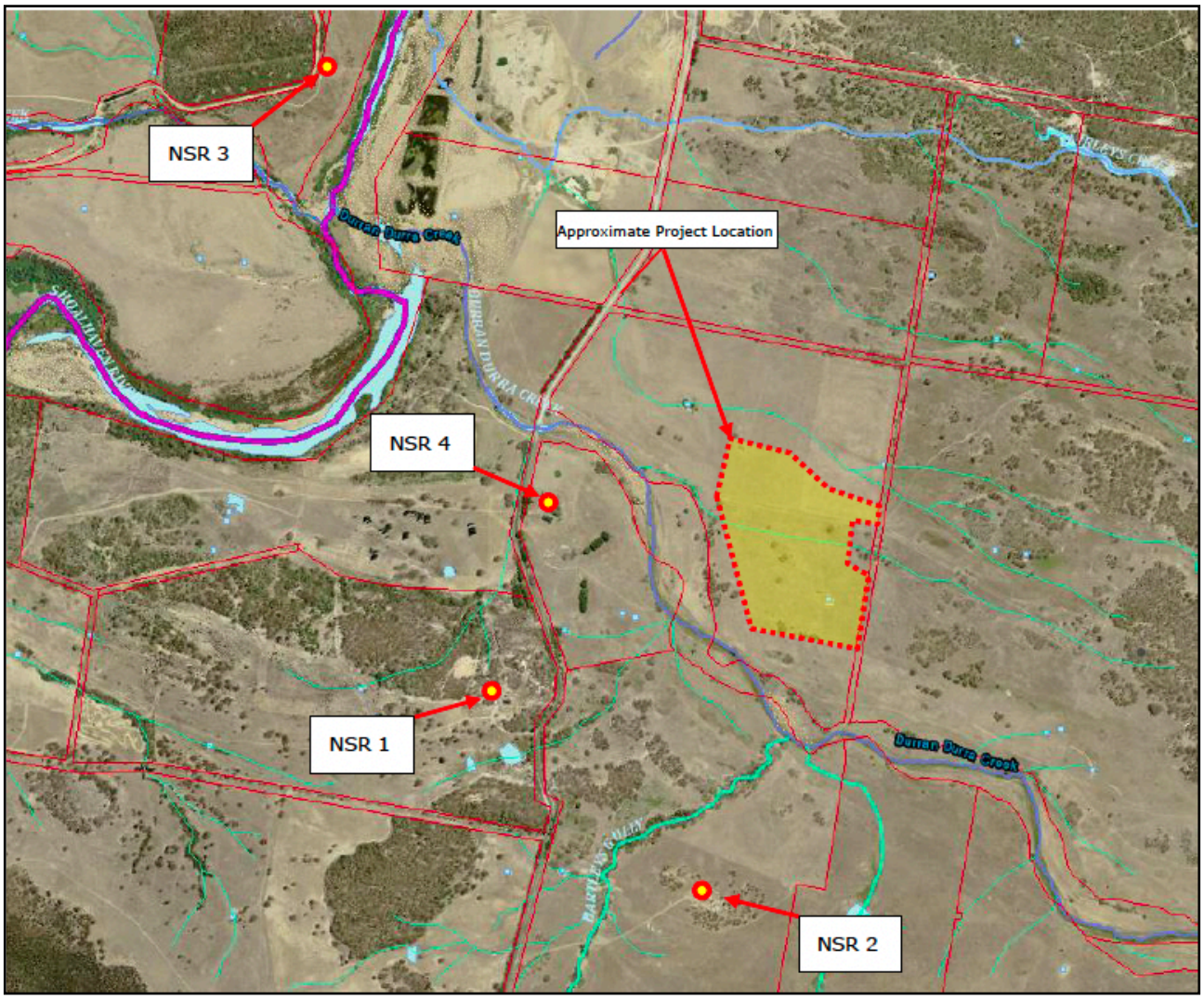


FIGURE 7.1: Nearest residences to the proposed expanded sand extraction operations NSR 1-4

(Source: Vipac Noise & Vibration Impact Assessment.NOTE: Extent of proposed expanded sand extraction area has been reduced since noise impacts were assessed-separation distances have increased to NSR 3)

Noise Criteria

Quarry development in the initial construction phase will consist of stripping of the topsoil and weathered material by either dozer of excavator, blasting of quarry rock, internal haul road improvements, the establishment of erosion and sediment controls, and levelling of pads to accommodate quarry buildings, quarry plant and equipment required on site. A bulldozer or an excavator-but not both at the same time-will be employed to carry out this work in the construction stage. The following standard hours for construction and operational activities apply, anticipated to last for approximately 6 weeks:

- 6.00am to 6.00pm Monday to Saturday.
- At no time on Sundays or Public Holidays.

The project specific noise criterion limits the noise that a development can make in accordance with the NSW *Noise Policy for Industry* (NPI) (2017) in order to limit the impact of the development on the existing noise sensitive receptors. The NPI states that where the rating background noise level is found to be less than 35dB(A) for the daytime periods, then it is set to 35dB(A). The amenity criterion is specific to land use and associated activities. It aims to limit continuing increases in noise levels. The maximum ambient (amenity) noise level for a residential receiver in a rural area should not exceed the acceptable noise levels specified in the following:

- "Day" (7.00am to 6.00pm): 50dB(A) LAeq.
- "Evening" (6.00pm to 10.00pm): 45dB(A) LAeq.
- "Night" (10.00pm-7.00am): 40dB(A) LAeq.

Therefore, both the "Day" and one hour of the "Night" period- the Morning Shoulder- have been considered for the purposes of the Vipac noise assessment. The intrusiveness criterion states that the equivalent continuous noise level of the source should not be more than 5 decibels above the rated background level when measured over a 15 minute period. It aims to control intrusive noise impacts in the short term for residences ie. LAeq, 15 minutes to be less than or equal to the Rating Background Level (RBL) + 5 dB.

In this case the RBL was assessed to be 35dB(A), with the Project Specific Noise Level thus being 40dB(A). Refer to accompanying Table 7.12.

Table 7.12: Project Specific Noise levels (dBA)

Receptor	Time of Day	Rating Background level (RBL) (Note 2)	Intrusiveness Criterion	Amenity Criterion (Note 2)	Project Specific Noise Level
All	*Day*	*35*	*40*	*50*	***40***
	Night (Morning Shoulder 6.00am-7.00am	*30*	*35*	*38*	***35***

(Source: Vipac 2025 *Noise and Vibration Impact Assessment* from Table 3-2)

Note 1: The NSW NPI states that where the rating background noise level is found to be less than 35dB(A) or 30dB(A) for the daytime and nighttime periods respectively, then it is set to 35dB(A) for the daytime, and 30dB(A) for the night-time.

Note 2: Includes a +3dB adjustment to convert the amenity period to a 15-minute assessment period (matching the intrusiveness criterion) as per Section 2.2 of the NPI. Also includes a -5dB correction to account for other industry present in the area (Canberra Sand & Gravel).

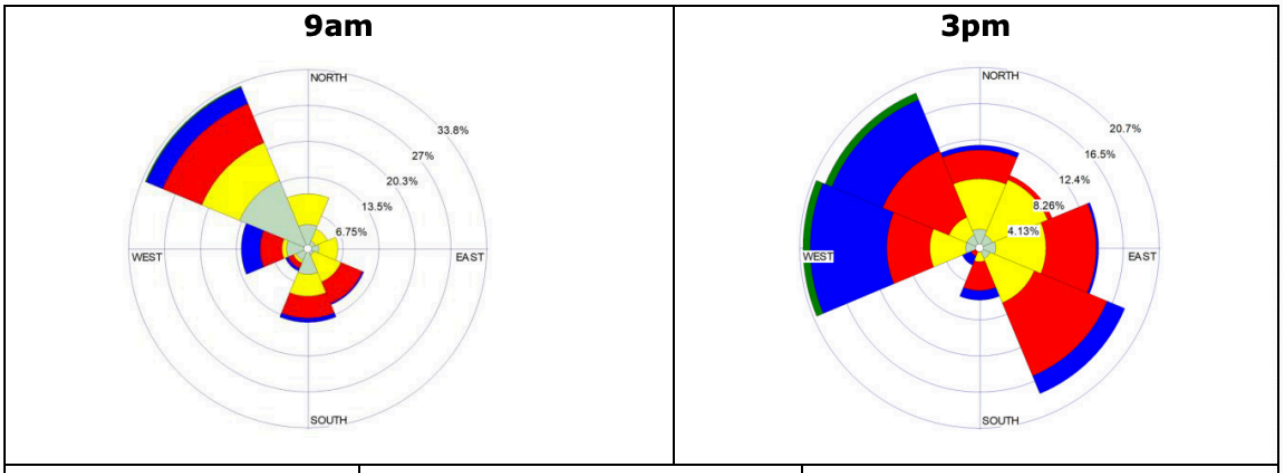
If LAeq,15min noise levels are compliant with the night project noise trigger level (LAeq,15min < 35 dBA) then they will also be complaint with the less stringent, maximum noise level criteria (LAeq,15min < 40 dBA). The LAFmax criteria for this project evaluates to LAFmax 52 dB(A).

The requirements of the NSW *Road Noise Policy 2011* (RNP) are applicable to the assessment of traffic noise along the Larbert Road haul route. A daytime (7.00am-10.00pm) assessment criterion of 55dBA$_{Leq(15\ hour)}$ and a night time (6.00am to 7.00pm) a criterion of 55dBA$_{Leq(15\ hour)}$ apply in this case, applicable to principal haulage routes along local roads.

In addition to the above criteria the magnitude of increase in the total traffic noise level at a location due to a proposed project or traffic-generating development must be considered. Residences experiencing increases in total traffic noise level above this criterion should be considered for mitigation. A relative increase of 12dBA represents slightly more than a doubling of perceived loudness (AS2659.1-1988) and is likely to trigger community reaction, particularly in environments where there is a low level of existing traffic noise.

Operational Noise Assessment

Vipac undertook noise modelling using the SoundPLAN 8.2 computational noise modelling software package. The use of the SoundPLAN software and referenced modelling methodology is accepted for use in the State of NSW by the EPA for environmental noise modelling purposes. **Figure 7.2** shows the wind roses for the time of day during the year for 2023 for the modelled data at a site as close as possible to the Braidwood BoM Station site. It can be seen that north-westerly winds are dominant at 9am and winds from the west and northwest at 3pm. Winds from the east and southeast are also frequent at 3pm, with stronger winds (>5.7 m/s) occurring more frequently from the west and northwest. These wind patterns are generally consistent with those shown for the long term measured data at the Braidwood Bureau of Meteorology (BoM) Station.



Location: South of site	*Data Period:* Jan 2023 to Dec 2023	*Data Type:* TAPM-CALMET extract
Period	**Average windspeed (m/s)**	**Percent calm (%)**
9am	2.9	4.1
3pm	4.3	0.0

FIGURE 7.2: Site-specific wind roses at 9am and 3pm for the site

(Source: Vipac Noise & Vibration Impact Assessment.Figure 4-3)

In order to represent a 'worst case' noise assessment, noise sources were modelled from positions closest to the nearest residence not associated with the proposed development, on the southern flanks of the proposed expanded sand extraction area. Noise sources included an excavator, haul truck (never likely in this location), generator, front-end loader and sand processing plant (existing). The following weather scenarios were then assessed:

Average/Neutral Climatic Conditions:

- Class D (Neutral high winds or cloudy days and nights) has been modelled for the average climatic condition scenarios for day, with 0m/s wind speeds.
- Class F (Very stable low winds, clear skies, cold night-time conditions) has been modelled for the average climatic condition scenarios for night, with 0m/s wind speeds.

'Worst Case' Climatic Conditions:

- Worst case climatic conditions during the day have been assessed as Class D, but with 3m/s wind speeds blowing towards the receivers.
- Worst case climatic conditions during the night period have been assessed as per Class F, but with 2m/s wind speeds blowing towards the receivers.

Table 7.13 contains the predicted noise level from operational Stages 1,2 and 3 of the proposed Braidwood Sand and Gravel Project. The 'worst case' results been reproduced graphically as Noise Contour Maps and are shown in **Figures 7.3-7.6**. Refer to **Appendix D** for further details.

Table 7.13: Predicted Operational Noise Levels (dBA)

Receptor	Predicted Noise level ($L_{Aeq\ 15\ minutes}$ dBA)				Predicted Noise level (L_{Amax} dBA)	
	Neutral Weather		Adverse Weather		Neutral Weather	Adverse Weather
	Day Criteria $L_{Aeq\ 15\ minutes}$ 40 dBA	Night Criteria $L_{Aeq\ 15\ minutes}$ 35 dBA	Day Criteria $L_{Aeq\ 15\ minutes}$ 40 dBA	Night Criteria $L_{Aeq\ 15\ minutes}$ 35 dBA	Night-Criteria L_{Amax} 52 dBA)	
NSR 1	32	33	37	34	42	42
NSR 2	32	33	36	34	40	41
NSR 3	20	22	25	23	31	32
NSR 4 (Note 1)	34	35	38	35	43	44

(Source: Vipac 2025 *Noise and Vibration Impact Assessment* from Table 5-2)

[NOTE 1: Receptor R1 is located on a holding with an owner associated with the proposed quarry. No noise limit applies.]

All modelled outcomes comply with the relevant EPA noise criteria.

Operational Noise: Cumulative (with Canberra Sand & Gravel)

It is noted that a separate quarry in the area (Canberra Sand & Gravel) has been approved in April 2025 and is located approximately 600m west of the proposed Braidwood Sand pit on Lot 24, 25, 27 & 300 in DP 755915. Vipac undertook a cumulative operational noise and traffic noise impact assessment for the operational stage of Canberra Sand & Gravel relying on the noise report prepared on behalf of Canberra Sand & Gravel. Results assume a 'worst case' noise scenario. The results are summarised in the accompanying Table 7.14.

Table 7.14: Predicted Cumulative Operational Noise Levels (dBA)

Receptor	Predicted Noise level ($L_{Aeq\ 15\ minutes}$ dBA)				Predicted Noise level (L_{Amax} dBA)		Cumulative Noise level ($L_{Aeq\ 15\ minutes}$ dBA)		Cumulative Noise level (L_{Amax} dBA)
	Braidwood Sand & Gravel		Canberra Sand & Gravel		Braidwood Sand & Gravel	Canberra Sand & Gravel			
	Day	Night	Day	Night	Night		Day Criteria 48 dBA	Night Criteria 38 dBA	Night Criteria 52 dBA
NSR 1	37	34	36	32	42	39	40	36	44
NSR 2	36	34	<30	<30	41	<30	37	35	41
NSR 3	25	23	33	30	32	30	34	31	34
NSR 4 (Note 1)	38	35	40	35	44	40	42	38	46

(Source: Vipac 2025 *Noise and Vibration Impact Assessment* from Table 5-2)

[NOTE 1: Receptor R1 is located on a holding with an owner associated with the proposed quarry. No noise limit applies.]

Cumulative noise emissions from the Braidwood Sand & Gravel and Canberra Sand & Gravel pit are predicted to comply with the relevant amenity criteria at all NSRs for both daytime and night-time operations during both neutral and adverse weather conditions.

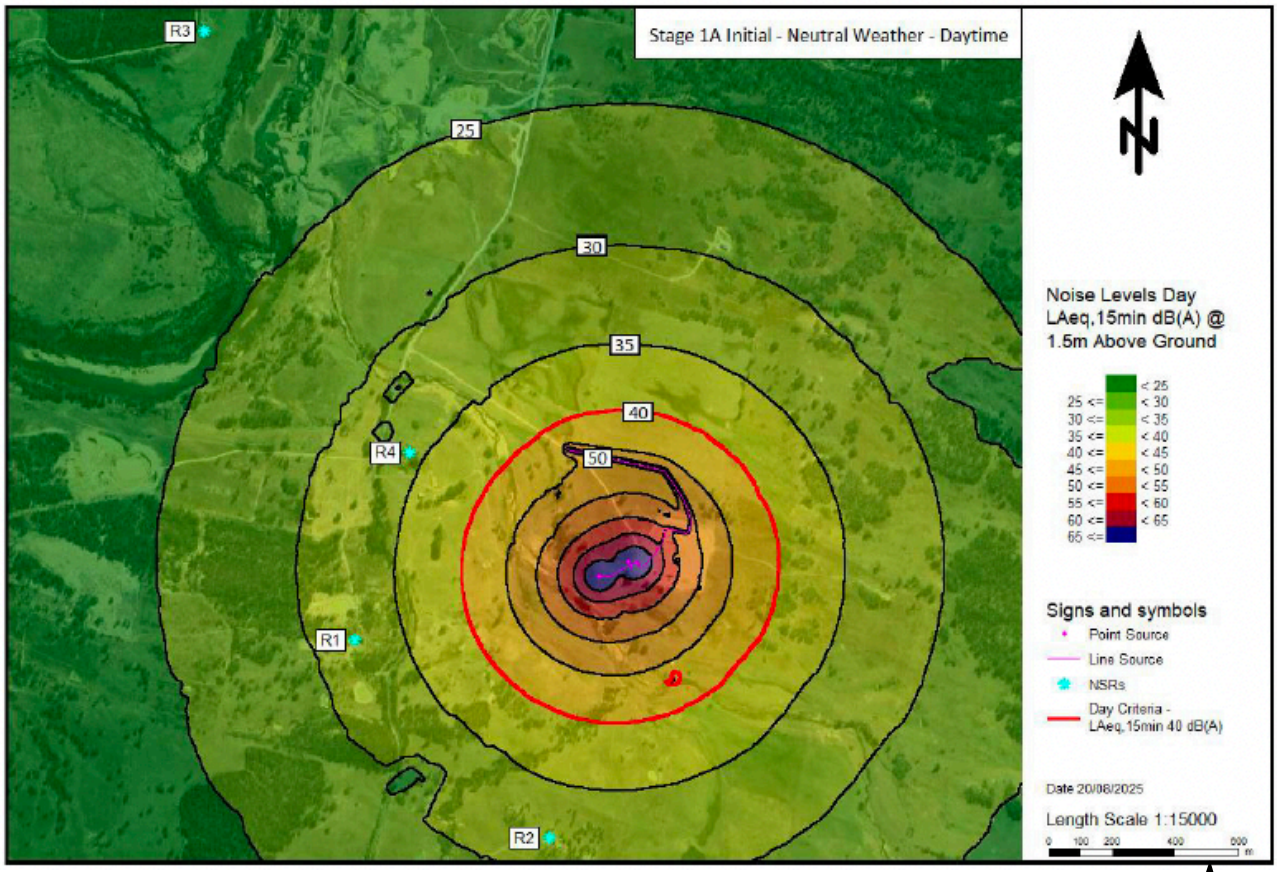


FIGURE 7.3: Sand Quarry Stage 1a Noise levels Neutral Weather, Day time

(Source: Vipac Noise & Vibration Impact Assessment Appendix A)

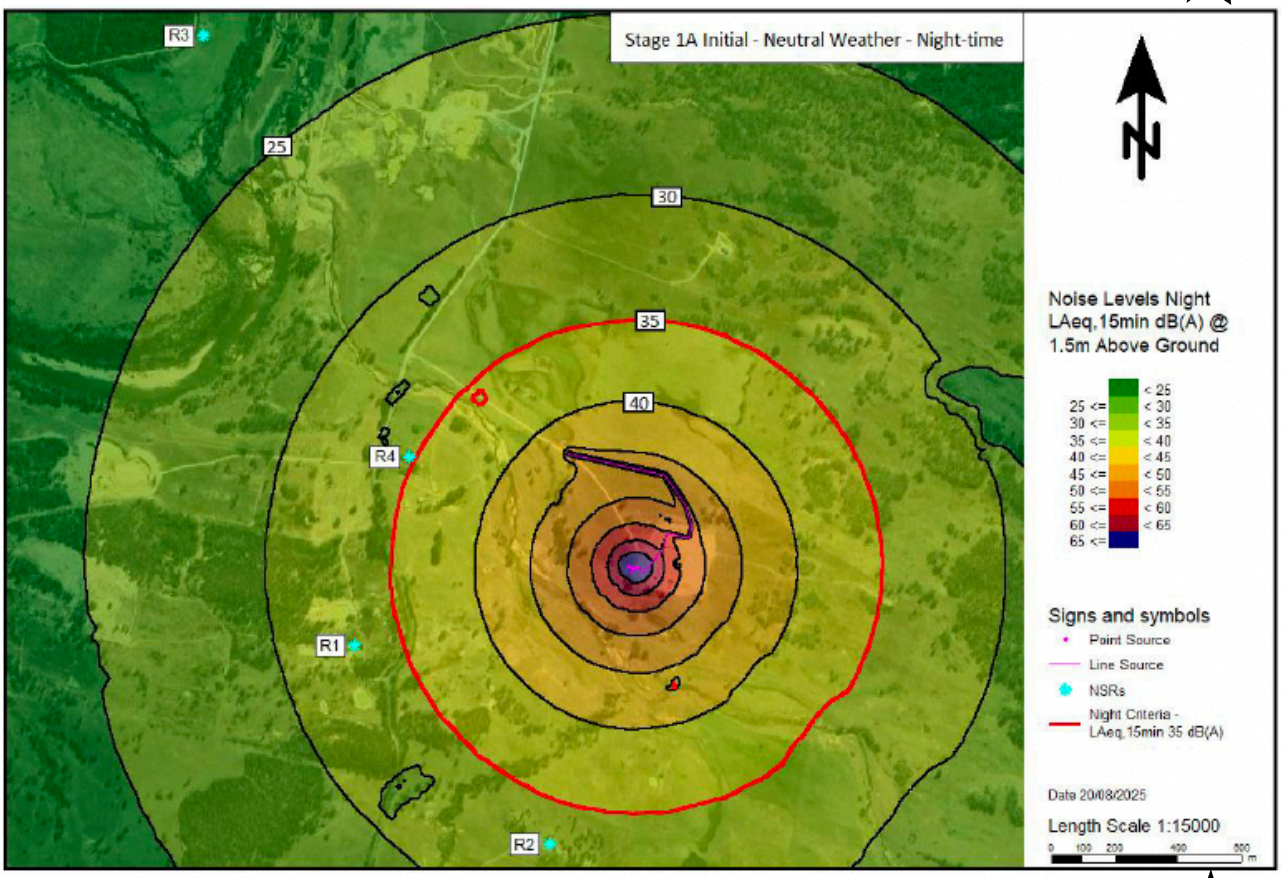


FIGURE 7.4: Sand Quarry Stage 1a Noise levels Neutral Weather, Night time

(Source: Vipac Noise & Vibration Impact Assessment Appendix A)

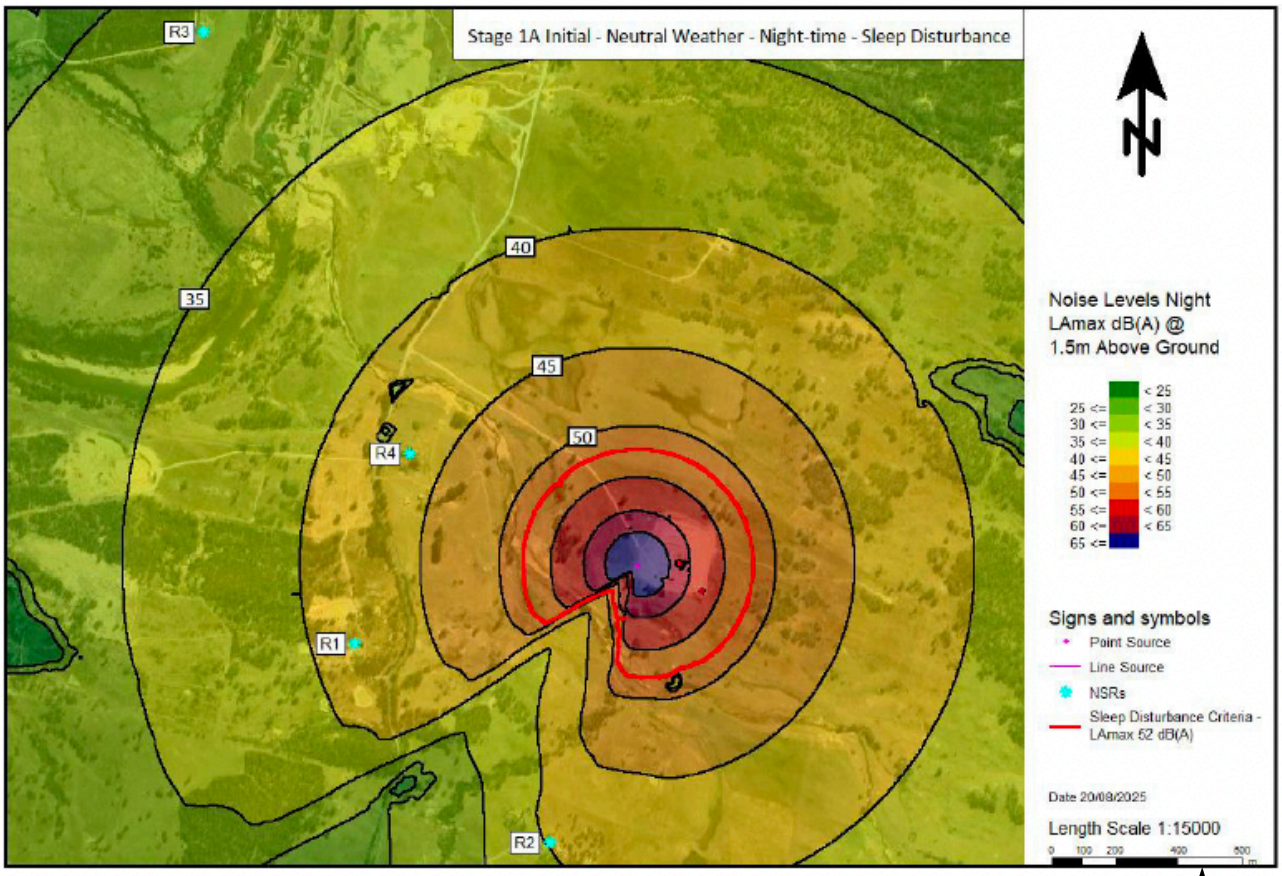


FIGURE 7.5: Sand Quarry Stage 1a Noise levels Night time Sleep Disturbance

(Source: Vipac Noise & Vibration Impact Assessment Appendix A)

