

Blakebrook Quarry Project | Section 4.55(2) Modification

MODIFICATION REPORT

Prepared for Downer | 29 October 2025





Blakebrook Quarry Project

SECTION 4.55(2) MODIFICATION | MODIFICATION REPORT

Prepared for Downer

PR431

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Date	29 October 2025	29 October 2025	29 October 2025

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DOCUMENT CONTROL

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EXECUTIVE SUMMARY

Introduction

This modification report has been prepared by Element Environment Pty Ltd on behalf of Downer EDI Limited (hereafter referred to as 'Downer'), the operator of the Lismore Asphalt Plant (LAP) within Blakebrook Quarry (also known as the Northern Rivers Quarry). The quarry is owned and operated by Lismore City Council (LCC) under State Significant Development consent MP07_0020, granted in 2009 and modified most recently in 2021 to include the asphalt plant (Modification 3). The LAP has supplied asphalt to the Northern Rivers region for over 35 years, supporting local road construction and maintenance.

Downer now seeks approval to modify the consent under section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This section of the Act allows changes where the consent authority is satisfied that the modified development is substantially the same as originally approved. The report addresses the Secretary's environmental assessment requirements (SEARs) issued by the Department of Planning, Housing and Infrastructure (DPHI) on 30 July 2025, and demonstrates the proposal meets the 'substantially the same development' test. It also considers relevant matters under section 4.15(1) of the EP&A Act, including environmental planning instruments, impacts, site suitability and the public interest.

Justification and need for the modification

Lismore's location on the floodplain of the Wilsons River has led to severe infrastructure damage from floods in 2022, 2024 and March 2025, driving urgent demand for asphalt in recovery works. Government funding comes with tight deadlines, and night shifts are often needed for traffic-sensitive repairs. Current production limits (50,000 tonnes per annum) and daytime-only hours (with limited out-of-hours approvals) restrict the LAP's ability to respond efficiently.

The proposed modification also aligns with shifting industry standards for sustainability. Transport for NSW now requires at least 40% recycled content in asphalt, up from 40%, while local government projects have no upper limits. Incorporating recycled materials like reclaimed asphalt pavement (RAP), glass sand, crumb rubber and recycled plastic will divert waste from landfills, reduce emissions and support the NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) and National Waste Policy Action Plan 2024 (DCCEEW, 2024).

Alternatives, such as doing nothing, importing asphalt or building a new facility, were considered but dismissed as less efficient, more emissions-intensive and disruptive. The proposed changes optimise the existing site, enhancing regional resilience without altering the quarry's core operations.

Site description

Blakebrook Quarry spans 128 hectares on Lots 53 and 54 DP1254990, about 7 kilometres north-west of Lismore in the Lismore Local Government Area. The site sits on elevated basalt ridges (around 100 m Australian Height Datum (AHD)) above low-lying rural land, screened by mature vegetation. The asphalt plant occupies 1.07 hectares within Lot 54, on land leased to Downer.

The site is zoned RU1 Primary Production under the Lismore Local Environmental Plan 2012, with 45 hectares rezoned to C2 Environmental Conservation in 2020 to secure biodiversity offsets. Surrounding land uses are agriculture and rural residential, with the nearest dwelling 650 m south-west. Seventeen sensitive receivers (R1–R17) lie within 1.25 km, primarily concerned with noise, dust and amenity.

Access is via Nimbin Road (a regional road managed by Transport for NSW), with upgrades ensuring safe heavy vehicle movements. The site operates under an ISO 14001-certified

environmental management system, including plans for noise, air quality, soil and water, and biodiversity. Baseline monitoring shows compliance with consent conditions and Environment Protection Licence #3384.

Description of the modification

The modification applies only to the asphalt plant and leaves quarry extraction (up to 600,000 tonnes per annum of basalt until 2039), truck dispatch limits (150 laden trucks per day) and the site layout unchanged. Key changes are:

- Increase asphalt production up to 100,000 tonnes per annum.
- Extend asphalt plant hours to 24 hours a day, seven days a week (quarry hours remain 7 am–6 pm Monday–Friday and 7 am–3 pm Saturday).
- Process up to 15,000 tonnes per annum of RAP (with 10,000 tonnes storage at any one time), 10,000 tonnes per annum of recycled glass sand (2,500 tonnes storage), 1,500 tonnes per annum of crumb rubber (45 tonnes storage) and 350 tonnes per annum of TonerPlas recycled plastic (20 tonnes storage).
- Minor administrative updates to consent conditions for clarity and alignment with current regulations.

These use the existing plant and infrastructure, with materials stored in bunded bays and processed into TfNSW-approved mixes like Reconophalt™.

Environmental impact assessment

Specialist studies confirm the modification will have minimal impacts, remaining substantially the same as the approved development.

Noise and vibration assessments predict noise levels at all 17 receivers below project noise trigger levels (35 dB(A) $L_{Aeq}(15 \text{ min})$ evening/night) and within existing limits, with no sleep disturbance or vibration risks.

Air quality modelling shows incremental particulate matter (e.g. maximum 24-hour PM_{10} of 10.7 $\mu\text{g}/\text{m}^3$ at R7) and odour (<1 odour unit) well below NSW EPA criteria. Cumulative levels, including background, comply fully.

The total daily limit of 150 laden trucks, across both the quarry and asphalt plant, will remain unchanged. Key transport routes and intersections have been reviewed, confirming they provide adequate safety and capacity to cater for the turning movements associated with the heavy vehicles used for material transport.