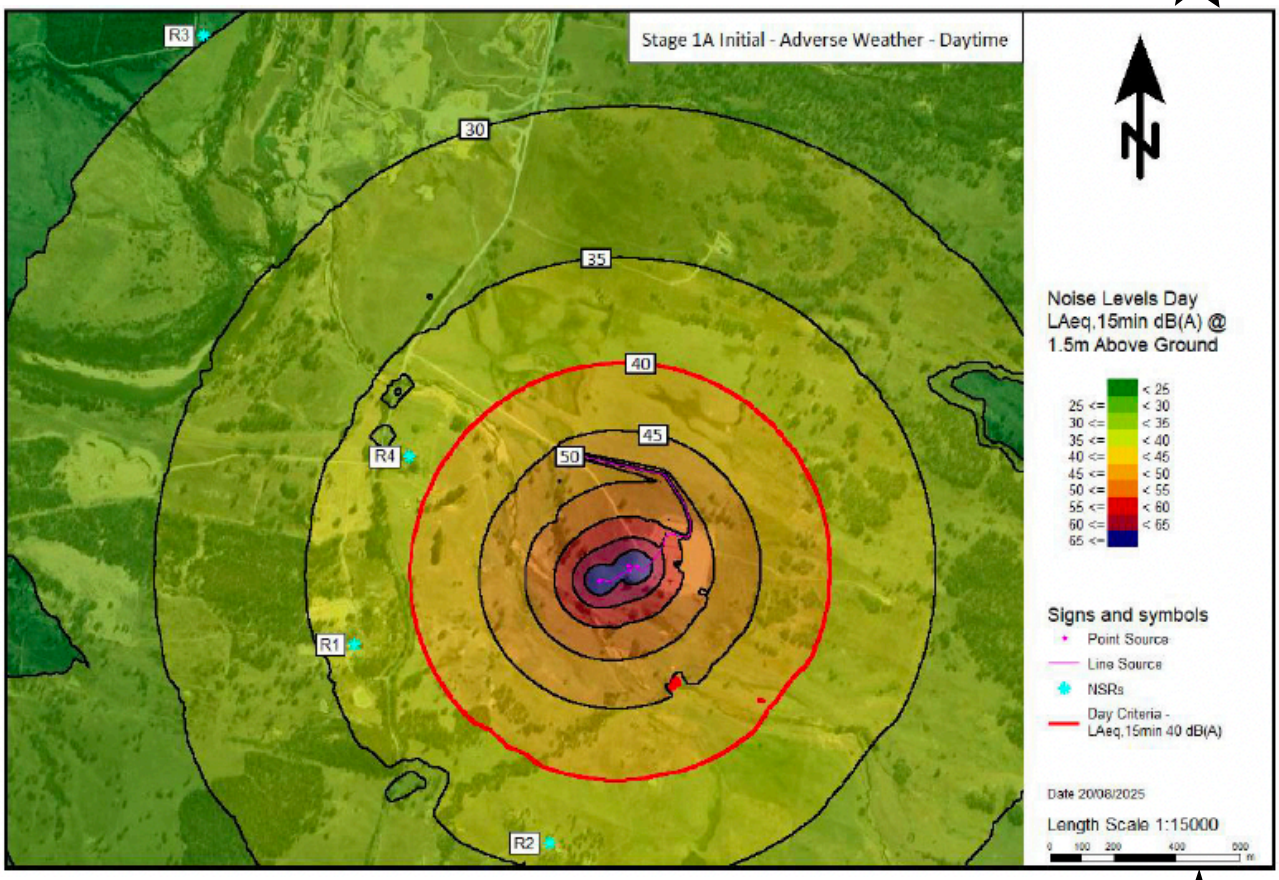


FIGURE 7.6: Sand Quarry Stage 1a Noise levels Adverse Weather, Day time

(Source: Vipac Noise & Vibration Impact Assessment Appendix A)

Truck Traffic Noise

Vipac modelled the the potential noise impacts associated with the additional quarry truck movements proposed on the Larbert Road haul route.

Vipac modelling shows that existing and future traffic noise levels at existing residential receptors are predicted to comply with the criteria without the need for acoustic mitigation.

Vipac also conclude that given the increase in noise levels between existing and future traffic flow are also well below the relative increase criteria (existing traffic + 12dB), the increased traffic arising from the proposed expanded sand extraction development is predicted to comply with the relevant road traffic noise criteria. Therefore, traffic noise associated with the additional quarry truck movements on Larbert Rd are predicted to comply with the relevant EPA criteria without the need for acoustic mitigation measures.

Cumulative Truck Traffic Noise (with Canberra Sand & Gravel)

The noise emission of the proposed Braidwood Sand & Gravel pit related daily vehicular traffic movements of maximum of 50 trucks, together with the proposed Canberra Sand & Gravel daily 55 truck movement at the surrounding receptors has been modelled by Vipac. Cumulative noise emissions from the Braidwood Sand & Gravel and Canberra Sand & Gravel pit road traffic noise are predicted to comply with the relevant EPA amenity criteria at all NSRs for both daytime and night-time operations.

Vibration Impacts

The Vipac assessment considered the potential for both continuous/quasi-continuous and intermittent vibration from both equipment on site and from truck traffic. Vipac find that predicted vibration levels would meet the human comfort criteria and are well below structural damage criteria for all nearby buildings.

Conclusion: Noise

The Vipac assessment finds that the noise emissions from the proposed expanded sand extraction development complies with all relevant EPA noise criteria, without the need for any further mitigations at all receptors for all time periods.

7.3.6 Air Quality

Dust Generation Sources

Vipac Engineers and Scientists Ltd (Vipac) was engaged by Outline Planning Consultants Pty Ltd on behalf of Braidwood Sand and Gravel and Lentro Earthmoving (the Proponent) to prepare an air quality assessment to support the proposed expansion of the approved sand extraction operation from a sand pit at 552 Larbert Rd, Larbert NSW (the Project). In compliance with the issued SEARs, the Vipac assessment evaluates the potential impacts of air pollutants generated from the Project, demonstrating the Projects ability to comply with the relevant regulatory framework, specifically the POEO Act and the *Protection of the Environment Operations (Clean Air) Regulation 2022*, in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW Environment Protection Authority, 2022). The air quality impact assessment addresses the specific EPA requirements and provides recommendations to mitigate any potential impacts that might have an effect on nearby sensitive receptors.

By their very nature, sand extraction operations may have the potential to generate dust and minor exhaust emissions and in particular:

- Total Suspended Particles (TSP), particulate matter.Particulate matter up to 50 microns in size.
- PM10-Particulate matter less than 10 microns in size.
- PM2.5-Particulate matter less than 2.5 microns in size.
- Dust deposition- deposited matter that falls out of the atmosphere.

Sand quarry activities which have the potential to impact on air quality of a locality include the following:

- Removal of topsoil and overburden, and transportation of sand won from the sand pit to the sand processing plant. This includes the operation of plant including earthmoving machinery, digging equipment, loading, and dumping vehicles, haul trucks within the quarry and along the internal quarry haul route.
- Sand loading, washing and screening operations, including the depositing of sand into bins, and the washing and screening of sand and movement along conveyors.
- Dust generated by wind blowing over stockpiles and disturbed areas.
- Dust generated by the loading and transport of the sand product.

Provided that dust at the Project site is adequately controlled, and existing mitigation measures applied, the potential for any nuisance at any nearby residences can be minimised to a satisfactory degree, as confirmed in the Vipac assessment. The overall objective of the proposed sand quarry dust management regime will be to achieve acceptable air quality standards through the control of dust movement offsite and within the sand quarry. Such management measures are to form a part of any final sand quarry management plan, once the Project is approved.

Wind Roses TAPM-CALMET derived dataset

A three-dimensional meteorological model, CALPUFF, was used for the air dispersion modelling that includes a wind field generator accounting for slope flows, terrain effects and terrain blocking effects, supported by The Air Pollution Model (TAPM), which is a 3-dimensional prognostic model developed and verified for air pollution developed by the CSIRO Division of Atmospheric Research and used as a precursor to CALMET, another air quality model.

Existing Air Quality

The Braidwood Sand and Gravel project site is situated within a sparsely populated rural area. Background dust levels are expected to be primarily impacted by other resource extraction operations and agricultural activities. The closest monitoring site to the Project site is at Goulburn, approximately 65 km to the north. As with all NSW air quality monitoring stations, concentration levels of these pollutants were elevated by smoke from bushfires in summer.

Other sand extraction operations are active in the area, and contributions to dust levels from these sources should be considered. Vipac have taken into account the Air Quality Assessment (AQA) by Zephyr Environmental Pty Ltd in 2023 supporting DA 2024.0047 for the expansion of sand extraction at Canberra Sand and Gravel's site, located approximately 600m south-east of the proposed sand extraction expansion area. The accompanying Table 7.15 provides the maximum concentrations measured at the Goulburn station, the predicted contributions from the existing nearby Canberra Sand and Gravel quarry and the background concentration levels adopted for this assessment

Table 7.15: Assigned Background Air Quality Concentrations

Pollutant	Averaging period	Criteria	Maximum Measured	Maximum Predicted by Zephyr AQA for Canberra Sand & Gravel site	Total Adopted Background
TSP	Annual	90 $\mu g/m^3$	21.9 $\mu g/m^3$	1 $\mu g/m^3$	27.0 $\mu g/m^3$
PM10	24 Hour	50 $\mu g/m^3$	21.9 $\mu g/m^3$	5.2 $\mu g/m^3$	29.0 $\mu g/m^3$
	Annual	25 $\mu g/m^3$	21.9 $\mu g/m^3$	0.4 $\mu g/m^3$	10.8 $\mu g/m^3$
PM2.5	24 Hour	25 $\mu g/m^3$	21.9 $\mu g/m^3$	0.9 $\mu g/m^3$	18.6 $\mu g/m^3$
	Annual	8 $\mu g/m^3$	21.9 $\mu g/m^3$	0.1 $\mu g/m^3$	6.0 $\mu g/m^3$
Dust Deposition	Monthly Total	2 g/m^2/month	-	-	
	Monthly Total	4 g/m^2/month	2 g/m^2/month	1.6 g/m^2/month	3.6 g/m^2/month

(Source: Vipac *Air Quality Assessment* Table 5-2)

Dust Mitigation Measures

The identification of potential sources of dust/air emission from the expanded sand quarry site and quarry haul route has facilitated the nomination and design of various practical, effective mitigation measures for the control of dust, including the following:

- Use of water sprays on processing plant and materials stockpiles.
- Covering of loads.
- Routine visual monitoring and hazard minimisation.
- Planned activities will not occur during adverse weather conditions.
- Proper maintenance and tuning of the vehicles and equipment also assists in avoiding any off-site effects.·
- Miscellaneous dust sources such as spillages from trucks and silt from sediment controls are regularly cleaned up.
- The internal quarry haul route will be maintained in a good condition.
- Stabilising and revegetating of topsoil and overburden stockpiles.
- Enforcing a 30km/hour maximum speed limit on haul and access roads to minimise dust generation.
- Sand extraction will be undertaken in a staged approach with a progressive rehabilitation and expansion of the existing sand extraction area.

Assessment of Air Quality Impacts

Air quality impacts were assessed at the three nearest residences not associated with the sand quarry development- (refer **Figure 7.7**) for the following scenarios:

- Maximum rate of extraction of approximately 1,850 tonnes/day and 50 loaded trucks/day.
- 'Average' rate of extraction of approximately 740 tonnes/day and 20 loaded trucks/day.

Identifier	Lot Number	Address	Approximate Distance & Direction to Site
SR 1	99//DP755915	481 Larbert Road, Larbert	700m SW from project site
SR 2	62//DP755915	412 Larbert Road, Larbert	860m S from project site
SR 3	3//DP1192360	428 Mayfield Rd, Larbert	1700m NW from project site

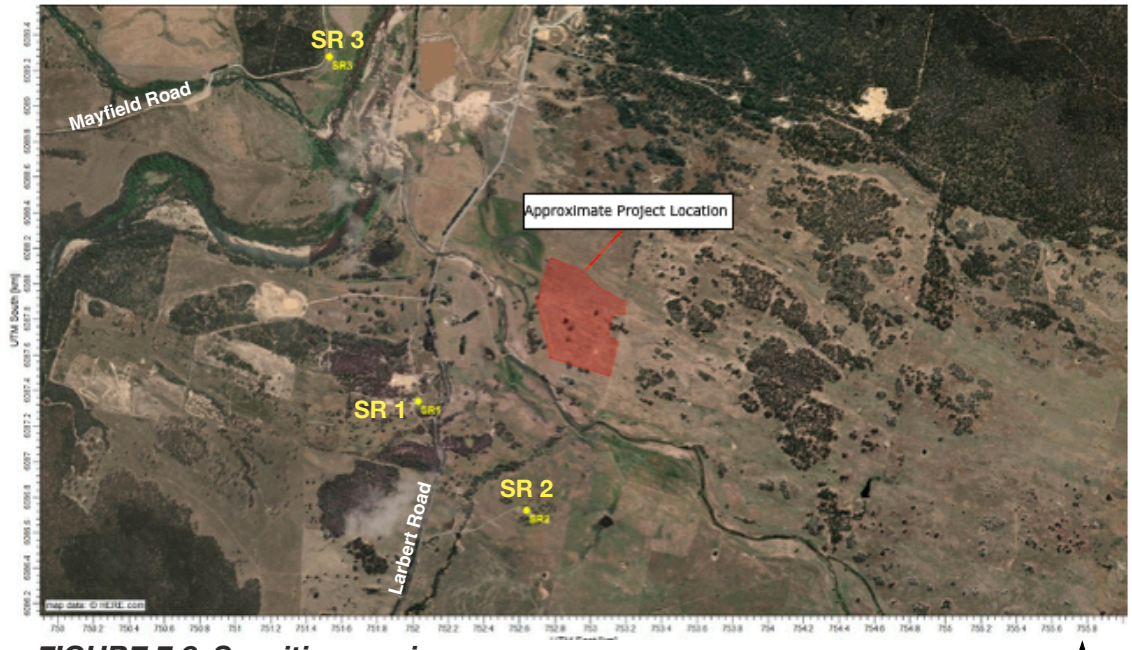


FIGURE 7.6: Sensitive receivers

(Source: Vipac Air Quality Assessment Table 2-1 and Figure 2-2)

Air Quality Impacts: Maximum Rate of Extraction

The results of the modelling have shown that the TSP, PM10, PM2.5 and dust deposition predictions comply with the relevant criteria and averaging periods at all sensitive receptors, summarised in the accompanying Table 7.16 and Table 7.17 and accompanying figures.

Table 7.16: Summary of Air Quality Predicted Impacts- Incremental (ie. Project in Isolation)

Pollutant	Criteria	Range of Predictions at Nearest Receptors R2-R3	Compliance
		Operation	
TSP	90 µg/m^3	0.06-0.33 µg/m^3	Yes
PM10	24 hr 50 µg/m^3	4.74-20.05 µg/m^3	Yes
	Annual 25 µg/m^3	0.34-0.74 µg/m^3	Yes
PM2.5	24 hr 25 µg/m^3	0.89-2.43 µg/m^3	Yes
	Annual 8 µg/m^3	0.10-0.20 µg/m^3	Yes
Dust Deposition	2 g/m^2/month	0.01-0.02g/m^2/month	Yes

(Source: Vipac 2025 *Air Quality Assessment* from Tables 7-1 to 7-5)

Table 7.17: Summary of Air Quality Predicted Impacts-Cumulative

Pollutant	Criteria	Range of Predictions at Nearest Receptors R1-R3	Compliance
		Operation	
TSP	90 µg/m^3	27.06-27.33 µg/m^3	Yes
PM10	24 hr 50 µg/m^3	29.01-34.02 µg/m^3	Yes
	Annual 25 µg/m^3	11.14-11.70 µg/m^3	Yes
PM2.5	24 hour 25 µg/m^3	19.49-21.03 µg/m^3	Yes
	Annual 8 µg/m^3	6.00-6.10 µg/m^3	Yes
Dust Deposition	4 g/m^2/month	1.61-1.62g/m^2/month	Yes

(Source: Vipac 2025 *Air Quality Assessment* from Tables 7-1 to 7-5)

Air Quality Impacts: 'Average' Rate of Extraction

The results of the modelling have shown that the TSP, PM10, PM2.5 and dust deposition predictions comply with the relevant criteria and averaging periods at all sensitive receptors, summarised in the accompanying Table 7.16 and Table 7.17 and accompanying figures.

Table 7.16: Summary of Air Quality Predicted Impacts- Incremental (ie. Project in Isolation)

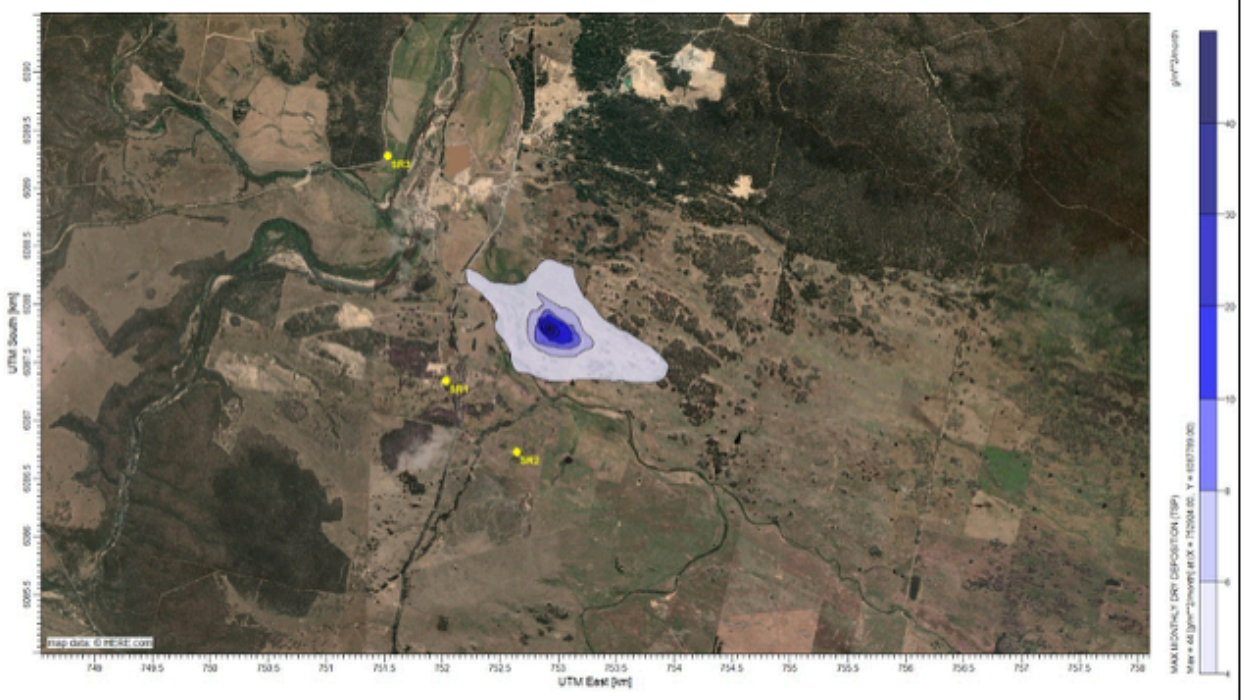
Pollutant	Criteria	Range of Predictions at Nearest Receptors R2-R3	Compliance
		Operation	
TSP	90 µg/m^3	0.03-0.18 µg/m^3	Yes
PM10	24 hr 50 µg/m^3	2.61-8.80 µg/m^3	Yes
	Annual 25 µg/m^3	0.21-0.51 µg/m^3	Yes
PM2.5	24 hr 25 µg/m^3	0.80-2.07 µg/m^3	Yes
	Annual 8 µg/m^3	0.09-0.18 µg/m^3	Yes
Dust Deposition	2 g/m^2/month	<2g/m^2/month	Yes

(Source: Vipac 2025 *Air Quality Assessment* from Tables 7-6 to 7-9)

Table 7.17: Summary of Air Quality Predicted Impacts-Cumulative

Pollutant	Criteria	Range of Predictions at Nearest Receptors R1-R3	Compliance
		Operation	
TSP	90 µg/m^3	27.03-27.10 µg/m^3	Yes
PM10	24 hr 50 µg/m^3	31.61-37.80 µg/m^3	Yes
	Annual 25 µg/m^3	11.01-11.31 µg/m^3	Yes
PM2.5	24 hour 25 µg/m^3	19.40-20.67 µg/m^3	Yes
	Annual 8 µg/m^3	6.09-6.16 µg/m^3	Yes
Dust Deposition	4 g/m^2/month	1.60-1.61g/m^2/month	Yes

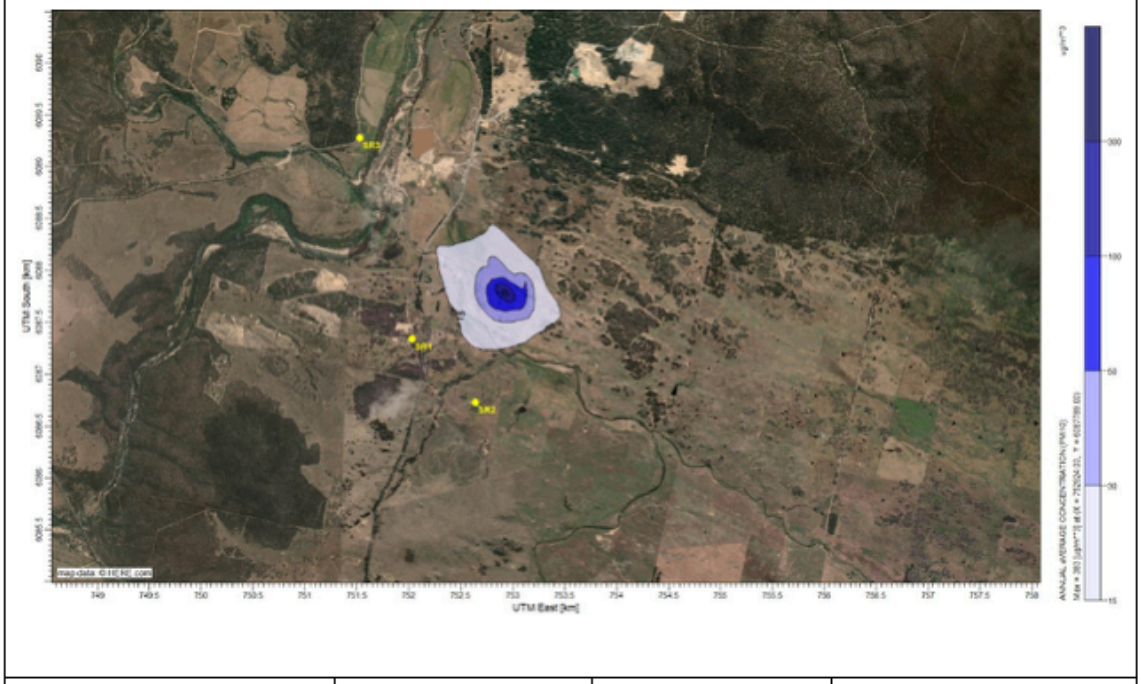
(Source: Vipac 2025 *Air Quality Assessment* from Tables 7-6 to 7-9)



Pollutant:	Averaging Period:	Percentile:	Criteria:
Dust Deposition	Month	100th	4 g/m^2/month

FIGURE 7.7: Modelled Cumulative Dust Deposition (Month)

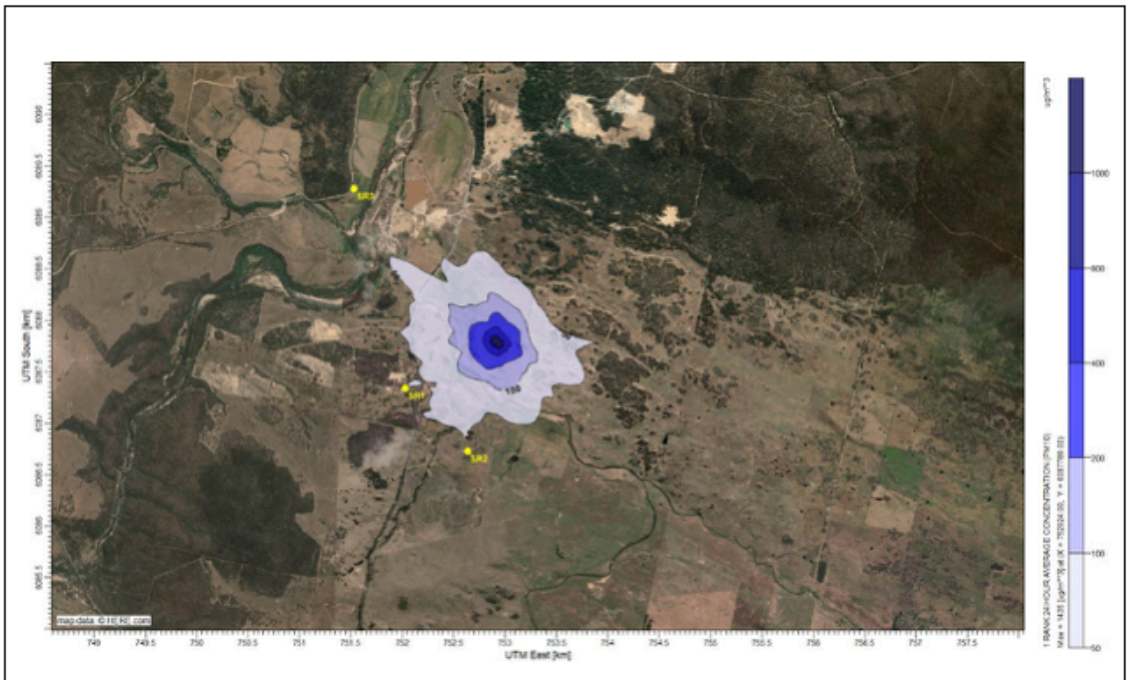
(Source: Vipac 2025 Air Quality Assessment Appendix B)



Pollutant:	Averaging Period:	Percentile:	Criteria:
PM_{10}	Annual	100th	25 µg/m³

FIGURE 7.8: Modelled Cumulative PM_{10} Annual

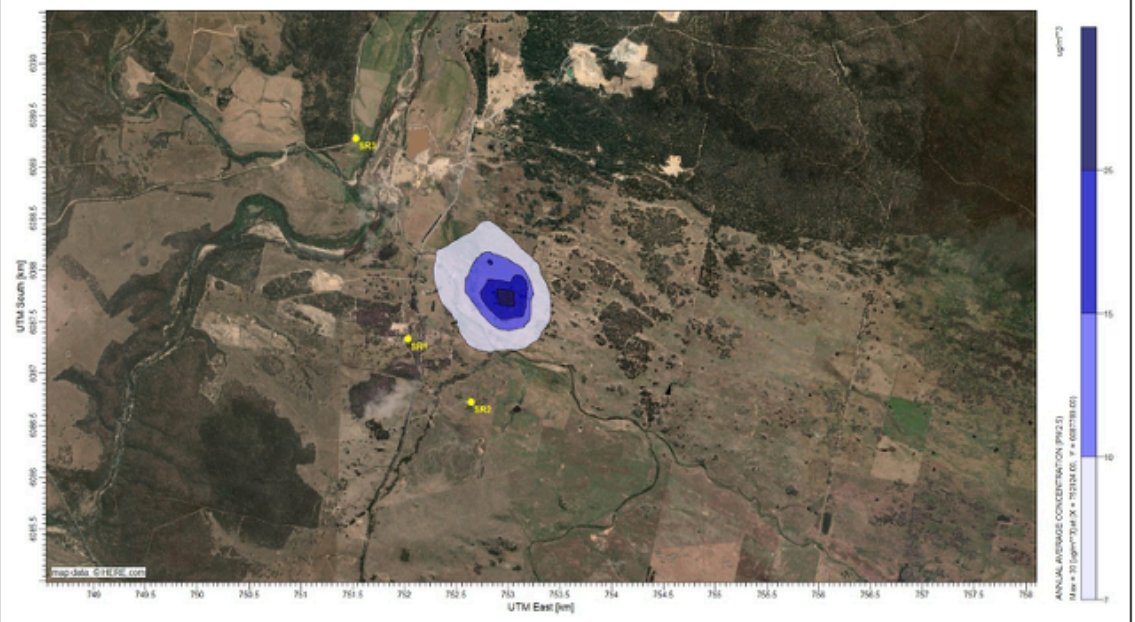
(Source: Vipac 2025 Air Quality Assessment Appendix B)



Pollutant:	Averaging Period:	Percentile:	Criteria:
PM_{10}	24 Hour	100th	50 µg/m³

FIGURE 7.9: Modelled Cumulative PM_{10} 24 Hour

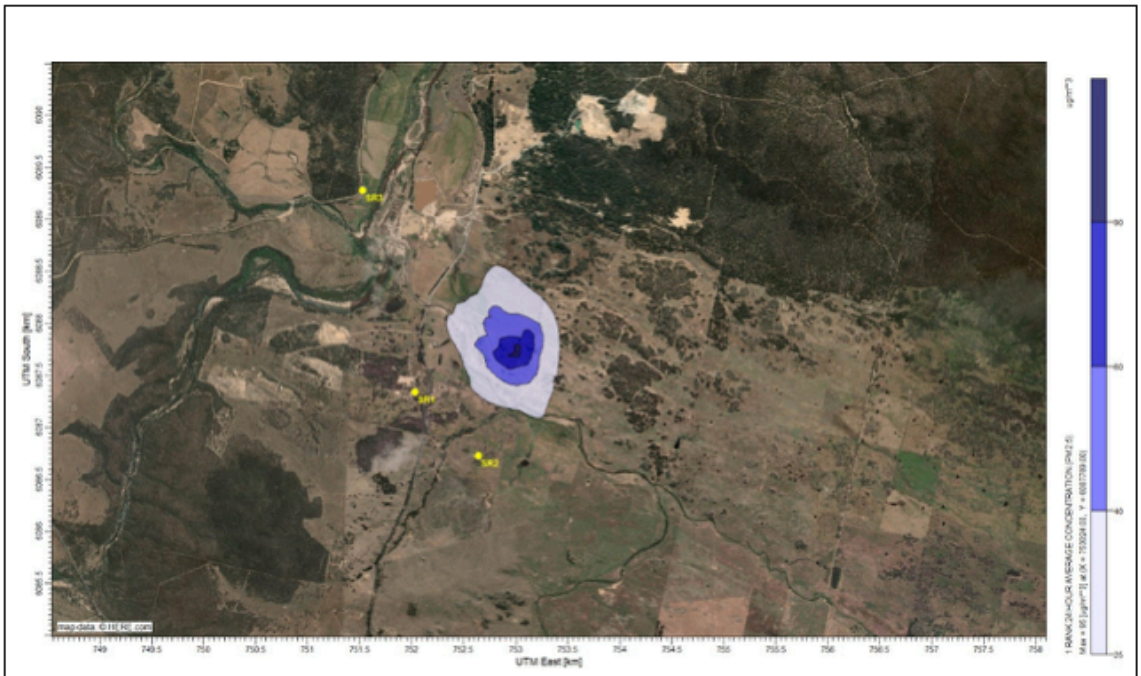
(Source: Vipac 2025 Air Quality Assessment Appendix B)



Pollutant:	Averaging Period:	Percentile:	Criteria:
$PM_{2.5}$	Annual	100th	8 µg/m³

FIGURE 7.10: Modelled Cumulative $PM_{2.5}$ Annual

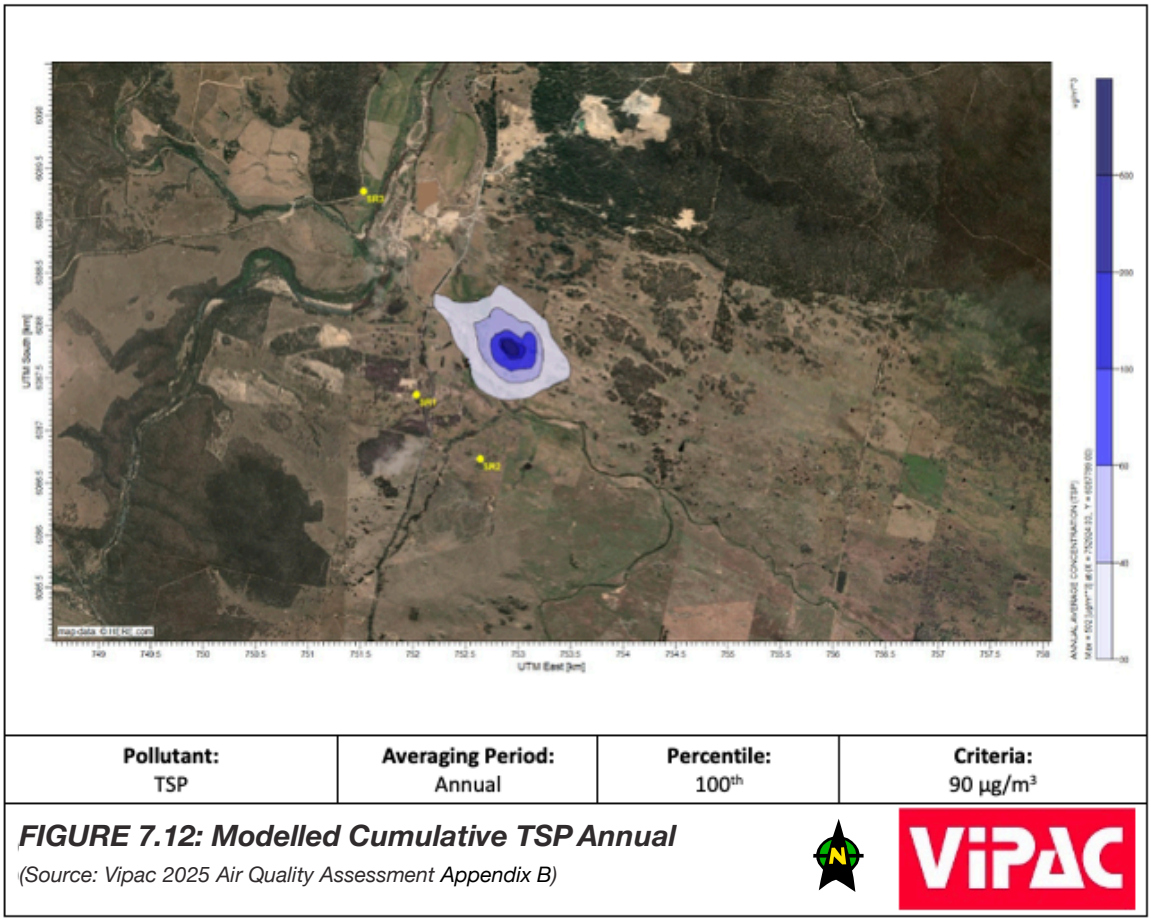
(Source: Vipac 2025 Air Quality Assessment Appendix B)



Pollutant:	Averaging Period:	Percentile:	Criteria:
$PM_{2.5}$	24 Hour	100th	25 µg/m³

FIGURE 7.11: Modelled Cumulative $PM_{2.5}$ 24 Hour

(Source: Vipac 2025 Air Quality Assessment Appendix B)



Pollutant:	Averaging Period:	Percentile:	Criteria:
TSP	Annual	100th	90 µg/m³

FIGURE 7.12: Modelled Cumulative TSP Annual

(Source: Vipac 2025 Air Quality Assessment Appendix B)

7.3.7 Traffic and Transport

Introduction

A Traffic Impact Assessment (TIA) has been prepared by StreetWise for the Braidwood Sand and Gravel Project and is provided in **Appendix J**. The TIA describes the existing local traffic network surrounding the existing site and assesses the impacts of the proposed expanded sand quarry project on that network, and addresses both the SEARs requirements as well as the Traffic Impact Assessment requirements of Transport for NSW (TfNSW) accompanying the issued SEARs.

The TIA has been prepared by suitably qualified experts in accordance with the Austroads *Guide to Traffic Management Part 12, Australian Standards* and any complementary TfNSW Supplements, and Roads and Maritime *Guide to Traffic Generating Developments*.

Refer to EIS Section 2.4.8 for a description of the existing road network.

Existing Traffic Volumes and Capacities

StreetWise inspected the site on Wednesday 9 July and undertook manual traffic counts at the intersection of The Kings Highway and Larbert Road. A previous traffic count at the intersection of The Kings Highway and Larbert Road was undertaken by Indesco on Thursday 18 August 2022 in relation to a previous development in the Larbert area (Canberra Sand & Gravel sand extraction development).

Having regard for the above, and Council projections of growth in the the area, Streetwise have adopted the following revised AM and PM traffic volumes at this intersection for 2025 and 2035. Refer **Figures 7.13** and **7.14**.

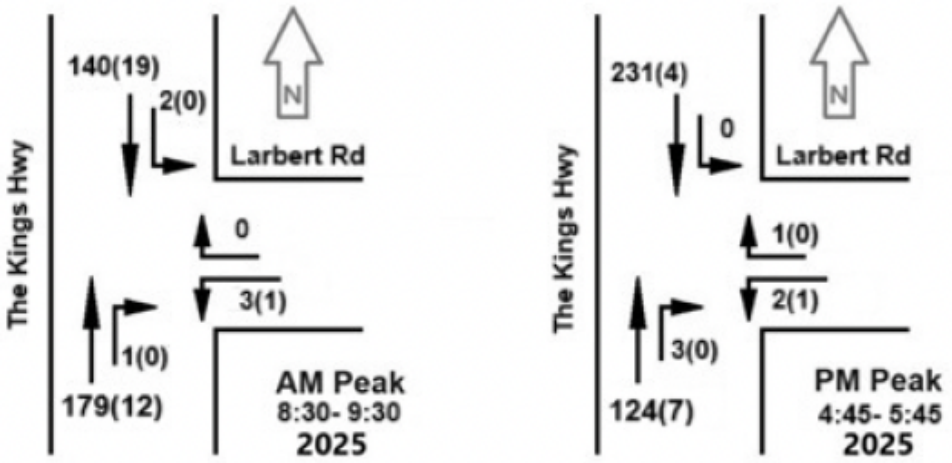


FIGURE 7.13: 2025 peak hour traffic volumes at Kings Highway & Larbert Road
(Source: Figure 3.3 StreetWise Traffic Impact Assessment 2025)

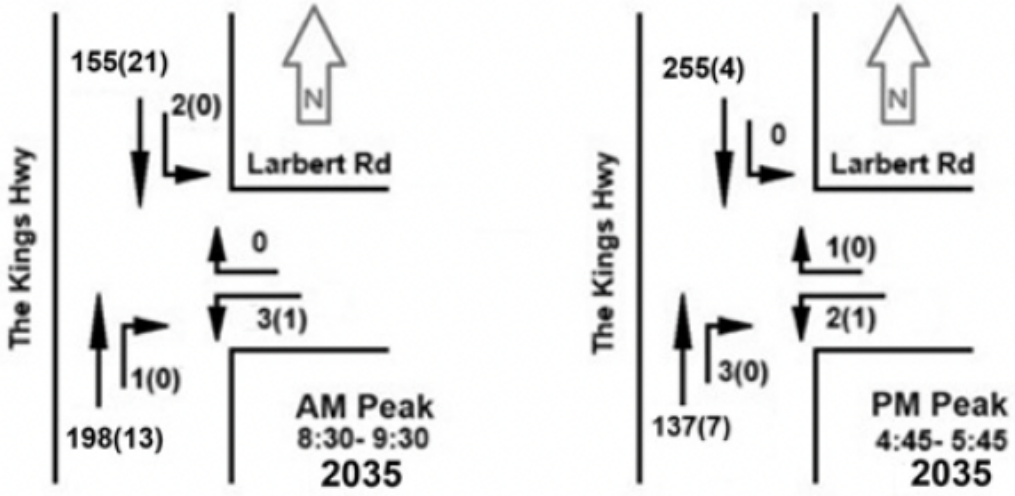


FIGURE 7.14: Estimated 2035 peak hour traffic volumes at Kings Highway & Larbert Road
(Source: Figure 3.4 StreetWise Traffic Impact Assessment 2025)

Based on Austroads *Guide to Traffic Management* and based on on travel speeds and volumes per lane, StreetWise conclude that the intersection of Kings Highway and larbert Road has a Level of Service (LOS) of 'A', the highest level of service, namely:

> ***LOS A*** *describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to manoeuvre within the traffic stream. Control delay at the boundary intersections is minimal. The travel speed exceeds 80% of the base free-flow speed (BFFS)*. (Streetwise *Traffic Impact Assessment* 2025 p.12)

The Kings Highway is an approved Heavy Vehicle route, catering for vehicles up to 26m B-doubles. Larbert Rd is currently an approved haulage route, and currently caters for a number of quarries in the Larbert area. The recent traffic count data indicates that heavy vehicles make up over 10% of total daily traffic volumes turning in and out of Larbert Road at the Kings Highway intersection. StreetWise's inspection and onsite traffic count noted a number of haulage vehicles (truck & dog trailers) servicing existing quarries in the Larbert area, which generate regular haulage movements on Larbert Road. It can also be assumed that the rural activities in the Larbert area generate regular heavy vehicle movements such as deliveries, transporting farming equipment, water and fuel tankers, milk tankers, livestock movements and the like. StreetWise are not aware of any school bus routes servicing Larbert Road. However, regular services utilise The Kings Highway, with pick-up & drop-off locations at various intersections, including Larbert Road.

Streetwise note that Larbert Road runs through rolling hills, has an estimated peak hour volume of less 50 vehicles, an unposted speed zone (adopt 80kmh) and around 10% heavy vehicle content. This indicates a Level of Service of 'B', and adequate capacity to safely and efficiently cater for predicted future traffic growth, namely:

> ***LOS B*** describes reasonably unimpeded operation. The ability to manoeuvre within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed (BFFS).

Traffic Generation by Proposed Expanded Sand Quarry

It is predicted that the Braidwood Sand and Gravel Sand Quarry Project may generate up to a maximum of 50 laden quarry trucks per day, with a mix of truck and dog combinations (32 & 37.50 tonnes), with larger and smaller trucks used. The proposed expanded quarry will generate an average of 20 laden trips per day. Refer to accompanying Table 7.18.

Table 7.18: Truck volumes generated by the sand quarry

Sand quarry item	Existing approved sand quarry	Proposed expanded sand quarry
Annual output (tonnes)	*25,000 tonnes pa*	*200,000 tonnes pa*
Vehicle capacity truck and dog (tonnes)	*37.5*	*37.5*
Average no. of laden trucks per year	*667*	*5,333*
Available working weeks per year	*48*	*48*
Maximum working hours per week	*55*	*67*
Average no. laden vehicles per week	*13.9*	*111.1*
Average no. laden vehicles per weekday	*2.5*	*20.2*
Average no. laden vehicles per hour	*<1*	*2*

(*Source: Table 4.1 StreetWise Traffic Impact Assessment 2025*)

The accompanying Table 7.19 provides a summary of the predicted peak hour sand quarry truck traffic generated by the proposed quarry expansion. Note that these figures represent peak truck traffic flows only. During rehabilitation ENM and VENM can be brought into the site, typically by way of backfilling of loads.At times of lower demand for quarry product the quarry will be generating correspondingly lower volumes of quarry truck traffic. It is also noteworthy that the existing sand quarry has consent for 22 trucks per week, or 4 truck loads per day.

Table 7.18: Peak quarry truck traffic generation Braidwood Sand and Gravel sand quarry project

Quarry truck traffic times	Normal operation- laden quarry trucks		Peak capacity-laden quarry trucks	
	Out (laden truck)	Total movements (ie. out laden + in empty/backfilled)	Out (laden truck)	Total movements (ie. out laden + in empty/backfilled)
Daily	*20*	*40*	*50*	*100*
Hourly	*2*	*4*	*5*	*10*
AM Peak	*4*	*8*	*7*	*14*

(Source: Table 4.2 StreetWise Traffic Impact Assessment 2025, as modified)
Note that the AM peak hour volume has been rounded up to 5, given that more haulage trips are likely to be generated in the morning than the afternoon. In addition to the haulage trips shown above, Streetwise estimate that approximately 2 light vehicle trips an hour will be generated by the proposed quarry during a working day.

Current traffic volumes on Larbert Road are low. StreetWise understand that the quarry operators will ensure all drivers will be educated in regard to the quarry's Drivers Code of Conduct, and all haulage truck drivers will be in communication via 2-way radio.

For the purposes of the Streetwise traffic assessment the following traffic distribution has been assumed:

- The majority of laden truck movements will occur in the morning, with less movements in the afternoon.
- The majority of laden truck movements will be south (left) out of the quarry onto Larbert Road towards The Kings Highway.
- At the intersection of Larbert Road and The Kings Highway 40% of laden haulage vehicles are likely to head north towards ACT, Queanbeyan and Bungendore and 60% of laden haulage vehicles are likely to head south towards Braidwood and the South Coast.
- The majority of light vehicle movements (i.e. staff, service vehicles, deliveries etc) will be to & from Braidwood township

The accompanying **Figure 7.15** shows the estimated increase in traffic volumes through the intersection of Larbert Road and Kings Highway during the AM and PM peak hours resulting from the quarry.

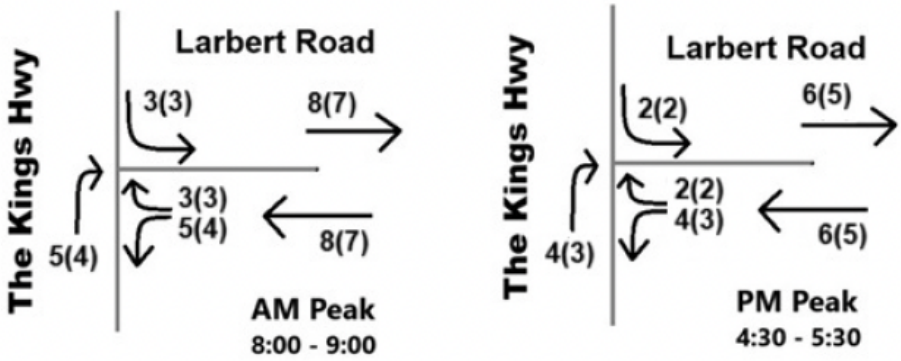


FIGURE 7.15: Future quarry-generated peak hour traffic volumes at Kings Highway & Larbert Road
(Source: Figure 4.3 StreetWise Traffic Impact Assessment 2025)

The accompanying **Figure 7.22** shows future estimated (2035) peak hour traffic volumes through the intersection of Kings Highway and LarbertRoad, including quarry-generated movements.

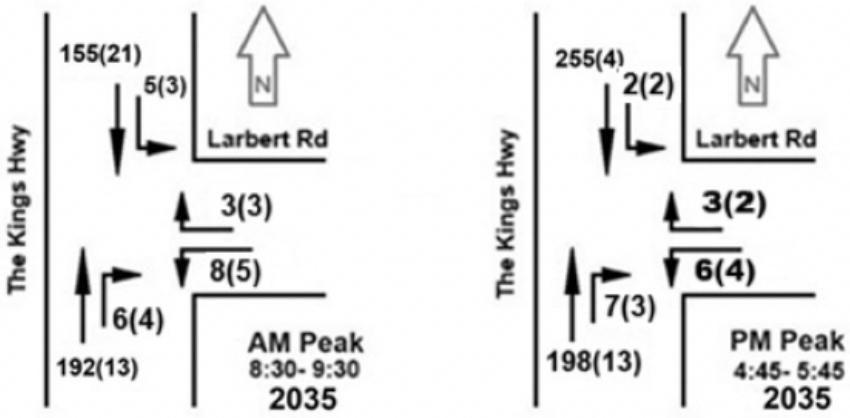


FIGURE 7.16: Future total peak-hour movements (2035) through Kings Hwy intersection (Heavy Vehicles shown in brackets)
(Source: Figure 4.4 StreetWise Traffic Impact Assessment 2025)

StreetWise conclude, inter alia, that:

- Larbert Road has adequate capacity to cater for the additional traffic movements to be generated by the proposed quarry, with minimal reduction in safety or efficiency.

- Based on the SIDRA modelling results, the existing highway intersection layout has adequate capacity to cater for the estimated traffic increases to be generated by the subject sand quarry expansion, with no significant reduction in safety or efficiency or further requirement to upgrade this intersection as a result of the Project.
- The existing access to the quarry from larbert Road should be suitable to cater for the turning movements of the largest quarry trucks. The existing driveway location generally meets Austroads (desirable) requirements for Safe Intersection Sight Distance for a 60kmh speed zone, and easily meets the minimum requirements (Approach Sight Distance). Existing sight distance could be further improved by reshaping the roadside batter and trimming existing vegetation.
- W5 – 22 (B size) signs be erected at 150m on approach to each side of the existing quarry access.

7.3.8 Cultural Heritage

Past Traces was engaged by Outline Planning Consultants Pty Ltd on behalf of Braidwood Sand and Gravel, to assess the area proposed for the expanded sand extraction operation. Refer **Appendix I** for the detailed ACHARS report.

The field survey was undertaken by Lyn O'Brien, with the assistance of Registered Aboriginal Party (RAP) representatives. A total of five Aboriginal heritage sites and one area of Potential Archaeological Deposit (PAD) were identified during the field survey-refer EIS Section 2.4.11 for further details in this regard and accompanying Figure 7.17 and photographs.

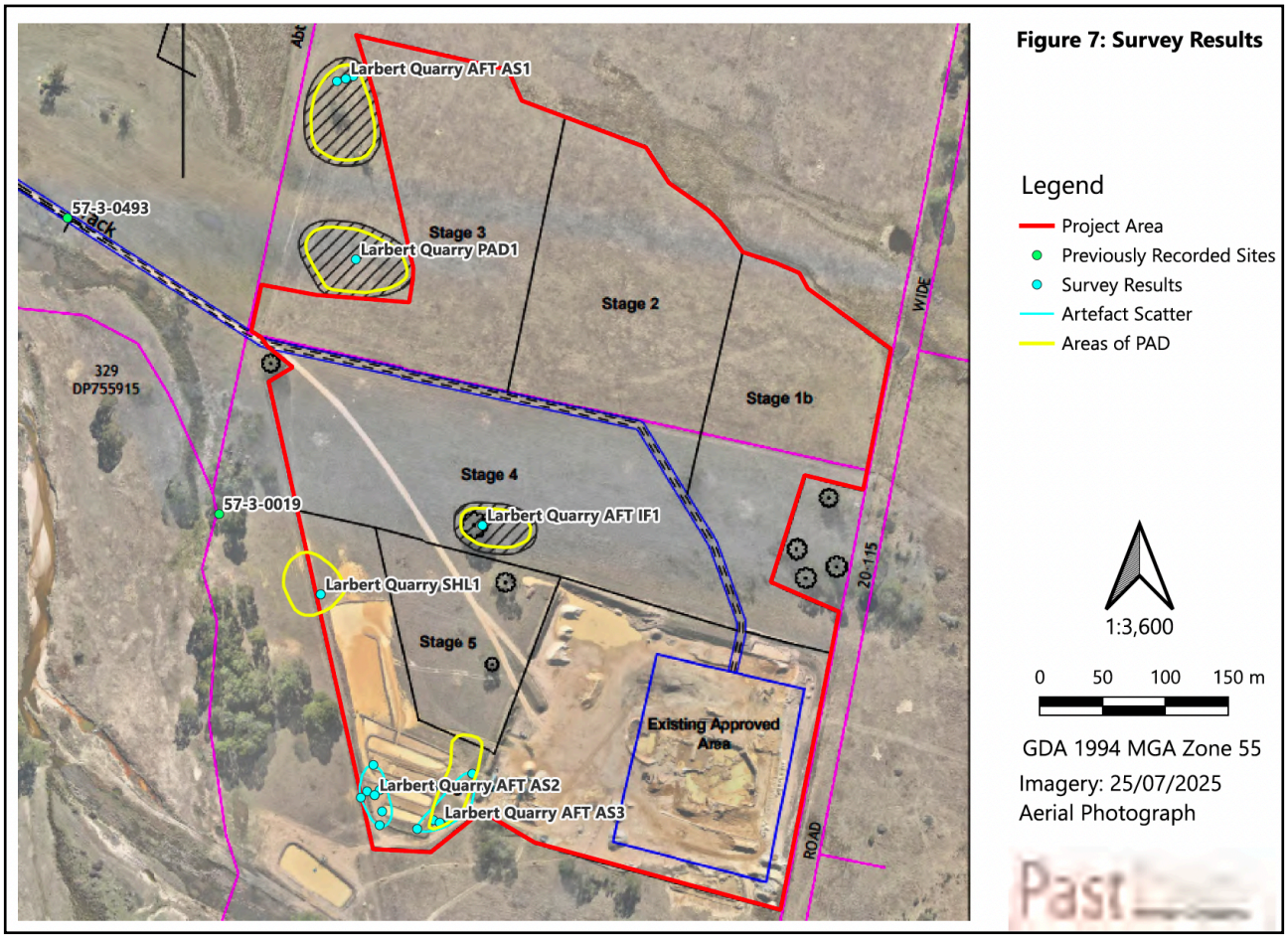


FIGURE 7.17: Aboriginal sites
(Source: Figure 7 Past Traces ACHAR report 2025)

Potential impacts on these sites area was considered by Past Traces, summarised in the accompanying Table 7.19. [page numbers referred to are from Past Traces ACHAR report]

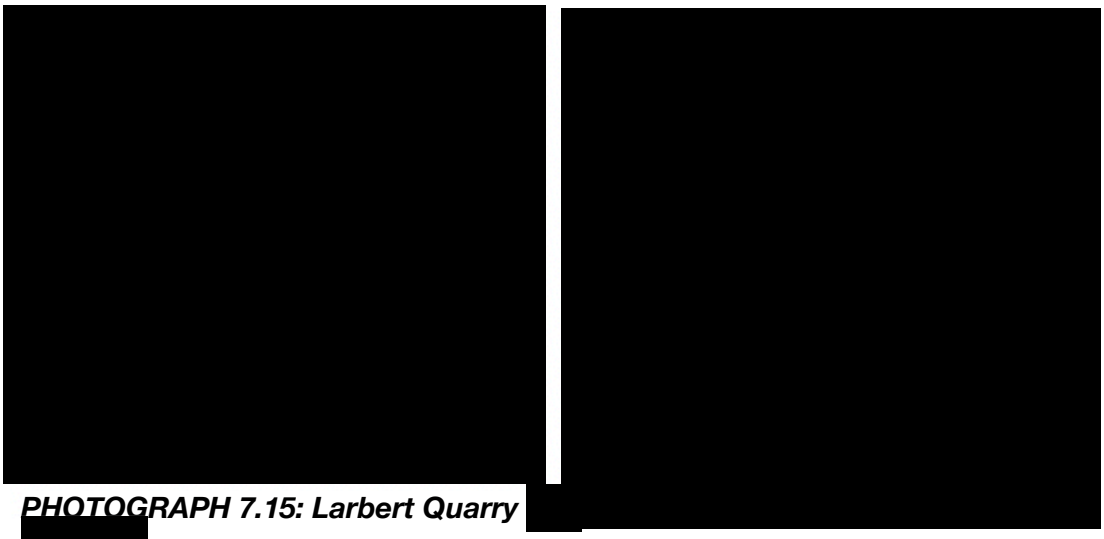
Table 7.19: Aboriginal heritage sites found and likely impact of proposed sand quarry development

Aboriginal heritage item	Significance and likely impact of proposed expanded sand quarry
-single isolated silcrete flake located	*"The site has been allocated low cultural and scientific significance based on the artefact composition and has been excised from the project area to prevent impacts. The site is to be protected from future harm by inclusion onto construction mapping as a no-go area, and barrier fencing installed to prevent accidental impact during works in the vicinity." (p.39)*
two silcrete artefacts located	*"The site has been allocated low cultural and scientific significance based on the composition of artefacts and has been excised from the project area to prevent impacts. The site is to be protected from future harm by inclusion onto construction mapping as a no-go area, and barrier fencing installed to prevent accidental impact. These areas of constraint must also be communicated to any other contractors undertaking works in their vicinity." (p.39)*
-artefact scatter of 14 artefacts across	*"All construction works have been completed in this area and no further disturbance to the area is anticipated. As a result, further impact to the site can be avoided and the artefacts can remain in their current locations. The site has been allocated low cultural and scientific significance based on the artefact composition and high degree of disturbance." (p.39) "Vehicles must be prevented from accessing this area, with maintenance works or access provided on foot only." (p.40)*
-scatter of 8 artefacts across h	*"All construction works have been completed in this area and no further disturbance to the area is anticipated. As a result, further impact to the site can be avoided and the artefacts can remain in their current locations. The site has been allocated low cultural and scientific significance based on the artefact composition and the high degree of disturbance… Vehicle must be prevented from accessing this area, with maintenance works or access provided on foot only.(p.40)*
-freshwater shell midden	*"The site has been allocated moderate cultural and scientific significance based on the rare nature of the site in the region and the following mitigation measures are required: The site is to be protected from future harm by inclusion onto construction mapping as a no-go area, and barrier fencing installed to prevent accidental impact." (p.41)*
-no artefacts were recorded	*Not included in sand extraction area."No works can be undertaken in this area without further subsurface investigation and heritage approvals".(p.41)*

[NOTE: A PAD is an area where sub-surface stone artefacts and/or other cultural materials are likely to occur].

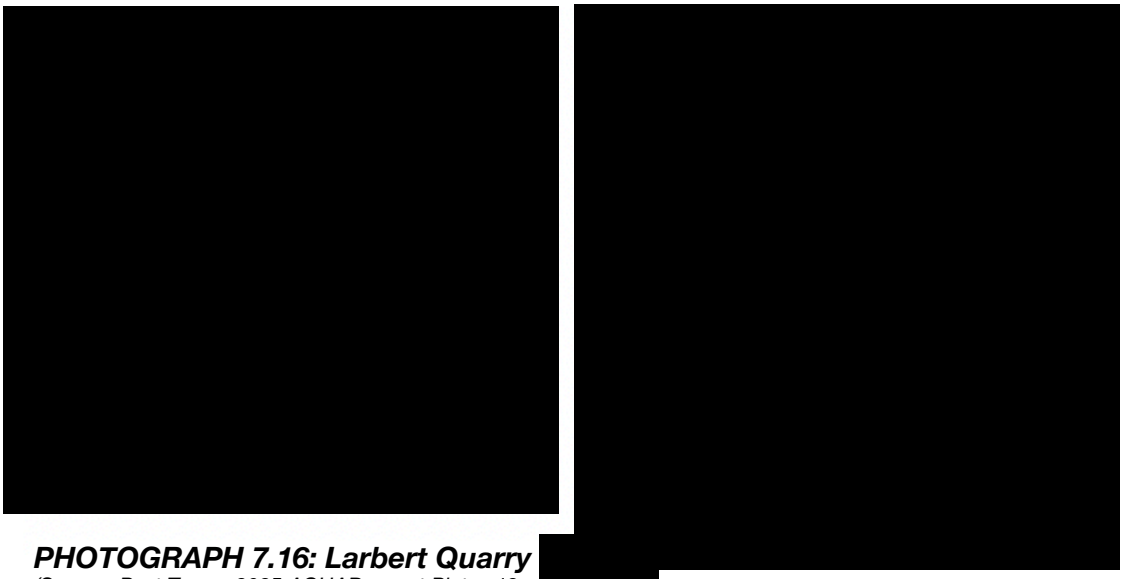
PHOTOGRAPH 7.14: Larbert Quarry

st Traces 2025 ACHAR report Plates 13 and 14)



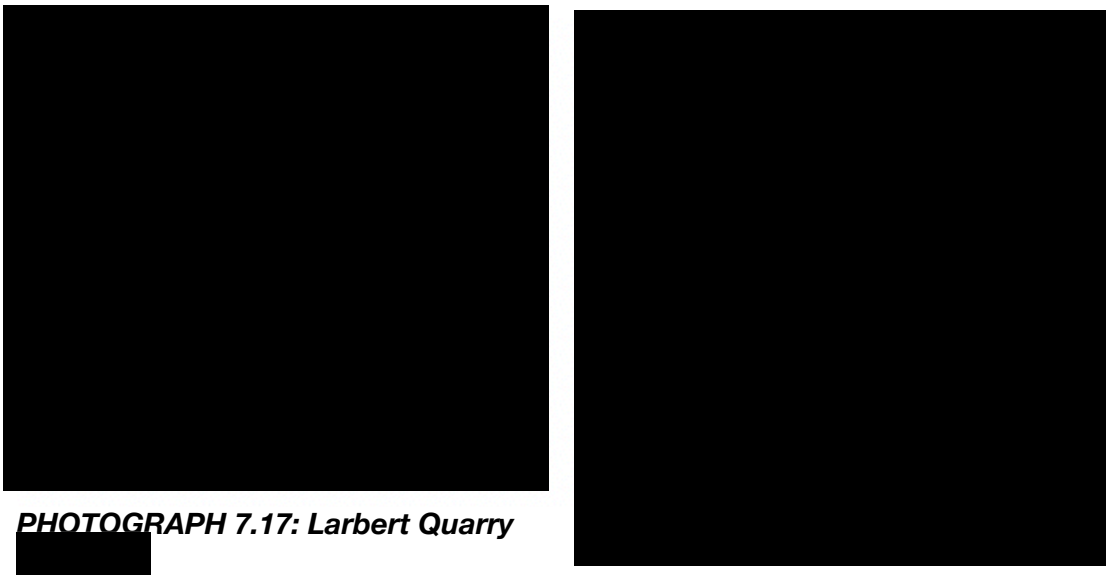
PHOTOGRAPH 7.15: Larbert Quarry

Traces 2025 ACHAR report Plates 15 and 16)



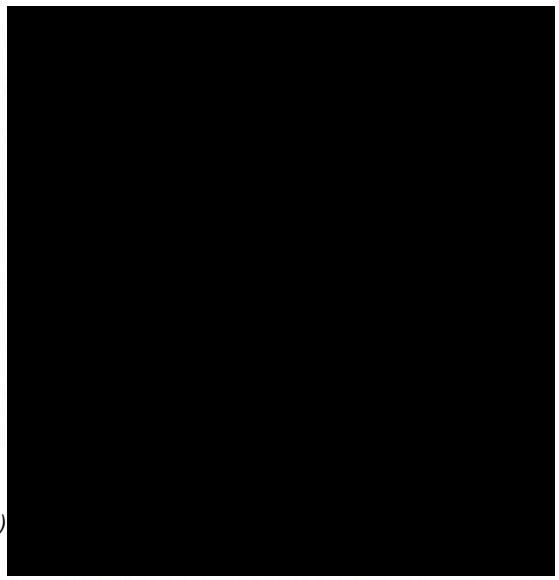
PHOTOGRAPH 7.16: Larbert Quarry

(Source: Past Traces 2025 ACHAR report Plates 19 a



PHOTOGRAPH 7.17: Larbert Quarry

Traces 2025 ACHAR report Plates 21 and 22)



PHOTOGRAPH 7.18: Larbert Quarry

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7.3.9 Biodiversity

Introduction

A Biodiversity Assessment Report was prepared by Macrozamia Environmental Consulting, assessing the ecological impacts of the proposed sand extraction project. The report assesses biodiversity values of the subject land and reviews the measures that Braidwood Sand and Gravel proposes to take to avoid or minimise the impact of the proposed development.

Macrozamia Environmental Consulting conclude that the proposed development does not trigger the need for biodiversity assessment method (BAM) or BDAR given that the Project:

- Requires no removal of native vegetation.
- Does not impact on any identified Biodiversity Value mapped areas.
- Will not significantly impact a threatened matter.

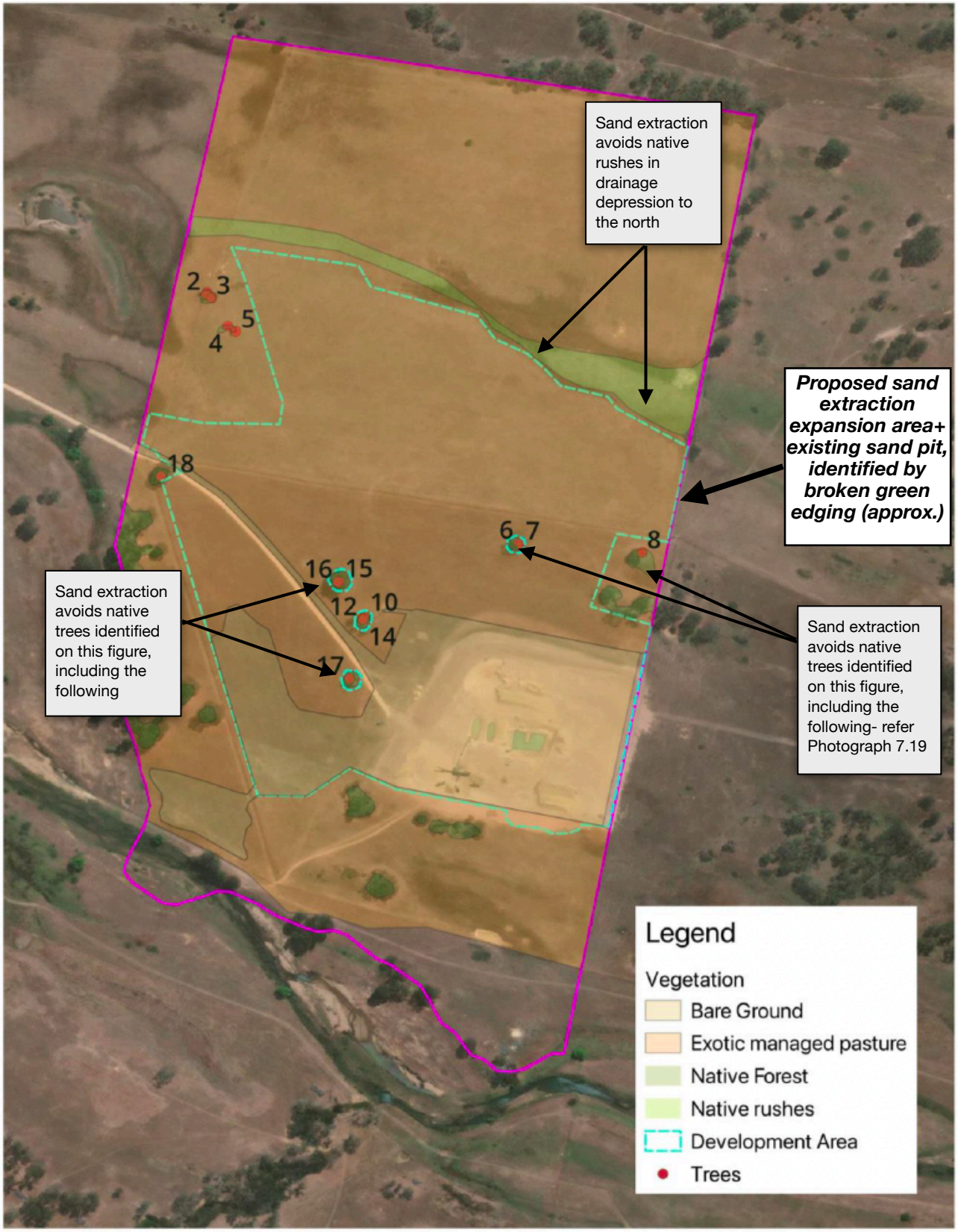
Survey Methodology and Results

Landscape features and native vegetation were considered using a range of online mapping tools, to gain an understanding of the general nature of the site context and features that relate to the subject land. Field investigations on the subject land and publicly accessible parts of surrounding lands were undertaken on 24 July 2025 to confirm or clarify findings of desktop research.

Vegetation mapping on the subject land was undertaken by traversing the project site on foot targeting each vegetation type in the development area using the random meander technique (Cropper 1993) recording the extent of native vegetation and flora species present with a handheld gis tablet.

Trees occurring in the draft development area were recorded including their location, DBH (diameter at breast height over bark) and species. No PCTs of adequate size were found appropriate for the BAM survey, native vegetation is restricted to isolated trees and narrow disjunct strips of grassland. Narrow filaments of vegetation of often less than 1m are present which could not practically be included in a vegetation zone. Due to the small size of native vegetation zones present on the subject land and avoidance of native vegetation from the development footprint no BAM plot were surveyed.

One plant community type (PCT) was identified for the site, 3348 Southern Tableland Granites Ribbon Gum Grassy Forest which occurs in a moderate poor, mostly as isolated paddock trees. Exotic managed grassland occurs across the majority of the subject land. No native vegetation occurs in the development area. Refer **Figure 7.18**.



Macrozamia Environmental

FIGURE 7.18: Site native vegetation and trees/habitats avoided

(Source: Map 4-1 Macrozamia Environmental Consulting report 2025)

Macrozamia Environmental Consulting conclude that it is unlikely habitats present in the development area could support threatened fauna, particularly given the ongoing agricultural management of the site.

Consideration was given to the possibility of *Delma impar* (striped legless lizard) occurring as it can be found in grassland with high exotic component however the structure of the grassland being continually grazed and cropped is inadequate for this species and there are no loose rock to provide shelter.

The threatened grasshopper *Keyacris scurra* (keys matchstick) was also considered as it has been found in grasslands with exotic species including *Phalaris* and has been recorded more frequently in the Southern Tablelands. This species was incidentally surveyed during flora surveys which occurred at an appropriate time of the year and time of the day to detect this species, no grasshopper species were found.

As no suitable habitat is present for these or other threatened fauna a species polygon could not be prepared.

Impact Assessment

In summary, in terms of potential impacts on threatened species, populations and ecological communities Macrozamia Environmental Consulting conclude that:

- No Threatened Species listed under the BC Act were considered likely to occur on the site or be impacted by the proposal.
- No Endangered Populations listed under the BC Act have been considered likely to be at risk of impact by the proposal.
- No further assessment of likely impacts on threatened ecological communities was warranted.

Macrozamia Environmental Consulting conclude that the project complies with *State Environmental Planning Policy (Biodiversity and Conservation) 2021* in that:

- There are no recent recordings of koalas in nearby areas, no signs of koalas were found. during site inspections. The habitat present is sparse and inadequate volume to support a koala population and that it is highly unlikely that a local koala population occurs.
- The proposal will not remove koala habitat, the proposal is likely to have low or no impact on koalas or koala habitat and the council may grant consent to the development application.

Macrozamia Environmental Consulting conclude that the project complies with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* in that:

- There are no recent recordings of koalas in nearby areas, no signs of koalas were found. during site inspections. The habitat present is sparse and inadequate volume to support a koala population and that it is highly unlikely that a local koala population occurs.
- No EPBC listed protected migratory species were observed on site at the time of this assessment or considered likely to occur on the site or rely on resources provided by its habitat.

Macrozamia Environmental Consulting conclude that the project complies with the Commonwealth *Fisheries Management Act 1994* in that no species, populations or communities listed under this act were recorded on site at the time of this assessment or are considered likely to occur on this site.

Macrozamia Environmental Consulting note that proposal has been designed to minimise impacts to biodiversity, along with meeting other environmental planning criteria, the project design reduces impacts to biodiversity by limiting the extent of the development and avoiding trees. Retaining trees in the vicinity of the development area will also significantly assist regeneration works post extraction.

Through the implementation of various on site management measures impacts on the environment will be minimised. The location of the proposal is on land that is already subject, in part, to impacts of sand quarrying operations and extends in to lands that have little biodiversity value. Mitigation measures include the implementation of a vegetation management plan and rehabilitation plan, once consent has been issued.Indirect impacts were found to be of a quantum extent that will have a negligible impact on biodiversity outside the project area.

Initial designs were altered to avoid areas of higher biodiversity values including native trees and the drainage depression to the north of the proposed extraction area.

The ecological assessment finds that no species listed as at risk of a Serious and Irreversible Impact (SAII) have been found likely to use the subject and or be impacted by the project. No other biodiversity impacts are expected, largely as the proposed sand extraction operations are to be undertaken in an area that has suffered extensive impacts in the past including agricultural operations and extractive industry.

Macrozamia Environmental Consulting conclude that the project is not likely to have a significant impact on listed threatened species, populations or ecological communities.

PHOTOGRAPH 7.19: Stand of trees to be avoided, on eastern side of extraction area

7.3.10 Groundwater

Introduction

Ground Doctor Pty Ltd assessed the potential for the Project to impact on groundwater.

Ground Doctor completed the following work as part of their brief:

- Assessed of the site setting by reviewing relevant mapping and conducting a site inspection.
- Reviewed available groundwater bore data and geological information to assess the location and characteristics of groundwater aquifers located within the site and surrounding areas.
- Identified and described available groundwater works data to assess existing groundwater users in the vicinity of the proposed development.

- Installed and developed four monitoring bores (MB01-MB04) around the proposed extraction areas to characterise subsurface conditions and the occurrence of groundwater.
- Surveyed and gauged groundwater levels in the installed monitoring bores (MB01-MB04) to establish the groundwater elevation and assess the groundwater flow direction.
- Purged and sampled the monitoring bores. Water samples collected from each monitoring bore were analysed for major cations, major anions, nutrients and metals to establish baseline groundwater quality and conceptual understanding of the hydrogeology.
- Conducted a review of potential groundwater quality and quantity impacts based on the characterisation of the groundwater environment and activities proposed. Minimum impact considerations outlined in the NSW Department of Primary Industries, Office of Water (2012) NSW Aquifer Interference Policy were used to assess potential groundwater impacts.
- Outlined measures that will be adopted to mitigate or manage potential groundwater impacts associated with the proposed development.

Monitoring Bores and Groundwater Test Results

Ground Doctor Pty Ltd Four groundwater monitoring bores were installed at the Project Site as part of this assessment. Monitoring bore locations are shown in EIS **Figure 2.8** and accompanying **Figure 7.19**.

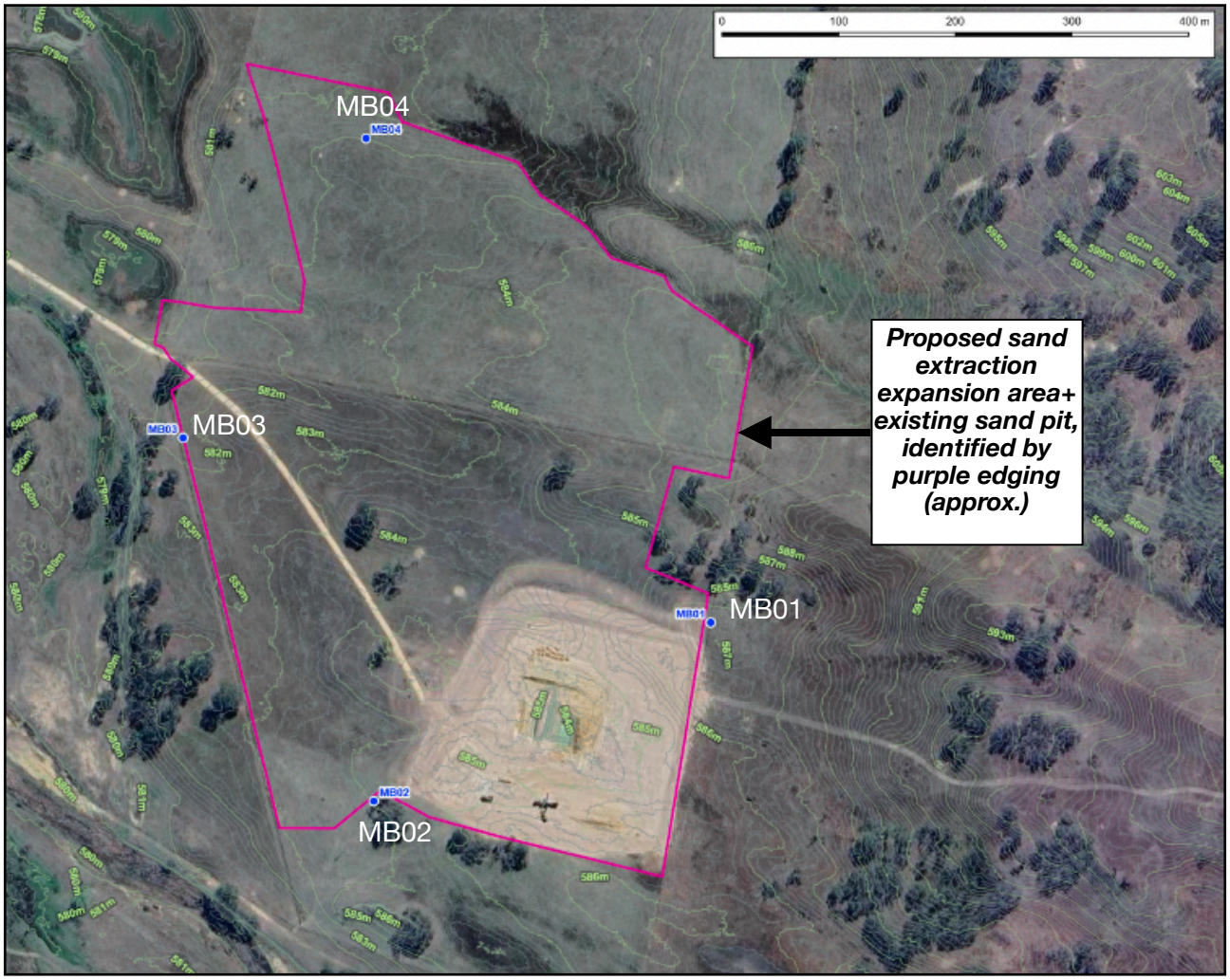


FIGURE 7.19: Location of groundwater monitoring bores
(Source: Ground Doctor report 2025)

- Boreholes were drilled using a track mounted rotary drill. The borehole at MB02 was installed using solid augers. Alluvium at MB02 contained clay and stayed open after drilling allowing installation of bore casing.Boreholes at MB01, MB03 and MB04 were drilled with a combination of solid auger drilling and wash-boring with HQ casing.
- Monitoring bore MB02 was drilled along the southern boundary of the Project Site. Bedrock was encountered at a depth of approximately 4.9m below ground level at this location (bedrock elevation inferred to be approximately 579.5m AHD). Outcropping grandiorite was visible approximately 50m to the south west in this location where the surface elevation was approximately 584m AHD. At MB02 groundwater was encountered in the sandy and gravely alluvium encountered over bedrock
- Monitoring bores MB01, MB03 and MB04 were drilled to depths ranging 6.2m to 7.8m below ground level and were terminated within alluvium. Observations indicate that alluvium extends to an elevation of less than 576m AHD beneath the western portion of the Project Site.Alluvium encountered in boreholes drilled at MB01, MB03 and MB04 was predominantly fine to coarse grained sand with layers of clayey sand and relatively thin layers of gravel and cobbles. Saturated flowing sand was encountered at each of these locations below a depth of 4m suggesting the presence of groundwater.
- Groundwater was identified in alluvium at each monitoring bore location. Standing water levels ranged from 2.3m to 4.4m below ground level.
- Bedrock was encountered at 4.9m below ground level in MB02. Alluvium encountered within MB02 was clayey and of limited thickness. Groundwater yield at MB02 was relatively low with the bore able to be bailed dry after which it took several hours to return to the static level.
- Alluvium was encountered throughout MB01, MB03 and MB04. At each of these locations alluvium typically had some clay content in the upper 4m but was predominantly sand and gravel below a depth of 4m.
- Measured groundwater elevation in all monitoring bores appear to be higher than the typical elevation of surface water in Durran Durra Creek and well above typical elevation of Shoalhaven River. This suggests that Durran Durra Creek and Shoalhaven River are gaining streams in the vicinity of the Project Site. That is, there is groundwater flow from alluvium and granite beneath the site toward Durran Durra Creek and ultimately toward Shoalhaven River.
- The measured electrical conductivity (EC) and pH of groundwater in all monitoring bores indicates the water has low dissolved salt concentrations and would be suitable for all typical beneficial uses within the site setting. These could include for potable water supply, stock water, irrigation, recreation and commercial uses.

Conceptual Groundwater Model: Pre-development

The pre-development conceptual groundwater model has a number of features including but not limited to the following:

- The proposed quarry excavations are situated over alluvium that is above typical flood levels of Durran Durra Creek and Shoalhaven River.
- The alluvium situated beneath the Project Site and to the Shoalhaven River is likely to be less than 10m thick.
- Groundwater elevation data shows the groundwater beneath the Project Site is marginally higher than typical surface water elevation within Durran Durra Creek, groundwaters flowing toward Durran Durra Creek in a general westerly direction and/or Shoalhaven River to the north-west.
- The groundwater elevation in alluvium beneath the Project Site is at least 5m above typical surface water elevation in Shoalhaven River downslope of the site. Therefore, Shoalhaven River does not act as a source of recharge of groundwater beneath the Project Site.
- The alluvium has relatively high hydraulic conductivity (ie. how easily water can move through soil/sand). It is observed that it is possible to lower the water level in each excavated sand pit with pumping, but water levels recover quickly when pumping ceases.
- Alluvium beneath the Project Site has relatively high hydraulic conductivity.
- Groundwater levels vary in wet versus dry years.

Groundwater Usage: Proposed Development

The groundwater take associated with the proposed development will be comprised of:

- Indirect losses to evaporation associated with exposure of the water table to the atmosphere. These can be approximated by applying the net evaporation rate to the area of exposed water table.
- Use of water to process sand. Water consumption will occur as a result of evaporation of water from settling ponds, evaporation of water in stockpiled sand and export of water in sold product.
- Use of water for dust suppression.

Longer term indirect losses of groundwater will be managed by systematically backfilling the former extraction areas with imported ENM or VENM fill to a level above the water table.

Potential Groundwater Impacts: Development Phase

The groundwater take associated with the proposed development will be comprised of:

- No nearby groundwater bores or groundwater dependent ecosystems. Acid sulphate soil risk mapping indicates the quarry has low risk of encountering iron pyrite rich material that would be acid generating if exposed to oxygen. The mapping is supported by water quality monitoring data for the site, which indicated groundwater had pH that was only mildly acidic close to the existing quarry excavation.
- Excavation will be limited to less than 3m below the water table due to operation constraints associated groundwater inflows. Drawdown induced by the take of groundwater by the proposed sand extraction development will propagate upslope of the Project Site only whilst ever the extraction depth remains above 579m AHD.
- The maximum potential drawdown beneath the proposed extraction areas will remain 2-3m above the typical water level within the Shoalhaven River downslope of the Project Site.
- Standing water visible on the surface of alluvial plains immediately north-west of the Project Site serve as a physical model of aquifer behaviour. The standing water is an expression of the alluvial aquifer water table above the ground surface. These ponds are subject to evaporative losses at the same rate as exposed surface water within the extraction area.
- Once each extraction area is exhausted it will be progressively backfilled above the pre-development water table elevation to minimise the extent of exposed water table and associated evaporative losses.
- The proposed development does not pose any direct discharge of water from the Project Site. All process water will be circulated within the boundary of the Project Site. The alluvium underlying the Project Site has relatively high hydraulic conductivity. It is anticipated that any accumulation of water within the Project Site would soak into underlying and surrounding permeable sand.
- Salt accumulation associated with the Project is unlikely.
- Potential groundwater impacts associated with the proposed development would not exceed the Level 1 "*minimum impact considerations*" outlined in the NSW Aquifer Interference Policy (NSW DPI, 2012). Therefore, groundwater impacts associated with the proposed development are acceptable.

Potential Groundwater Impacts: Post Extraction

Extraction excavations will be progressively rehabilitated by filling with imported ENM and/or VENM. Excavations will be filled above the pre-development water table elevation. The water table should reestablish a new equilibrium condition close to the pre-development level as there will be no ongoing direct or indirect take of groundwater from the post development landscape. Groundwater will continue to flow through and around the Project Site toward Shoalhaven River.

The post development landform will be rehabilitated so that the final landform is above the pre-development water table elevation. Ground Doctor conclude that there will be no ongoing groundwater losses once the development is completed.

The Proponent will need to obtain a commercial use water access licence for any direct or indirect take of groundwater.

7.3.11 Surface Water

Introduction

Strategic Environmental and Engineering Consulting (SEEC) assessed the potential for the Project to impact on water, supplemented by available flooding information from the Canberra Sand and Gravel EIS, approved by Council in April 2025- a development that sits on the same landholding, abutting Durran Durra Creek and the Shoalhaven River.

Water Management

The proposed water management system (WMS) aims to maintain separation of clean water from externally draining catchments and dirty water from internally draining catchments. Refer also to **Figure 7.20**.

- The WMS for the Project provides for the current sand pit sump within the currently approved sand pit to becomes the Clean Water Dam (CWD).
- Water is to be sourced from the CWD for use in sand processing. Overflow from sand processing is piped into the fines Settlement Ponds (SPs).
- Once sediment is settled, the clean water in the SPs is then pumped back into CWD for re-use.
- Each progressive extraction area stage creates a sediment basin/pit sump, sized to be a minimum of the 5-day 95th percentile rainfall, noting that extraction pits are likely to be larger than this.
- Once each stage is completed, the extraction area will be rehabilitated via back-filling of excavated sand pits with a dozer using stockpiled topsoil and overburden from soil stockpiles or bunding, supplemented by imported fill, once extraction is completed in each sand pit stage/cell. Once each stage of sand extraction is completed the decommissioned area will be rehabilitated and shaped to stable, post-extraction landforms, using clean ENM and VENM fill when available.
- Captured water is unlikely to be discharged from site due to the highly permeable nature of the site soils. Additionally, water is unlikely to be discharged from any on-site extraction areas, as they have significant storage volume for larger events.

Flooding

Based on a TUFLOW hydraulic model developed by Umwelt (2023) to estimate indicative 1% Annual Exceedance Probability (AEP) flood levels for the adjacent Canberra Sand and Gravel project, approved in April 2025, it is likely that river flood levels of up to RL580m AHD will be generated. The location of the Canberra Sand and Gravel project and the project site is illustrated in **Figure 7.21**. It is noteworthy that virtually all of the proposed expanded sand extraction area sits at an elevation in excess of RL 580mAHD, save for a tiny pocket of land land near the entry to the project site:

- The fines settlement ponds (SPs) in Stage 1a are situated on land with an elevation generally in excess of RL 583m AHD. The sand processing plant, stockpiles and associated infrastructure within Stage 1a are situated on land with an elevation generally in excess of RL 584m AHD, the sand washing plant sitting on an elevated man-made rise of in excess of RL585m AHD.
- Stage 1b is situated on land in excess of RL 584m AHD up to almost RL 587mAHD.
- Stage 2 is situated on land generally between elevations of RL 583.5-584.5m AHD.
- Stage 3 is situated on land in excess of RL 582m AHD.
- Stage 4 is situated on land in excess of RL 580m AHD up to RL 584mAHD. Most of the northern boundary of the proposed Stage is already bunded to a height of between 2-3m above natural ground level.
- Stage 3 is situated on land in excess of RL 583.5m AHD rising up to a maximum of RL 585m AHD.

It should be noted that the southern boundary of the ProjectSite is within the floodplain for Durran Durra Creek. Some localised flooding is expected from Durran Durra Creek, which lies approximately 3-5 metres below the southern-most perimeter of the proposed sand extraction area. Importantly, all extraction area stages are proposed to have a 2-3m high bund surrounding them, to minimise clean water ingress and any potential flood waters from Durran Durra Creek. SEEC note that such bunding would provide some immunity to the site during significant flooding events.

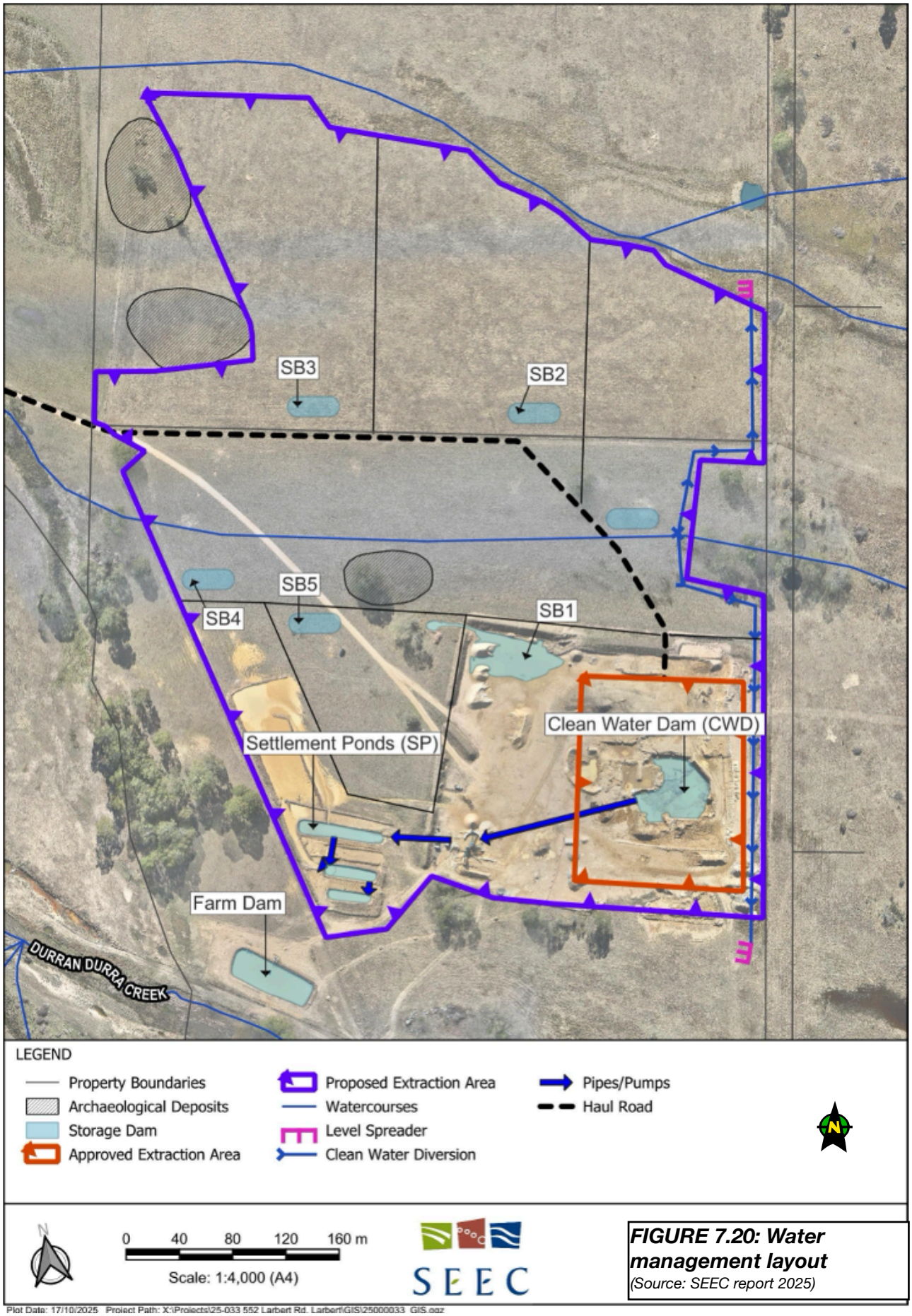


FIGURE 7.20: Water management layout
(Source: SEEC report 2025)

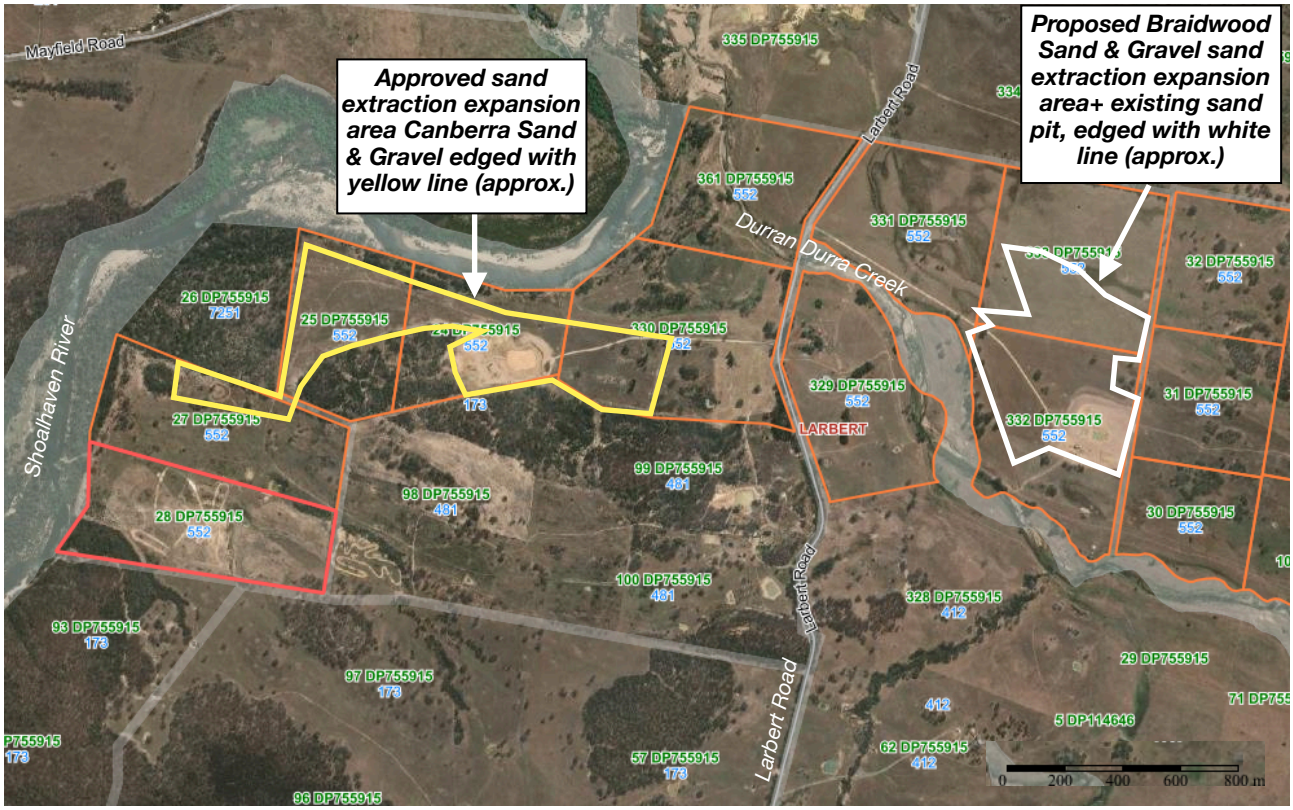


FIGURE 7.21: The project site lies adjacent to and on the same land holding (edged orange) as the Canberra Sand and Gravel project site- extraction area approved in April 2025 shown with yellow edging. Umwelt estimated a 1% AEP flood level for the Canberra Sand and Gravel project site of of up to approx. RL 580m AHD

(Map Source: Queanbeyan-Palerang Regional Council 2025)

Each progressive extraction area stage will contain rainfall run-off within the extraction area, although a temporary sediment basin maybe required during the initial stages if topsoil is stripped over the whole stage area. Any preliminary sediment basins are to be sized for the 5-day 95th percentile rainfall, noting that any initial sediment basin if required would be temporary and would ultimately become part of the extraction area.

Site Water Balance

SEEC undertook a water balance assessment using a long-term historical rainfall record with the assumption that it will include a range of high, medium and low rainfall periods that could be expected at the site in the future. Water would be used primarily for sand production and the suppression of dust generated from the exposed and trafficked areas. Water for use in dust suppression and production will be primarily sourced from the Clean Water Dam (CWD) in Stage 1a. Water can also be directly from sediment basins and settlement ponds for dust suppression; however, all water is sourced only from the CWD.

Model results are presented in the SEEC report for the historical average, a dry year (10th percentile), median year (50th percentile) and a wet year (90th percentile). An increased allowance for any make-up water is included to account for potential climate change impacts. The estimated process water demand is typically 10 ML/pa. Dust suppression demand can vary from 1.7-4.2 ML/pa depending on the amount of rainfall, resulting in an average annual demand request of 12.9 ML/pa. The SEEC water balance model results indicate that the quarry's process water requirements will be primarily met by extraction from the water management dams. Noting that this assessment is based on assumptions outlined above, of which the model is significantly sensitive to the required water demands and groundwater inflows.

SEEC modelling finds no uncontrolled overflows in the 10, 50 and 90%ile rainfall years, however, during extreme rainfall events on rare occasions spills may occur from the settlement ponds and CWD. While the Quarry is considered to have a secure source of water, the Quarry will reduce production as required during persistent dry periods and where water allocation assignments from the groundwater source are reduced by WaterNSW. Refer Table 7.20.

Table 7.20: Water balance model results summary

Quarry Year	Demand Request	Demand Shortfall	Uncontrolled Overflow	Uncontrolled Overflow	Controlled Release	Reliability (%)
Entire Run (1900-2024)	*12.9*	*1*	*0.3*	*0.5*	*-*	*94*
1957 (10%ile)	*13.2*	*0*	*0.0*	*0.0*	*-*	*100*
1995 (50%ile)	*12.9*	*0*	*0.0*	*0.0*	*-*	*100*
1984 (90%ile)	*13.1*	*0*	*0.0*	*0.0*	*-*	*100*

(Source: Table 15 SEEC report - Appendix F)

Erosion and Sediment Controls

SEEC have prepared a conceptual Soil and Water Management Plan for the project. In addition to numerous other erosion and sediment controls proposed by SEEC, the SWMP shows several temporary sediment basins to be used during construction(if required) to temporarily detain dirty onsite water generated when rainfall runs off disturbed areas. The minimum basin sizing to meet erosion and sediment controls requirements of each dirty water catchment are listed in Table 7.21 in accordance with *Managing Urban Stormwater* (the Blue Book) Volumes 1 and 2E (Landcom, 2004 and DECC, 2008). Note that these are minimum sizes based on the largest catchment area that drains to them throughout the expected design life. These basins will ultimately become part of each extraction area any water captured to provide additional water storage on-site as identified by the water balance.

Table 7.21: Minimum Sediment Basin Sizing Requirements per Blue Book Requirements

Sediment Basin by Extraction Stage	Catchment (ha)	Min capacity required Settling Zone Volume (ML)	Min capacity required Sediment Storage Zone Volume (ML)	Min capacity required Total Basin Volume[1] (ML)
SB1	*2.2ha*	*0.37*	*0.04*	*0.41*
SB1	*2.8ha*	*0.47*	*0.05*	*0.52*
SB2	*3.2ha*	*0.54*	*0.05*	*0.59*
SB3	*3.4ha*	*0.57*	*0.06*	*0.63*
SB4	*4.3ha*	*0.72*	*0.07*	*0.80*
SB5	*4.6ha*	*0.77*	*0.08*	*0.85*

(Source: Table 10 SEEC report - Appendix F.)

NOTE 1: The minimum sizing for each sediment basin (if required), noting the sediment basins will be within the extraction pits and therefore will likely have extended capacity within the extraction area and are unlikely to spill.

Other feature of the conceptual Soil and Water Management Plan include the following:

- Management of detained water, including beneficial re-use of detained surface water from sediment basins, sumps and excavations. Refer to accompanying Figure 7.22, showing the flow chart for management of surface water on the project site.
- Supplementary erosion and sediment controls including:
  - Sediment (silt) fencing consisting of geotextile filter fabric supported by wire and posts will be utilised where required- refer Table 11 of SEEC report in **Appendix F**.

- Swale or channel or a diversion bund may be utilised to reduce the water velocity and capture sediments.
- In the event additional erosion controls are required, the use of rock armouring will be considered. Similar to rock armouring, jute mesh, a biodegradable erosion control blanket, may be installed.
- Where a vegetated outcome is required, a fast growing, non-persistent cover crop to be sown for short term stabilisation together with the native species required for long-term ecosystem establishment.

These additional measures are applicable to water management structures, active disturbance areas and future areas to be rehabilitated.

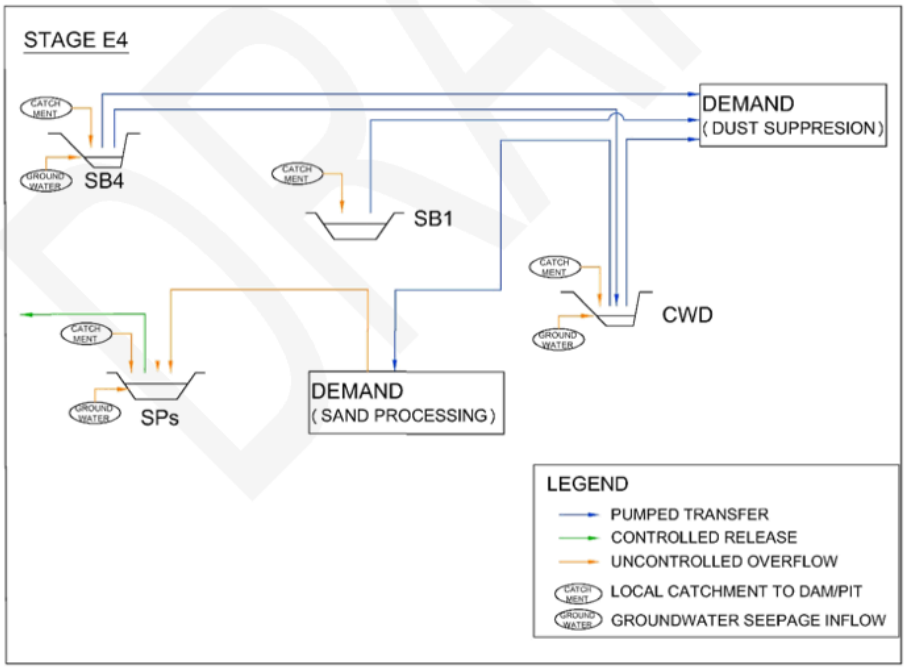


FIGURE 7.22: Proposed water management system

(Source: Figure 8 SEEC report - Appendix F)

Surface Water Quality Impacts

The proposed Project is located within the Sydney Water drinking water catchment and therefore requires the proponent to undertake a Neutral of Beneficial Effects (NorBE) assessment. The NorBE analysis demonstrates whether the post-development pollutant loads discharged from the Project are equal to or less than the pollutant loads discharging from the pre-developed site.

SEEC conclude that as the Project is not expected to result in controlled or uncontrolled discharges in typical rainfall conditions up to and including a 90 percential rainfall year, it is considered to have a neutral effect on the Shoalhaven River catchment water quality.

Surface Water Quantity Impacts

SEEC conclude that:

- The Project site area is a total of approximately 71 ha within the Shoalhaven River catchment which accounts for less than 0.001% of the 7,300 km^2 catchment area of the Shoalhaven River. As such, it is unlikely that the loss in catchment yield associated with the Project will have an impact to the total catchment yield.
- Runoff from the undisturbed catchment, east of the Project, will be diverted around the Project via a clean water drain/diversion bund. Level spreaders (or similar energy dissipation discharge structure) will be installed at either end of the clean water drain and will discharge runoff south towards Durran Durra Creek and north towards the unnamed tributary, both of which then flow into the Shoalhaven River. The diversion of runoff from the undisturbed upslope catchment is unlikely to result in increased flows in minor streams and therefore no impacts on receiving watercourse stream stability are expected.

7.3.12 Social and Economic Impacts

The SEARs for the EIS required an assessment of the likely social and economic impacts of the proposed Braidwood Sand and Gravel Project.

Social Impacts : Braidwood Sand and Gravel Project

Quarries have the potential to have significant social impacts, both positive and negative, on the surrounding communities and the environment. Through careful planning and design, the negative social impacts of the Braidwood Sand and Gravel Project have been minimised, as summarised in the following Table 7.22.

Table 7.22: Social Impact Assessment of Proposed Braidwood Sand and Gravel Project

Issue	*Likely impact with mitigation*	*Relevance to Proposed Braidwood Sand and Gravel Project*
Visual amenity (surroundings)	*LOW-ZERO*	*The proposal has been designed to minimise visual amenity impacts.* ► *Sand quarry development is well set back from Larbert Road with no views possible from any residences not associated with the quarry.* ► *The site will be returned to agricultural use once quarrying is completed.*
Noise amenity/ health (way of life)	*LOW*	*The assessment by Vipac shows noise emissions, including truck traffic noise, are expected to comply with EPA guidelines at the nearby sensitive receptors therefore minimising the possibility of any amenity or health impacts.* ► *Proposed sand quarry reasonably well buffered from surrounding neighbours.* ► *Hours of operation during day time, with no quarrying on public holidays or Sundays.*
Air quality/health (surroundings)	*LOW*	► *The assessment by Vipac shows air quality/dust emissions are expected to comply with EPA guidelines at the nearby sensitive receptors, therefore minimising the possibility of any health impacts to the community. Refer **Appendix E**.*
Quarry truck traffic	*MOD-LOW*	► *The proposal will utilise public roads for transportation, with acceptable capacities and impacts likely. Refer **Appendix J**.* ► *The proposal will not impact on access to neighbouring properties.* ► *Acceptable quarry truck noise impacts on residences along Larbert Road- refer **Appendix D**.* ► *The intersection of Larbert Road and the Kings Highway has sufficient capacity to safely accommodate likely quarry truck traffic generated by the quarry project. Refer **Appendix J**.*
Agricultural use of land (way of life, livelihood)	*LOW*	► *No likely adverse impacts on either agriculture on neighbouring lands.* ► *The project site does not comprise BSAL lands.* ► *No loss of agricultural jobs arise from the project.* ► *Acceptable impact on local groundwater resources- refer **Appendix G**.* ► *The site will be returned to agricultural use once sand quarrying is completed on site.*
Heritage/cultural (culture)	*LOW*	► *Sand extraction avoids sites of Aboriginal heritage significance. Refer **Appendix J**.* ► *No vehicles allowed in and around fines settlement area containing Aboriginal relics.* ► *The proposal will implement an unexpected finds procedure.*
Safety, hazards (surroundings, way of life)	*LOW*	*The proposed quarry development has been assessed as not increasing safety risk, on or off-site.*
Community (way of life, decision making)	*LOW*	► *The locality has a long history of sand extraction since the mid 1980s, with other nearby sand extraction developments, including the expanded Canberra Sand and Gravel operation on the same landholding. Sand extraction operations are a part of the local character of the locality.* ► *Community consultation undertaken as part of the EIS preparation process with ongoing consultation with nearest residents once operational.* ► *Employment opportunities for local workforce.*

Economic Impacts: Overview

Quarries are essential for providing materials that form the foundation of our built environment, impacting construction, infrastructure, and industrial sectors.

Quarries are the backbone of the construction industry and play a vital role in a nation's economy. Perhaps most significantly, sand can be combined with cement and water to produce concrete, one of the most commonly used building materials in the world. As such, quarries underpin the country's ongoing development and maintenance of essential infrastructure, and play a vital role in Australia's economy.

> *"Australian quarries support our vital building and construction industries which generate over $200 billion in revenue each year and directly employ more than one million Australians. …..As well as providing …. essential materials, quarries stimulate local communities through investment and by providing jobs. In fact, the quarry industry creates over 10,000 jobs directly and supports another 80,000 indirectly, often in rural and regional locations*." (Cement Concrete & Aggregates Australia website April 2022)

The Canberra region, including the Queanbeyan-Palerang LGA, has been planned to accommodate a large increase in population, principally in Canberra and in Queanbeyan, with major investment and employment arising from this population growth. Population projections forecast that Queanbeyan-Palerang's population will increase from 63,400 in 2021 to 85,100 by 2041. The ACT's population is estimated at 453,558 residents in 2021, forecast to grow to 784,043 by 2060.

Accompanying this forecast growth will be a correspondingly huge demand for quarry products, and in particular sand for concrete production, construction and associated applications. The Braidwood Sand and Gravel sand operations at Larbert is strategically located in close proximity to these booming populations, thus ensuring employment opportunities and maintaining stimulus to the economy of region.

There are ongoing concerns about concrete and construction sand shortages impacting the Canberra market and broader Australian construction industry. It proposes safe and adequate access suitable for the Project. The 2023 Infrastructure Australia report highlights acute quarry shortages in several regions, including potential supply issues for Canberra. This is due to factors like increased demand, long lead times for quarry approval, and the difficulty in sourcing alternatives when needed (Infrastructure Australia *Market Capacity Report 2023*).

Some of the most significant economic impacts of the proposed expanded sand extraction Project are as follows:

- **Job creation:** Quarrying generates significant revenue and supports numerous jobs, both directly and indirectly. At peak production the Project will generate up to 4 full-time jobs on-site, generating wages of approximately $0.5 million per annum, with flow-on jobs in industries reliant on the quarry, as well as truck drivers employed by other contractors, suppliers and other sub contractors periodically engaged by the quarry, for example, blasting contractors. In short, the Project would provide direct economic activity, including jobs, to the local area economy, and indirect economic activity to the local area via both wage and non-wage expenditure.
- **Support for the construction industry in the Canberra region:** The construction industry is very much tied to population growth, not only of QPRC but also that of the Canberra region.As urban centres expand and populations grow, the need for new housing, commercial buildings, and infrastructure increases, directly driving demand for construction materials.
  - One of the top three economic sectors in QPRC is in construction which, together with public administration and health care, accounts for more than 40% of QPRC's economy according to QPRC's *Towards 2040 Local Strategic Planning Statement*.
  - ABS (July 2025) estimates indicate that the Queanbeyan-Palerang Regional Council population is forecast to grow by 17%, to 79,208 by 2041.
  - The population of Canberra is anticipated to grow from 482,986 in 2025 to approximately 784,000 persons by June 2060, an increase of 62%.
- **Regional economic boost, economic multipliers:** Sand quarries can boost the local economy through investment and by providing materials for industries like construction and in concrete production. The Project would provide major economic benefits in the form of annual operating income of between $9 million and $10

million at full production (ex pit value only), plus income from freighting the quarry product to end users.

The continued operation of the quarry is likely to produce additional indirect effects to other local industries, potentially generating up to 12 more jobs locally, and assuming a multiplier of 150%, commonly applied to quarry projects, the potential to generate upwards of an additional $15 million of economic output in associated industries within NSW.

The predicted socio-economic impacts of the Braidwood Sand and Gravel Project are therefore positive for the region as well as for NSW generally. The project is an economic opportunity which does not conflict with recreation or tourism or agriculture or traffic flows or rural amenity or environmental values.

Cumulative Impacts

The cumulative impacts of the Project with other approved/operating sand extraction developments has been considered and found to be acceptable.

▪ 7.4 Section 4.15(1)(c): Suitability of the Site for Development

The suitability of the site for the development is a key consideration in the assessment of any application under s.4.15(1) of the EP&A Act per *Lippmann Partnership Pty Ltd v Canterbury – Bankstown Council* [2017] NSWLEC 1601 at [42]. In this regard, it is relevant to note It is relevant to note that Council considered the site suitable for sand extraction when granting approval to the current sand extraction operation (DA.2022.1181 issued on 20 July 2023). One of the Council's Reasons for Approval of DA.2022.1181 was that: "*The subject site was found to be suitable for development*".

A quarry site's suitability is determined by several factors, including site conditions and geological conditions encountered, proximity to markets, zoning and other planning guidelines, and environmental conditions. A suitable quarry site should have a good quantity of the desired material, be relatively close to areas where the material is needed, and minimise environmental impacts, like dust and noise.

The suitability of the site for a quarry project is consistent with all relevant legislation, guidelines and policies applicable to the site and surrounding area including the zoning, future use of the surrounding area and compliance with the site assessment criteria contained in the NSW Department of Urban Affairs and Planning's *EIS Guidelines-Extractive Industries-Quarries* dated September 1996. The use of the site is also consistent with the principles of ecologically sustainable development and with the objectives of the EP&A Act - refer section 7.1.2 of this EIS for further details. Based on the above, the Project Site is considered to be most suitable for the expanded sand extraction development for reasons including:

- The past use and disturbance of the site by an approved sand extraction development and by agriculture.
- Availability of a known economic sand resource from the Project Site.
- The site provides sufficient land area for future sand quarrying purposes. Sufficient land is provided at the Project Site both to allow the efficient, safe and environmentally acceptable extraction of the extractive sand resource to be worked and to accommodate all related facilities and activities, including access arrangements.
- The proposed quarry is strategically placed in terms of its proximity to existing and planned population growth areas in the Canberra region.
- The land has a low agricultural value, underlain by a valuable sand resource.
- The Project Site has an appropriate (RU1) zoning, which specifically contemplates and permits 'extractive industries' (as defined) with consent: *BGP Properties Pty Limited v Lake Macquarie City Council* [2004] NSWLEC 399 (NSW Land and Environment Court Planning Principle relating to weight to be given to the zoning of a site for any proposed development).
- Good road access is available to Larbert Road and the Kings Highway for heavy quarry truck traffic. The haul route back to the Kings Highway avoids residential areas, hospitals, schools and commercial areas. Refer to **Appendix J** for further details regarding traffic.

- The proposed quarry development will be capable of ensuring that firefighting vehicles can access the site and exit the property safely, with adequate bushfire buffers provided around proposed quarry buildings and infrastructure, with an emergency evacuation plan to be in force, in accordance with *Planning for Bush Fire Protection*.
- The proposed development will intercept with groundwater but will achieve acceptable groundwater impact outcomes. The proposed development will not affect mapped potential groundwater dependent ecosystems (GDEs). Refer to **Appendix G** for further details.
- The site contains no asbestos rock or acid sulfate soils.
- There are no site constraints that are likely to make on-site water management difficult, including both process water and stormwater. The project achieves neutral or beneficial effect on water quality in accordance with Section 6.62(2) of *State Environmental Planning Policy (Biodiversity and Conservation) 2021*. Refer to **Appendix F** for further details.
- The proposed quarry avoids significant stands of native vegetation. The proposed quarry is not core koala habitat for the purposes of s.3.7 of *State Environmental Planning Policy (Biodiversity and Conservation) 2021*. Refer to **Appendix H** for further details.
- The quarry is reasonably buffered from nearby dwellings not associated with the quarry. Measures are proposed to ensure that any increase in impact arising from the project, in particular relating to noise or air quality impacts, are sufficiently mitigated *per Stockland Developments v Wollongong Council and others* [2004] NSWLEC 470 (NSW Land and Environment Court Planning Principle relating to noise impacts). Refer to **Appendix D** for further details in regard to noise impacts and **Appendix E** in regard to air quality impacts.
- The contamination assessment undertaken finds that the site has an acceptable low level of risk for contamination and is suitable for its proposed use as a quarry, in satisfaction of *State Environmental Planning Policy (Resilience and Hazards) 2021*. Refer to **Appendix K** for further details.
- No views will be possible of the proposed quarry from any rural residences.
- The site can be rehabilitated to a safe, stable, and non-polluting state after each stage of sand extraction is complete.

Based on the above factors, the project site is considered the most suitable location for the project.

▪ 7.5 Section 4.15(1)(d): Any submissions made

This application will be subject to notification for submissions. Any issues raised in those submissions will be duly considered prior to any final determination of the application.

▪ 7.6 Section 4.15(1)(e): The Public interest

By the operation of s 4.15(1)(e) of the EP&A Act the public interest is identified as one of the mandatory considerations to be taken into account in the evaluation of the Braidwood Sand and Gravel Project.“The public interest” was considered in *Minister for Planning v Walker* [2008] 161 NSWCA 224 held at [41] that: “*However, this requirement.. operates at a very high level of generality, and does not of itself require that regard be had to any particular aspect of the public interest.*.”

In this regard it is relevant to note It is relevant to note that Council considered the public interest when granting approval to the current operation (DA.2022.1181 issued on 20 July 2023). One of the Council’s Reasons for Approval of DA.2022.1181 was that: “*The development was found to be in the public interest*”.

The proposed expanded sand quarry development will advance the objectives of the EP&A Act which form part of the public interest as it will have positive social and economic outcomes, with satisfactory environmental impacts including:

- The project site, in part, is already approved and used for sand extraction (DA.2022.1181).
- The quarry resource is suitable for concrete making and other associated construction-related uses.
- The project will provide for the employment of up to four (4) quarry personnel, with additional support of employment in relation to road transport drivers and other contractors; resulting in positive flow on economic effects to the local and regional economy.

- The Project's physical impacts on surrounding development and the environment generally are acceptable *per* *Project Venture Developments v Pittwater Council* [2005] NSWLEC 191 and *Davies v Penrith City Council* [2013] NSWLEC 1141.
- Acceptable visual impacts are predicted: *Tenacity Consulting v Warringah* [2004] NSWLEC 140 and *Rose Bay Marina Pty Limited v Woollahra Municipal Council and anor* [2013] NSWLEC 1046 (NSW Land and Environment Court Planning Principles relating to view impacts on views).
- The development has regard for, and is compatible with, relevant principles of ecologically sustainable development: *BGP Properties Pty Limited v Lake Macquarie City Council* [2004] NSWLEC 399 and *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133 (NSW Land and Environment Court Planning Principles relating to ecologically sustainable development).
- The project is anticipated to reasonably co-exist with the surrounding sand extraction developments and agricultural land uses in the locality or on site, thus satisfying the 'compatibility' test set down in *Project Venture Developments v Pittwater Council* [2005] NSWLEC 191.
- The proposed quarry development maximises access to and enables the fuller utilisation and economic recovery of a valuable sand extraction resource known to exist on the site.
- The proposed expanded sand quarry provides for the extraction of sand products important for the continued growth and prosperity of NSW generally, and in particular in the supply of much-needed sand products required for concrete production and allied construction purposes in the region. Flow-on and multiplier effects can be expected, which will further enhance the local economy.
- Satisfactory environmental outcomes will ensue. Refer **Appendix H** for details relating to ecological impacts, and to **Appendices D and E** regarding noise and air quality impacts, respectively, and **Appendices F, G, I and J** regarding water, groundwater, heritage and traffic impacts, respectively. It is proposed that the expanded sand quarry will operate in accordance with a proposed plan of management, to be incorporated in the conditions of consent: *Renaldo Plus 3 Pty Limited v Hurstville City Council* [2005] NSWLEC 315 and *Amazonia Hotels Pty Ltd v Council of the City of Sydney* [2014] NSWLEC 1247 (NSW Land and Environment Court Planning Principle relating to plans of management).
- The site of the proposed expanded sand quarry has not been mapped as forming a part of a broader area of land identified as Biophysical Strategic Agricultural Land (BSAL), nor has it been identified as having any significance on a regional level.
- On the basis of on-site investigations undertaken in conjunction with the local Aboriginal community, the proposed expanded sand extraction area avoids Aboriginal cultural heritage sites. Refer **Appendix I** for details.
- The project incorporates measures to control and manage to appropriate levels potential environmental and amenity impacts. In this regard it is proposed that the quarry operate in accordance with a quarry plan of management, the key components of which having been described in this EIS.

The impact assessment contained in this Environmental Impact Statement (EIS) demonstrates that the project complies with relevant planning and environmental legislation and with the proposed quarry design and mitigation measures in place, will be capable of proceeding without significantly impacting the environment or that of the local community.

It is therefore concluded that the Braidwood Sand and Gravel Project is in the public interest and should be approved.

8. Conclusions, Justification of Project

8.1 Introduction

This Environmental Impact Statement (EIS) has been prepared by Outline Planning Consultants Pty Ltd to accompany a Development Application (DA) for the Braidwood Sand and Gravel Project, seeking consent to extract up to 200,000 tonnes per annum over a staged expansion of the existing sand extraction area over an additional 18.1 ha approximately over Lots 332 and 333, with an estimated resource of approximately 1.23 million tonnes. The internal access route to the quarry will be connected directly with Larbert Road. The Project Site has excellent access to the Kings Highway via Larbert Road.

The sand resource found on the Project Site will provide much-needed construction materials to facilitate the further planned growth of the region generally, given that the resource is suitable for a wide range of applications including concrete production.

This EIS provides an assessment of the potential environmental impacts of the Project in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for an EIS, issued on 13 June 2025 (EAR 1993), and in particular:

- Strategic position of the Project Site and close proximity to planned future urban housing areas in the region. Population projections forecast that Queanbeyan-Palerang's population will increase from 63,400 in 2021 to 85,100 by 2041. The ACT's population is estimated at 453,558 residents in 2021, forecast to grow to 784,043 by 2060. This massive forecast growth in population and employment will see a corresponding increased demand for reliable sources of quarry sand providing construction materials to service this growth.
- Site suitability and design of the quarry project, and low agricultural worth of the site.
- Ecological impacts have been avoided.
- Impacts on Aboriginal heritage have been avoided.
- Acceptable groundwater and surface water impacts. Considered to have a neutral effect (NorBE) on the Shoalhaven River catchment water quality and Sydney Water drinking water catchment.
- The environmental, social and economic costs and benefits of the Project.
- Statutory planning considerations under the EP& Act, including how the Braidwood Sand and Gravel Project satisfies local and state planning policies, and how it accords with the principles of Ecologically Sustainable Development (ESD) and the objects of the EP&A Act.
- Rehabilitation of the site making it suitable for future agricultural uses.

In accordance with the issued SEARs various environmental investigations were undertaken during the preparation of the EIS to assess the potential environmental impacts associated with the project, addressing environmental impacts including noise and vibration impacts, ecological impacts, aboriginal heritage, contamination, traffic, rehabilitation, groundwater, hazards, land resources, air quality, visual impacts, water and environmental planning instruments.

The EIS has documented the potential environmental impacts associated with the Braidwood Sand and Gravel Project, considering both potential positive and negative impacts of the proposal, and provides details of practical, achievable mitigation measures to protect the environment including:

- Likely impacts on site ecology, noise, air quality, traffic, heritage and amenity generally.
- Water management.
- End-use of the Project Site at the completion of quarrying.

The mitigation measures proposed are considered to be practical, feasible and reasonable.

8.2 Justification of Project

The Braidwood Sand and Gravel Project is justified for a number of reasons, including but not limited to the following:

- The Project will help in supporting the planned future growth of the Canberra region, maintain local employment and supply of quarry materials close to existing and future housing, roads and infrastructure projects.
- Suitable ,safe and direct access to the local road and highway network is provided from the site.
- The project is considered to have a neutral effect on the Shoalhaven River catchment water quality, thus satisfying the NorBE requirements under Section 6.62 of *State Environmental Planning Policy (Biodiversity and Conservation) 2021*.
- The Project allows for the recovery of a valuable sand extractive resource from a site already operating as a sand extraction operation: Braidwood Sand and Gravel.
- Were the Project not to proceed, an expansion of an already established sand quarry would not occur, and the ensuing employment opportunities and sand production will not be realised. This would deprive the State of up to 200,000 tonnes per annum of sand products and to compensate, other sand quarries would need to be established or existing sand extraction operations elsewhere would need to intensify.
- The project has been designed to avoid and minimise impacts where reasonable and feasible, and, in particular, avoids sites of Aboriginal heritage significance or areas of ecological significance. The principles of avoidance and minimisation were implemented through an iterative approach which involved numerous technical specialists, including those in the fields of ecology and Aboriginal heritage, with responsive amendments made to the design of the Project.
- The project has been designed to ensure that noise, water, air quality and visual impacts on surrounding properties are satisfactorily minimised.
- No views of the expanded sand extraction area are likely from any neighbouring dwellings or from Larbert Road back to the Kings Highway. Overall, visual impacts are considered to be either zero or Low.
- The project site is to be appropriately rehabilitated once quarrying is completed.
- The quarry is a permissible use in the RU1 zone under the *Queanbeyan Palerang Regional Local Environmental Plan 2022*.
- The Project accords with the objects of the EP&A Act (refer to Section 5.1.4 of this EIS) and in particular:
  - The Project seeks to maximise the safe and economic recovery of the valuable sand resource.
  - The design of the sand quarry project achieves satisfactory environmental, social and economic outcomes generally, incorporating design features to reduce the potential for adverse impacts.
  - The land proposed for sand extraction is largely cleared land, avoiding significant vegetation or Aboriginal sites.
- The Project accords with the Ecologically Sustainable Development (ESD) (refer to Section 7.1.2 of this EIS) and in particular:
  - The Precautionary Principle: The proposed expanded sand extraction project can operate within acceptable criteria, with no serious or irreversible environmental damage resulting. Nor does does it give rise to any uncertainty in terms of what is proposed or likely impacts, or relationship to adjoining development.
  - The Integration Principle: Mitigation and management measures have been proposed that will ensure that acceptable impacts will ensue in both the short-term and the long-terms.
  - Intergenerational Equity Principle: The Project will provide benefits for future generations by providing a secure source of sand material readily accessible to planned urban development in the Canberra region.
  - Biological Diversity Principle: The potential impacts of the project have been described in this EIS, including the potential impact of the project on biodiversity. Acceptable impacts will ensue.
  - Valuation and Pricing of Resources Principle: The site of the proposed quarry site has limited value to agriculture. The quarry project proposes that the land be progressively returned to agricultural use upon completion of each stage of the project.

From the above, there are demonstrable benefits associated with the project, and with appropriate conditions of approval, these benefits can be achieved without significant adverse social or environmental impacts.

■ 8.3 Summary: Environmental Issues

In addition to the design of the quarry, the mitigation measures proposed also form a fundamental part of the quarry project. These measures proposed will ensure that satisfactory environmental impacts will ensue- refer to Section 4. The accompanying Table 8.1 summarises impacts by key issue identified in the SEARs.

Table 8.1: Compliance of quarry development by environmental issue (summary)

Issue	Compliance of Proposed Sand Quarry Development
Soil and water resources	▸ *The proposed quarry site has limited value to agriculture.* ▸ *All stormwater to be contained within the proposed quarry pit.* ▸ *Potential groundwater impacts associated with the proposed development would not exceed the "minimum impact considerations" outlined in the NSW Aquifer Interference Policy (NSW DPI, 2012). Therefore, groundwater impacts associated with the project are acceptable.* ▸ *The project is considered to have a neutral effect on the Shoalhaven River catchment water quality, thus satisfying the NorBE requirements under Section 6.62 of State Environmental Planning Policy (Biodiversity and Conservation) 2021.* ▸ *Land to be progressively returned to agricultural use a part of the rehabilitation program.* ▸ *A soil and water management plan accompanies this EIS.*
Noise	▸ *The quarry can operate in compliance with applicable noise criteria.* ▸ *The quarry will operate only during daytime periods.*
Air quality	*Dust abatement measures are to be implemented on site to ensure acceptable air quality impacts.*
Contamination	*The contamination assessment by Ballpark Environmental finds that the Project Site presents an acceptable low level of risk for site contamination and is suitable as a sand quarry.*
Heritage	*Sand extraction avoids any Aboriginal heritage sites of significance, with suitable management measures proposed to protect know sites.*
Traffic	*The traffic impact assessment by Streetwise has determined that acceptable roads and traffic impacts will ensue.*
Ecology	▸ *Sand extraction avoids any native vegetation.* ▸ *No core Koala habitat has been identified.* ▸ *The proposed project is not predicted to cause any impacts to threatened species or endangered ecological communities.* ▸ *No need for the retirement of credits for development consent to be granted: s 7.12(2) of the BC Act.* ▸ *The ecological assessment demonstrates that sufficient steps have been adopted to avoid and minimise the biodiversity impacts of the the development as required under s.6.4 of the BC Act.*
Bushfire	▸ *The site is mapped as being bushfire prone land.* ▸ *Satisfactory bushfire safeguards and controls are proposed.*
Visual impacts	*The proposed expanded sand quarry will not be visible to the surrounding neighbourhood. Low to zero visual impacts.*
Social and economic	▸ *The proposal would contribute to the economy locally and through employment generation and the provision of materials for planned future growth of the Canberra region, including Queanbeyan.* ▸ *The project calls for the continuance of being a local employer with an experienced workforce, with more jobs being created as a result of the project, as proposed.*

■ 8.4 Jurisdictional Matters

Section 4.15(1)(a) of the EP&A Act mandates consideration of those planning instruments that 'apply to the land to which the development application relates'. The engagement of a particular planning instrument will often be a matter that goes to any consent authority's power to determine a development application. Where the finding of a particular fact engages the power to determine a DA, that fact is often called a "jurisdictional fact", considered further in the following.

8.4.1 Designated Development

The proposed development is designated development pursuant to s.4.10(1) of the EP&A Act and s.7 of the *Environmental Planning and AssessmentRegulation 2021 (NSW)* (EP&A Regulation). On 13 June 2025 the Secretary of the Department of Planning, Housing and Infrastructure gave notice of its environmental assessment requirements (SEARs) under s.176 of the EP&A Regulation.

This environmental impact statement (EIS) addresses the EPA Regulation requirements for EISs and responds to the SEARs (refer Section 1.4) , and further, that the EIS addresses requirements of ss.190 and 192 of the EP&A Regulation with respect to form and content of the EIS (refer to EIS Section 7.2.5).

8.4.2 State Environmental Planning Policy (Resources and Energy) 2021

The proposed development complies with the relevant provisions of the above SEPP in terms of sections 2.9 (permissibility), 2.17 (local impacts, compatibility, public benefit, mitigation measures), 2.19 (compatibility with other extractive industries), 2.20 (impacts),2.21 (resource recovery), 2.22 (transport) and 2.23 (rehabilitation). Refer to EIS Section 7.2.4 for details.

8.4.3 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 3 (Pt 3) of *State Environmental Planning Policy (Resilience and Hazards) 2021* concerns potentially hazardous or potentially offensive development. The proposal is not appropriately characterised as either. Refer to EIS Section 7.3.2 for details.

Section 4.6 of the above SEPP provides that a consent authority must consider contamination and remediation prior to the determination of a development application. A Preliminary Site Investigation (PSI) undertaken by Ballpark Environmental finds that the project site has an acceptable low level of risk for site contamination and is suitable for its proposed industrial use as a sand quarry, in accordance with Chapter 4 of the SEPP. Refer to EIS Section 7.3.1 for details.

8.4.4 State Environmental Planning Policy (Primary Production) 2021

The proposed development complies with the relevant provisions of the above SEPP, in particular having regard for the fact that the project site is not land of State or regional significance to agriculture and the fact that the land will be returned to agricultural use following the completion of on-site extraction operations. Refer to EIS Section 5.2.5 and 7.3.2 for details.

8.4.5 State Environmental Planning Policy (Biodiversity and Conservation) 2021

The proposed development complies with the relevant provisions of the above SEPP, in particular having regard for:

- Chapter 6 of this SEPP relates to water catchments and applies to the site, given that it falls within the Sydney Drinking Water Catchment. The project is considered to achieve a neutral or beneficial effect on water quality int his catchment, as required by ss.6.61 and 6.62 of the SEPP. Refer to EIS Sections 5.2.6 and Sections 7.3.10 and 7.3.11 for details.
- The project site is not core koala habitat for the purposes of the SEPP nor is it within proximity to core koala habitat. As such, there is no bar to the issue of consent under s.4.9(5) of this SEPP.

Related to the above, the Project avoids significant native vegetation and, as a result, will not result in the clearing of native vegetation that exceeds the biodiversity offsets scheme threshold pursuant to the *Biodiversity Conservation Act 2016* (BC Act). The ecological assessment demonstrates that sufficient steps have been adopted to avoid and minimise the biodiversity impacts of the development as required under s.6.4 of the BC Act. Refer to EIS Section 7.3.9 for details.

8.4.6 State Environmental Planning Policy (Planning Systems) 2021

Thee project is of a type that triggers the relevant criteria for Regionally significant development requiring the consent of the Southern Region Planning Panel. The project is not State significant development. Refer to EIS Section 5.2.7 for details.

8.4.7 Queanbeyan-Palerang Regional LEP 2022 & DCP

The *Queanbeyan-Palerang Local Environmental Plan 2022* (LEP) is the comprehensive environmental planning instrument applying to the project site. The project site is zoned RU1 Primary Production. The proposed development is a use specifically permitted in the RU1 zone. The proposed sand quarry development complies with the other relevant provisions of the LEP- refer to EIS Section 5.2.1 for details. The *Palerang Development Control Plan 2015* (DCP) applies to the Project. The assessment in EIS Section 5.2.2 finds that the proposed sand quarry development complies with the relevant provisions of the DCP.

▪ 8.5 Conclusions

The Canberra region, including the Queanbeyan-Palerang LGA, has been planned to accommodate a large increase in population, principally in Canberra and in Queanbeyan, with major investment and employment arising from this population growth. Population projections forecast that Queanbeyan-Palerang's population will increase from 63,400 in 2021 to 85,100 by 2041. The ACT's population is estimated at 453,558 residents in 2021, forecast to grow to 784,043 by 2060.

Accompanying this forecast growth will be a correspondingly massive demand for quarry products, and in particular sand for concrete production, construction and associated applications. The existing Braidwood Sand and Gravel sand operations at Larbert is strategically located in close proximity to these booming populations, thus ensuring employment opportunities and maintaining stimulus to the economy of region.

There are ongoing concerns about concrete and construction sand shortages impacting the Canberra market and broader Australian construction industry. It proposes safe and adequate access suitable for the Project. The 2023 Infrastructure Australia report highlights acute quarry shortages in several regions, including potential supply issues for Canberra. This is due to factors like increased demand, long lead times for quarry approval, and the difficulty in sourcing alternatives when needed (Infrastructure Australia *Market Capacity Report 2023*).

This EIS has been prepared in accordance with the provisions of the EP&A Act and addresses the SEARs, as well as all relevant environmental issues raised by government and others. Moreover, the Braidwood Sand and Gravel Project accords with the principles of Ecologically Sustainable Development.

The Project is classified as regionally significant development pursuant to the provisions of Schedule 6 of the *State Environmental Planning Policy (Planning Systems) 2021* and the Southern Regional Planning Panel (SRPP) is the consent authority for this proposed quarry development.

The potential environmental, social and economic impacts, both direct and cumulative, have been identified and thoroughly assessed as part of this EIS. The proposed expanded sand quarry development has been designed to avoid and minimise adverse environmental, social and economic impacts and is anticipated to result in satisfactory environmental impacts in accordance with the jurisdictional requirements of s.4.15(1) of the EP&A Act.

Significantly, the expanded sand extraction area avoids any significant ecological communities or archaeological sites and minimises impacts generally.

As a result, it is concluded that the environmental and community impacts associated with the Braidwood Sand and Gravel Project are deemed to be acceptably low, and the project benefits outweigh any project negatives. Overall, this EIS concludes that the Braidwood Sand and Gravel Project is in the public interest and is not predicted to cause significant environmental impacts or pose significant environmental risks.

Consequently, the proposed sand quarry development should be approved, subject to conditions of consent appropriate for the development.

9. Select References

ACT Government (2022) *ACT Population Projections 2022 to 2060*.

ACT Government (2022) *Spoil Management in the ACT*.

ACT Government (2022) *Virgin Excavated natural material*. Environment Protection Contaminated Sites Information Sheet 10.

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10. Glossary of Terms

Term	Meaning
AADT	*Annual Average Daily Traffic.*
ACHAR	*Aboriginal Cultural Heritage Assessment*
ABS	*Australian Bureau of Statistics.*
Aboriginal object, place	*Has the same meaning as the definition of the term in section 5 of the National Parks and Wildlife Act 1974.*
Acoustic	*Relating to hearing, noise and sound.*
Aggregate	*Rock crushed to the required size for use in concrete, masonry products, road sealing, pavement materials and other uses.*
AHD	*Australian Height Datum. The standard reference level used to express the relative elevation of various features. A height given in metres, AHD is essentially the height above sea level.*
AHIMS	*Aboriginal Heritage Information Management System*
AHIP	*Aboriginal Heritage Impact Permit.*
Air Blast Overpressure	*Air vibration or air blasts are the pressure or shock waves that radiate in air from an exploding charge. When a pressure wave passes a given point, the pressure of the air rises rapidly before returning to atmospheric pressure after a period of oscillations. The maximum pressure is the 'Air Blast Overpressure' measured in dB.*
Ambient noise	*This is the total encompassing sound in a given situation at a given time where no particular sound is dominant. It is composed of sound from all sources near and far, normally experienced in the area. Ambient noise is measured as dB ('A' weighted) over a set period of time.*
Amenity	*The quality of a local environment.*
APZ	*Asset Protection Zone is a strategically managed area of reduced vegetation surrounding a built asset, designed to protect it from bushfires.*
AS	*Australian Standard.*
ASS	*Acid sulfate soils.*
Attenuation	*Reduction in sound level between a noise source and another location.*
Avoid	*Measures taken by a proponent such as careful site selection or actions taken through the design, planning, construction and operational phases of the development to completely avoid impacts on the environment, including biodiversity values, or certain areas of biodiversity.*
A-Weighted Sound Level dB(A)	*A level of sound pressure in which the sound pressure levels of the various frequency bands have been weighted to accord roughly with human aural system frequency sensitivity.*
BAM	*Biodiversity Assessment Method*
Basalt	*Fine grained, dark volcanic igneous rock.*
Batter	*The face of the slope eg. walls, banks, cuttings, etc.*

BC Act	*Biodiversity Conservation Act 2016*
Bench (in a quarry)	*A ledge constructed in a batter or natural slope within a quarry. A step in the face of a quarry.*
Biodiversity	*The biological diversity of life at genetic, species and ecosystem scales. The maintenance of biodiversity, at all levels, is acknowledged internationally as a high conservation priority.Biodiversity values comprise vegetation integrity, habitat suitability and biodiversity values generally.*
BDAR	*Biodiversity Development Assessment Report.*
Blasting	*The operation of breaking rock in a quarry by means of explosives.*
Bund	*An earthen mound wall which may be used for noise attenuation or visual screens or for redirecting stormwater/runoff around a part of a site. Bunds may also be used to contain spillage of liquid materials.*
Blue Book	*Means Managing Urban Stormwater: Soils & Construction (4th edition, Landcom, 2004), commonly referred to as the "Blue Book".*
Biodiversity	*Biological variety at genetic, species and ecosystem scales. The maintenance of biodiversity, at all levels, is acknowledged internationally as a high conservation priority.*
BoM	*Bureau of Meteorology (Commonwealth).*
BOS	*Biodiversity Offsets Scheme*
Building Code of Australia	*Means means the document, published by or on behalf of the Australian Building Codes Board, that is prescribed for purposes of this definition by the regulations, together with— (a) such amendments made by the Board, and (b) such variations approved by the Board in relation to New South Wales, as are prescribed by the regulations*
CC	*Construction certificate.A Construction Certificate (CC) is a certificate that is issued by an accredited private certifier or a consent authority under the provisions of Environmental Planning and Assessment Act 1979. The Certificate allows for building work to commence on a project.*
Catchment	*Drainage area of a river, creek. Can also refer to a visual catchment, which is the area within view of a particular viewing location, or road catchment, which is the area reliant on a particular road in order to gain access to another centre or locality.*
CIV	*Capital investment value as defined by the Environmental Planning & Assessment Regulation 2021. Includes all costs necessary to establish and operate the project, with some exclusions.*
Consent	*Means development consent issued under the Environmental Planning and Assessment Act 1979.*
Contributions Plan	*Section 7.11 of the Environmental Planning and Assessment Act 1979 allows councils to levy contributions towards the cost of providing local infrastructure. Contributions plans set out the local infrastructure required to meet the demand from new development, and the contributions a council can levy on developers to fund the necessary land and works.*
Construction	*All physical works to enable operation, including but not limited to the demolition and removal of buildings, the carrying out of works for the purposes of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent, but excluding the following:* *•building and road dilapidation surveys;* *•investigative drilling, investigative excavation or Archaeological Salvage;* *•establishing temporary site offices (in locations identified by the conditions of consent);* *•installation of environmental impact mitigation measures, fencing, enabling works; and minor adjustments to services or utilities.*

Contamination	*The action or state of makings or being made impure by polluting or poisoning, or the state of containing unwanted or dangerous substances.*
Contour Drain	*Drainage channel constructed approximately along the contour, and which is designed to slow down and direct the flow of water across a disturbed area to a sediment trap for sediment removal.*
Council	*Queanbeyan-Palerang Regional Council.*
Crushing	*The mechanical process of reducing quarry rock size usually by pressure or impact.*
DA	*Development Application.A Development Application (DA) is required for various types of development projects under the provisions of NSW Environmental Planning and Assessment Act 1979. It means an application for consent under Part 4 to carry out development but does not include an application for a complying development certificate.Sometimes also referred to as Development Approval.*
Daytime	*Means between the hours of 7.00am to 6.00pm.*
dB (A)	*To approximate the human response to sound, noise level meters have weighting networks which correspond approximately with subjective loudness. The 'A- Weighting' is used to simulate human hearing.*
DBYD	*Dial Before You Dig.*
DCP	*Development Control Plan. A development control plan provides detailed planning and design guidelines to support the planning controls in an environmental planning instrument.*
Department, DP&E	*NSW Department of Planning and Environment.*
Designated development	*Means development that is declared to be designated development by an environmental planning instrument or the regulations. All applications for designated development in NSW need to be accompanied by an EIS.*
Development	*The development described in the development application. For the purposes of the NSW Environmental Planning and Assessment Act 1979, "development" is any of the following: "(a) the use of land,(b) the subdivision of land, (c) the erection of a building, (d) the carrying out of a work,(e) the demolition of a building or work,(f) any other act, matter or thing that may be controlled by an environmental planning instrument." (2) However, development does not include any act, matter or thing excluded by the regulations (either generally for the purposes of this Act or only for the purposes of specified provisions of this Act). (3) For the purposes of this Act, the carrying out of development is the doing of the acts, matters or things referred to in subsection (1). (sub clauses 1.5(1)(2) and (3) of the NSW Environmental Planning and Assessment Act 1979).*
Development Consent	*Means consent under the provisions of NSW Environmental Planning and Assessment Act 1979 to carry out development and includes, unless expressly excluded, a complying development certificate.*
Deposited Plan (DP)	*Deposited Plans (DP) define legal boundaries of land and often record subdivisions, easements and the like.*
Designated Development	*Section 4.10 of the Environmental Planning and Assessment Act 1979 states that "Designated development is development that is declared to be designated development by an environmental planning instrument or the regulations." Schedule 3 of the Environmental Planning and Assessment Regulation 2021 defines the type of development which is classified as designated development.*
Drainage Line	*A natural depression with no stream bed channel, which may only carry surface water during rainfall events.*

Dust or particulate matter	*Dust or particulate matter are terms used to define solid or liquid particles that may be suspended in the atmosphere. The potential affect of particulate matter on the environment, human health and amenity depends on the size of the particles, the concentration of particulate matter in the atmosphere and the rate of deposition.*
Earthworks	*Bulk earthworks, site levelling, import and compaction of fill material, excavation for installation of drainage and services, to prepare the site for construction.*
EEC	*Endangered Ecological Community listed as Endangered under Commonwealth and/or State legislation.*
Ecologically Sustainable Development (ESD)	*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Ecologically sustainable development can be achieved through the implementation of the following principles and programs including: the precautionary principle; inter-generational equity; conservation of biological diversity and ecological integrity; improved valuation, and pricing and incentive mechanisms.*
EIS	*Environmental Impact Statement submitted with the application for consent for the development.*
Emission	*The release of material into the environment (eg dust).*
Evening period	*Means the period from 6.00pm to 10.00pm.*
Environment	*Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings.*
Environmental Planning Instrument (EPI)	*An environmental planning instrument is the collective name for local environmental plans (LEPs) and state environmental planning policies (SEPPs) but does not include development control plans (DCPs). The provisions of EPIs are legally binding on both government and developers.*
Environment Protection License (EPL)	*Has the same meaning as the definition of the term in the Dictionary to the NSW Protection of the Environment Operations Act, namely:* *"a licence authorising the carrying out of scheduled development work or scheduled activities or controlling the pollution of water arising from non-scheduled activities, being a licence issued under Chapter 3 and in force."*
EP&A Act	*NSW Environmental Planning and Assessment Act 1979.*
EP&A Regulation ("regulations")	*NSW Environmental Planning and Assessment Regulation 2021.*
EPA	*NSW Environment Protection Authority constituted by the Protection of the Environment Administration Act 1991.*
EPL	*Environment Protection Licence.*
Erosion	*The process of wearing away of the land surface (whether natural or artificial) by the action of water, wind.*
ESCP	*Erosion and sediment control plan.*
ESD	*Ecologically Sustainable Development.*
Excavator	*Item of earth moving equipment either tracked or wheeled fitted with a bucket on an articulated boom and used for digging material from a quarry pit face in front of, or below the machine.*
Extraction	*A term synonymous with quarrying. Under the Environmental Planning and Assessment Act, 1979, quarrying is defined as "extractive industries".*
Feasible	*Means what is possible and practical in the circumstances.*

Flora and fauna	*Plants and animals.*
Flyrock	*Rock that is ejected from beyond a blast site, typically with the potential to cause injury or damage to property. Proper planning can reduce the incidence of flyrock.*
Groundwater	*Water found in the subsurface in the saturated zone below the water table or piezometric surface i.e. the water table marks the upper surface of groundwater systems.*
ha	*hectare.*
Habitat	*The place where an organism normally lives; habitats can be described by their floristic and physical characteristics.*
Haul Road	*Road used for haulage of material from/to the worked quarry face to/from markets beyond.*
Hazard	*A source of potential harm; a potential occurrence or condition that could lead to injury, damage to the environment, delay or economic loss.*
Heritage	*Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement.*
Heritage item	*A place, building, work, relic, archaeological site, tree, moveable object or precinct of heritage significance, that is listed under one or more of the following registers: the Heritage Act 1977 (NSW), a state agency heritage and conservation register under section 170 of the Heritage Act 1977 (NSW), a Local Environmental Plan under the EP&A Act, the World, National or Commonwealth Heritage lists under the Environment Protection and Biodiversity Conservation Act 1999 (Cth), and an "Aboriginal object" or "Aboriginal place" as defined in section 5 of the National Parks and Wildlife Act 1974 (NSW). An item as defined under the Heritage Act 1977, and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined.*
IBRA	*Interim Biogeographic Regionalisation for Australia.*
Integrated development	*Development (not being State significant development or complying development) that, in order for it to be carried out, requires development consent and one or more approvals from the government agencies listed in s.4.46 of the NSW Environmental Planning and Assessment Act 1979.*
Incident	*An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance with an issued consent.*
km	*Kilometre.*
kV	*Kilovolt.*
Land	*Has the same meaning as the definition of the term in section 1.4 of the NSW Environmental Planning and Assessment Act 1979.*
Land Capability	*The ability of land to support agriculture on a sustainable basis.*
Land Use Table	*A table in an environmental planning instrument (EPI) listing the objectives of any land use zone, along with uses permitted and prohibited under any zoning.*
Landscaped area	*Means a part of a site used for growing plants, grasses and trees, but does not include any building, structure or hard paved area.*
L_{Aeq}(time)	*Equivalent sound pressure level: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring.*
L_{A90}(time)	*The A-weighted sound pressure level that is exceeded for 90 per cent of the time over which a given sound is measured. This is considered to represent the background noise e.g. LA90 (15 min).*

LGA	*Local Government Area.*
Lithosol	*An azonal soils having no clearly expressed soil morphology and consisting of a freshly and imperfectly weathered mass of rock fragments; largely confined to steep hillsides or areas where rock tends to outcrop close to the surface.*
Local Environmental Plan (LEP)	*Local Environmental Plans are planning documents prepared by a Council which detail the zoning of land and the type of development which is permitted with consent in a particular zone. Controls on development are also provided.*
Management Plan	*A plan which demonstrates how the management objectives for an environmental matter will be achieved. Also referred to as Environmental Management Plan (EMP).*
Minister	*NSW Minister for Planning (or delegate).*
Mitigation	*Activities associated with reducing the impacts of the development prior to or during those impacts occurring.*
ML	*Megalitre: 1,000,000 litres.*
m/s	*Metres per second*
MIC	*Maximum instantaneous charge for blasting, typically measured in kg per drill hole.*
Modification	*A change to a project that is implemented by modifying an existing development consent. An application must be made under s.4.55 of the EP&A Act before the modification can be approved.*
Monitoring	*The regular measurement of components of the environment to ensure that environmental guidelines standards are being met.*
Night	*Means the period between 10.00pm and 7.00am.*
NPL	*NSW EPA document entitled Noise Policy for Industry.*
NSW planning portal	*Means the website with the URL of www.planningportal.nsw.gov.au, or any other website, used by the Planning Secretary to provide public access to documents or other information in the NSW planning database.*
OEH	*(former) NSW Office of Environment & Heritage*
Overburden	*Subsoil and decomposed rock overlying the main quarry rock body- a low value quarry material.*
PCT	*Plant Community Type.*
Peak Particle Velocity	*A measure of ground vibration caused by quarry blasting reported in millimetres/second (mm/sec)*
Plan of Management/ Environmental Management Plan	*A document that details the management measures (including controls, monitoring and other safeguards) to be implemented during a the life of a development eg. for a quarry, landfill or resource recovery facility.*
(Quarry) Processing Plant & Facilities	*In the case of a quarry extraction operation, the combination of crushers, screens, conveyors, washing plant and the like used to reduce the size of the resource and separate it into various sized products. Used in association with other quarry plant that includes aggregate pre-coating facility, fuel storage, sheds, offices, haul roads, weigh bridge and sediment basins, collectively forming a part of a quarry infrastructure area.*
Planning Secretary/ Secretary	*Planning Secretary under the EP&A Act, or nominee.*

PCT	*Plant Community Type: refers to a specific and recurring assemblage of native plant species found in a particular environment.*
POEO Act	*Protection of the Environment Operations Act 1997.*
Project	*The development the subject of an application for consent or approval on a site ("project site").*
Proponent	*The person or entity seeking consent or approval for a project, including any associated entities that have been engaged to assist with project delivery.*
RAP	*Remediation Action Plan.*
Reasonable	*Means applying judgement in arriving at a decision, taking into account: mitigation, benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements.*
RFS	*NSW Rural Fire Service.*
RL	*Reduced Level means height above the Australian Height Datum, being the datum surface approximating mean sea level that was adopted by the National Mapping Council of Australia in May 1971.*
Rehabilitation	*The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting. Typically involves the preparation of a final landform after a project is completed and its stabilisation with grasses, trees and/or shrubs.*
Risk, Risk Assessment	*The chance of something happening that will have an impact on objectives. Risk assessment is the overall process of risk identification, risk analysis and risk evaluation.*
Road	*Means a public road or a private road within the meaning of the Roads Act 1993, and includes a classified road.*
SAII	*Serious and irreversible impact.*
Sensitive receivers	*Means a location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area.*
Scenic quality/visual	*The values of visible components of landscape which contribute to its scenic characteristics.*
Sediment pond/ basin	*Collects waterborne sediment from disturbed areas within a development site and stores that water while suspended sediments fall out of solution (settle).*
SEE	*Statement of Environmental Effects, required for a development application (DA) lodged pursuant to the provisions of the (NSW) EP&A Act 1979.*
SEARs	*The Secretary's Environmental Assessment Requirements set out clear expectations on the level of assessment required for each relevant matter which must be addressed by the proponent in the EIS.*
SEPP	*State Environmental Planning Policy.*
Screening	*A process which separates quarry product into various sizes, usually involving a mechanical vibration of the rock over a series of decks fitted with steel mesh, steel plate and/or polyurethane and/or rubber mats with fixed sized apertures.*
Sealing aggregate	*Crushed rock usually of uniform size bonded by bitumen on the surface of the road to form a wear surface.*
Shot rock	*Rock won from blasting at a hard rock quarry.*

Siltstone	*Siltstone is a clastic (ie. rocks composed of broken pieces of older rocks) sedimentary rock that is mostly composed of silt-sized particles. It forms where water, wind, or ice deposit silt, and the silt is then compacted and cemented into a rock.*
State Significant Development (SSD)	*Development projects which have State significance due to their size, economic value or potential impacts assessed and approved under the EP&A Act.*
State Significant Project	*A State significant development or State significant infrastructure project as defined under the EP&A Act. Defined in State Environmental Planning Policy (State and Regional Development) 2011 requiring the consent of the Minister for Planning or delegate.*
Soil Landscape	*An area of land that has recognisable and describable topography and soils that are capable of being represented on maps and of being described by concise statements. The Soil Conservation Service of NSW has published a Soil Landscapes Series, describing the soils of NSW.*
Stakeholder	*Persons, groups, government and semi-government agencies, and non-government organisations with a legitimate interest in the process of assessment, its inputs and outcomes, as described in the Director General's Requirements.*
State Environmental Planning Policy (SEPP)	*A planning instrument made by the State. These Plans deal with planning issues of State significance.*
Scheduled Activity	*Has the same meaning as the definition of the term in the Dictionary to the POEO Act, namely: "means an activity listed in Schedule 1 [of the PIEO Act]." An Environment Protection License (EPL) is required for the operation of any schedule premises.*
The Site, or Project Site	*Refers to the land within which the proposed development is to take place.*
Subdivision (of land)	*Means the division of land into two or more parts that, after the division, would be obviously adapted for separate occupation. Subdivision of land includes the procuring of the registration in the office of the NSW Registrar-General of a plan of subdivision.*
SWL	*Standing water level is the distance from the ground surface to the water surface for a well or bore.*
TEC	*Threatened Ecological Community.*
Tertiary	*Period of geological time, prior to the Quaternary, 65 million years ago- usually associated with volcanic activity.*
TfNSW	*Transport for New South Wales.*
Threatened species	*Species of flora and fauna that are listed as endangered species or vulnerable species.*
Use of land	*Includes a change of use of building use.*
Visual Analysis	*Landscape analysis based on visual qualities only, excluding consideration of heritage, cultural or social values*
Visual Catchment	*Land within view-sheds. View-sheds are edges or limits to views from a single place or combination of viewpoints.*
vpd, vph	*Abbreviations of vehicles per day (vpd), vehicles per hour (vph).*
WAL	*Water Access Licence, issued under Section 95 of the (NSW) Water Management Act 2000.*
Water Balance	*Means an assessment to determine the adequacy of water stored at a quarry site in meeting future water needs for that development in 'dry', 'average' and 'wet' years.*

Waterfront Land	*Means the bed of any river, lake or estuary and land within 40 metres of a river bank, lake shore or estuary mean high-water mark. Any proposed development fronting waterfront land, as defined, is a 'controlled activity' for the purposes of the Water Management Act 2000 and 'integrated development', requiring approval from the responsible agency listed in s.4.46 of the NSW Environmental Planning and Assessment Act 1979.*
Water Sensitive Urban Design (WSUD)	*Water-sensitive urban design (WSUD) is a and planning and engineering design approach which integrates the urban water cycle, including stormwater, groundwater and wastewater management and water supply, into urban design to minimise environmental degradation and improve aesthetic and recreational appeal.*
WM Act	*Water-Management Act 2000.*
Weathered Rock	*Rock affected to any degree by the processes of chemical or physical weathering.*
Wind rose	*Means a graphics tool that summarises winds at any location, showing strength, direction and frequency.*
Zoning, Zoning Map	*A planning tool used to apply planning policy and provisions of an environmental planning instrument to specific areas of land within a local or sate government area.*

APPENDICES

Environmental Impact Statement

APPENDIX A

Secretary's Environmental Assessment Requirements (SEARS)

APPENDIX B

EvoWash sand washing plant: specifications

The CDE EvoWash™ sand washing plant offers unrivalled control of silt cut points, eliminating loss of quality fines to your settling ponds or water treatment phase.

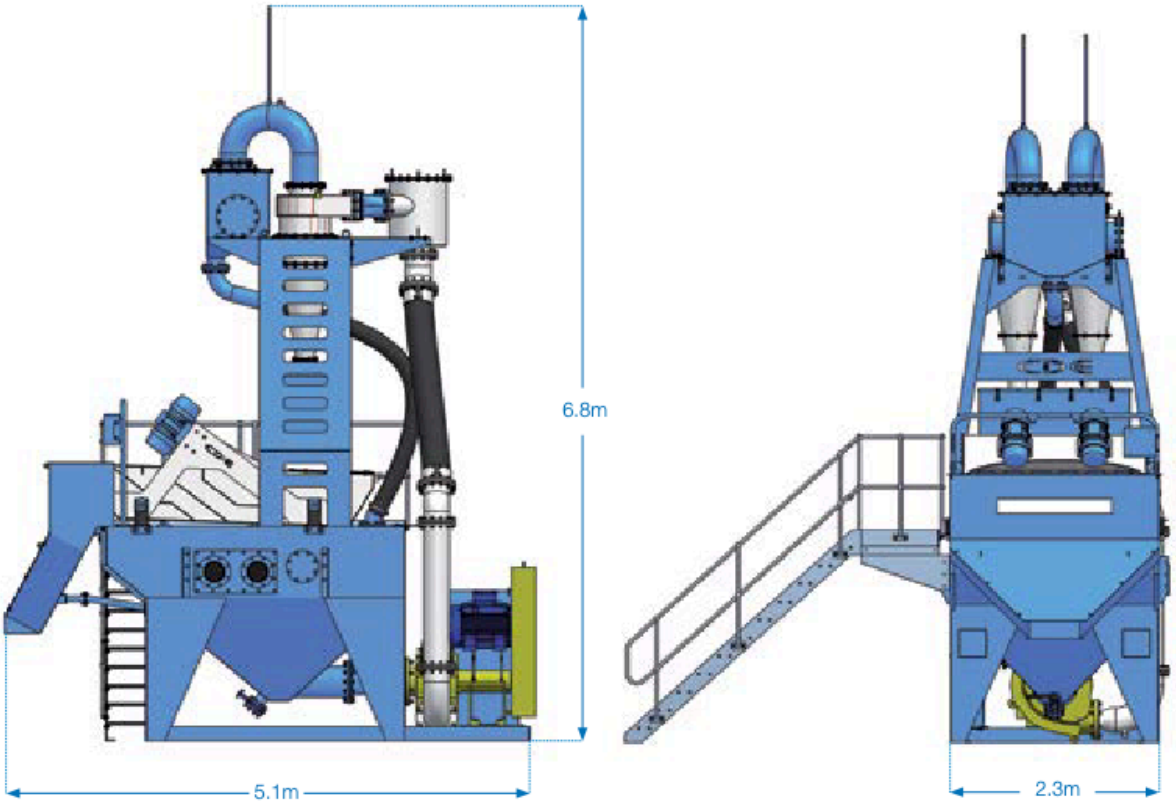
Introduction of an EvoWash™ sand washing plant to your production processes allows you to:

1. Guarantee production of in-specification sands to your desired grade.
2. Eliminate costs of expensive pond dredging to recover quality sand.
3. Eliminate loss of quality fines to your settling ponds or water treatment phase.
4. Ensure your final sand products are of the highest quality, therefore commanding the highest commercial value.

EvoWash™ Applications
The EvoWash™ can be introduced to quarrying, recycling and mining operations where the following materials are being processed through a washing plant:

- Sand & Gravel
- Crushed Rock
- Crusher dust
- Iron ore
- Other mineral ores

EvoWash *Single Sand*



Model:	**EvoWash 151™**
Maximum capacity:	150TPH
Water required:	300-450 m3/hr
Power Requirement:	62.2kW
Cyclone Size:	2 x 500mm diameter
Dewatering screen size:	1800x2400mm (EvoScreen DW-B)
Pump Size:	10/8
Feed height:	1800mm
Waste Height:	5500mm
Dimensions:	See diagram
Weight:	11T
Transport Details:	1 x 40FT (Open Top or Euro Liner)

Specifications may change due to manufacturing updates or with the addition of our 'optional extras'.

APPENDIX C

Council/community consultation

On 20 Jun 2025, at 9:51 AM, Jacob Williams [redacted] wrote:

Hi Gary,

My direct phone line is [redacted]

I had a discussion with the assessing officer of the Canberra Sand and Gravel DA regarding your question about the detail provided in the plans.

For applications moving forward from that DA the Panel and Council expect greater detail then what was provided. Section plans are not necessarily required but a greater level of detail of the areas of extraction is required.

Thanks,
Jacob

Jacob Williams
Senior Town Planner

Queanbeyan-Palerang Regional Council
Tel: 1300 735 025
Web: www.qprc.nsw.gov.au
Mail: PO Box 90 Queanbeyan NSW 2620

<Email-test_00bd0172-8f37-4e58-a3e6-5ce0cb6fcdcb.png>

From: Gary Peacock [redacted]
Sent: Friday, 20 June 2025 8:31 AM
To: Jacob Williams [redacted]
Subject: Re: Proposed expansion of sand extraction operations 552 Larbert Rd, Larbert

[EXTERNAL] This email originated from outside of the organisation. Please do not click links or open attachments unless you recognise the sender and know that the content is safe.

Good morning Jacob,

Good to meet with you and your team yesterday. Thank you for your comments and guidance.

As discussed yesterday, our aim will be to produce an EIS, specialist reports and DA drawings to the same/similar standard to that used for the nearby Canberra Sand and Gravel EIS, prepared by Umwelt. That will be the benchmark that we aim to achieve with our EIS.

The ecologist who previously worked on the earlier sand extraction DA2022.1181 over this site, Macrozamia, advises that as the site is basically cleared, save for a few stands of trees the need for a BDAR will not be triggered.

I'd be grateful for your direct contact details so that we can stay in touch. Thank you.

Kind regards,
Gary Peacock
Managing Director
OUTLINE PLANNING CONSULTANTS PTY LTD
TOWN PLANNING CONSULTANTS
[redacted]
www.outline.com.au
Tel: 02 9262 3511
[redacted]

Outline Planning Consultants Pty Ltd acknowledges the Traditional Owners of the land and waters, and pays our respect for Elders past, present and emerging.

Disclaimer
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From: Jacob Williams
Sent: Thursday, 19 June 2025 4:12 PM
To: [redacted]
Subject: RE: Meeting invite

Hi Glen,

Here is all of lots in the holding. For some reason the print function won't allow imagery, so it's attached as a screenshot.

I will get back to you with the information about the plans.

My direct phone line is [redacted]

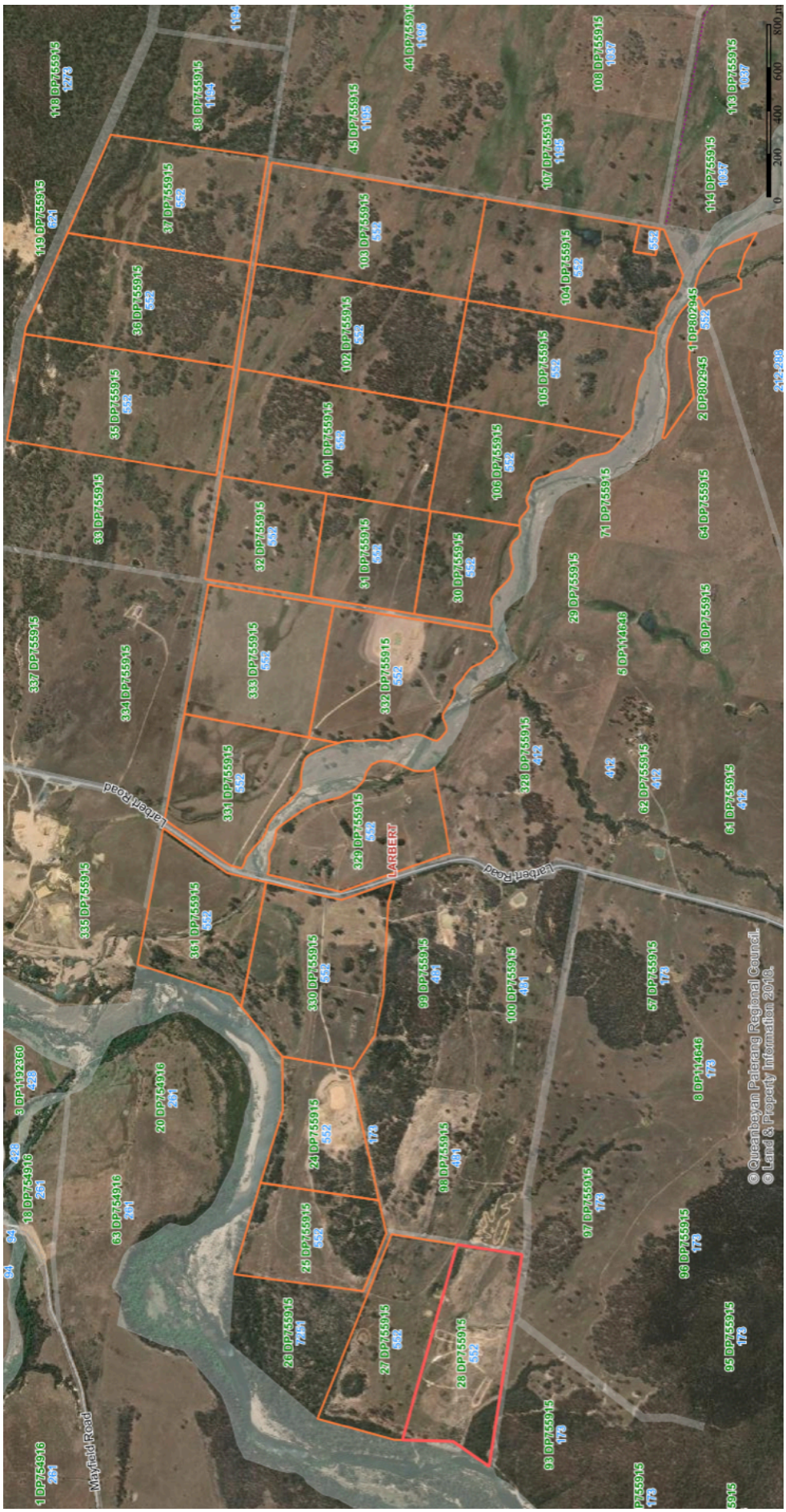
Thanks,
Jacob

From: Jacob Williams [redacted]
Sent: Thursday, 19 June 2025 3:14 PM
To: [redacted]
Subject: Meeting invite

[redacted]

Jacob Williams
Senior Town Planner

Queanbeyan-Palerang Regional Council
Tel: 1300 735 025
Web: www.qprc.nsw.gov.au
Mail: PO Box 90 Queanbeyan NSW 2620


Larbert Road
LARBERT
Mayfield Road
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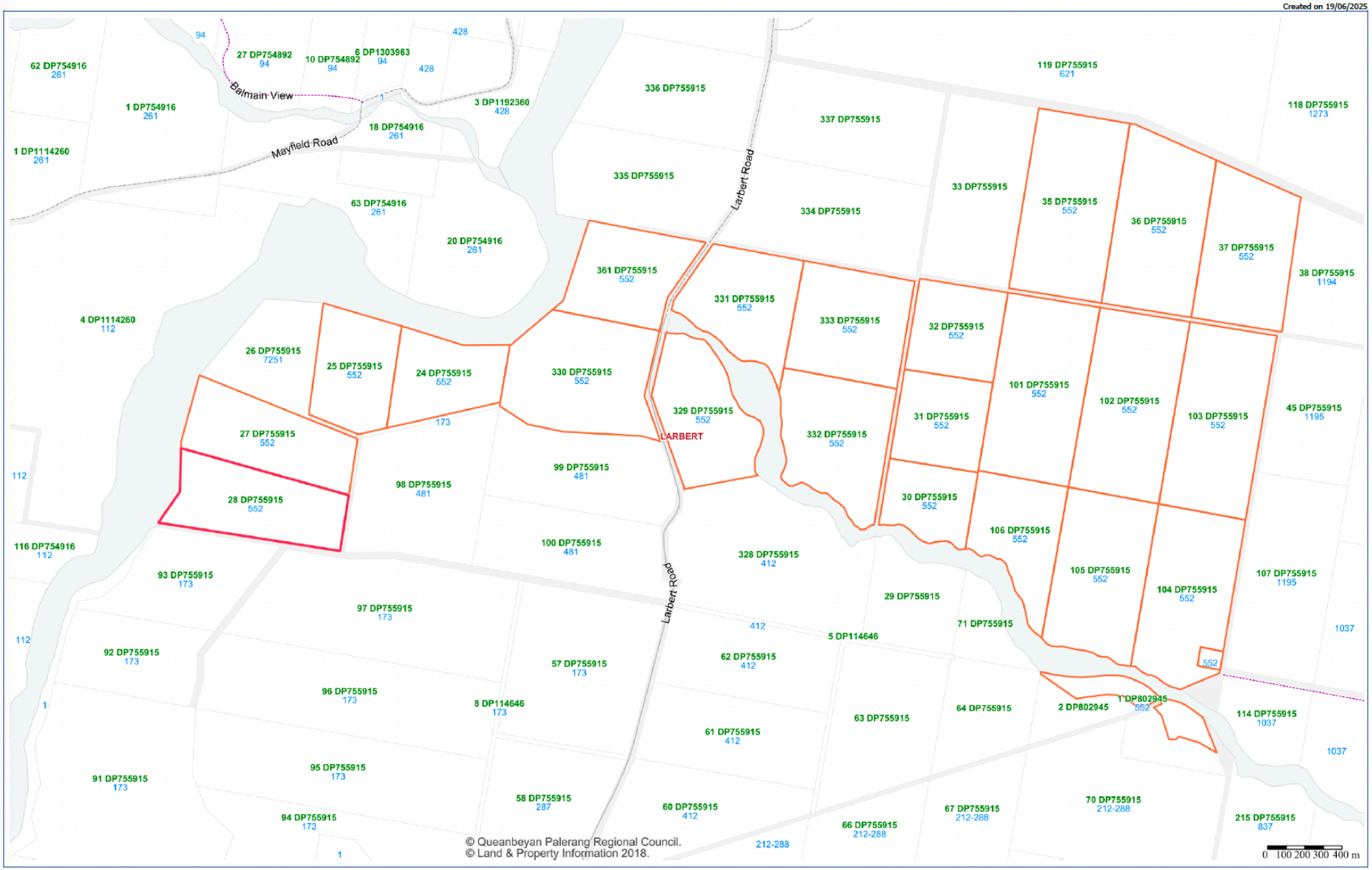
Created on 19/06/2025



Queanbeyan Palerang Regional Council
256 Crawford St
Queanbeyan NSW 2620
[redacted]
www.qprc.nsw.gov.au

QPRC

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APPENDIX D

Noise impact assessment report by Vipac

APPENDIX E

Air quality impact assessment report by Vipac

APPENDIX F

Surface water assessment report by SEEC

APPENDIX G

Groundwater assessment report by Ground Doctor

APPENDIX H

Ecological assessment report by Macrozamia Environmental Consulting

APPENDIX I

Aboriginal heritage assessment report by Past Traces

APPENDIX J

Roads and traffic assessment by Streetwise

APPENDIX K

Contamination report by Ballpark Environmental