Surface water risks from increased runoff or material leachate are negligible, managed by existing sediment basins and testing under the Soil and Water Management Plan. Waste streams are authorised under EPA exemptions, promoting resource recovery without new disposal needs.

Hazard screening under the State Environmental Planning Policy (Resilience and Hazards) 2021 confirms low risks from stored substances, with no changes to fire, spill or bushfire controls. Biodiversity, heritage and greenhouse gas assessments show no significant effects, with recycling offsetting emissions gains.

Cumulative impacts with existing operations and regional activities stay within approval limits, supported by adaptive management. Community consultation yielded no major concerns specific to the changes associated with asphalt operations.

In summary, the proposed changes can be assessed and determined as a modification to the development consent under section 4.55(2) of the EP&A Act, delivering essential benefits for flood recovery and with minimal additional impacts. Approval is recommended, subject to minor condition updates and an Environment Protection Licence variation.

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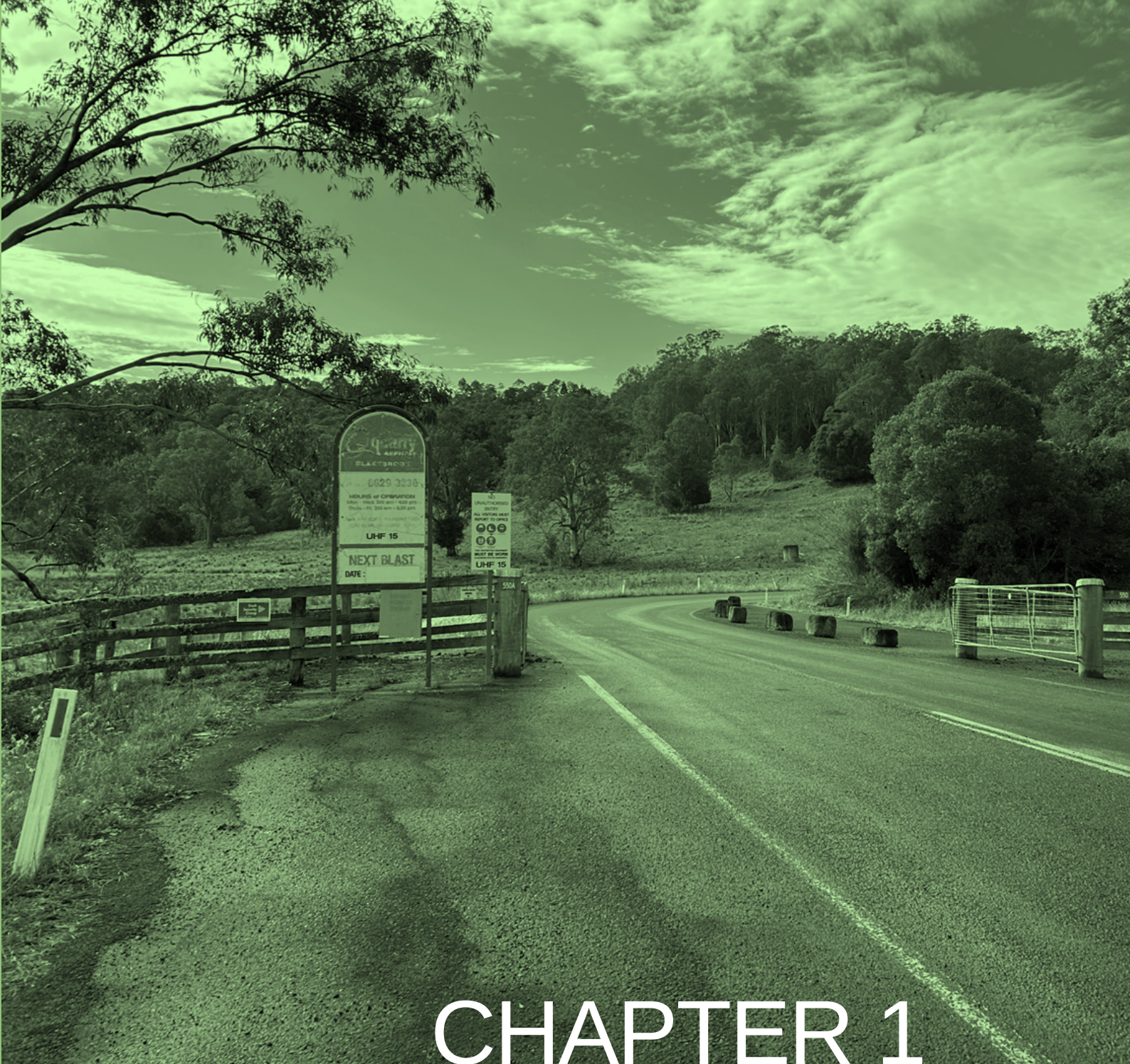
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CHAPTER 1

INTRODUCTION

1 INTRODUCTION

This chapter introduces the proposed modification to the Blakebrook Quarry and Asphalt Plant, including the project background and the applicant's details. It also outlines the Secretary's environmental assessment requirements and identifies the need for, and alternatives to, the modification.

1.1 Background

The Blakebrook Quarry, also known as the Northern Rivers Quarry, is owned and operated by Lismore City Council (LCC). The quarry has operated since 1979, initially under a development consent granted by LCC. Approval to operate a mobile asphalt plant in association with the quarry was granted by LCC in December 1990 under DA90/341. Downer EDI Limited (hereafter referred to as 'Downer') owns and operates the asphalt plant and leases the site from LCC where the asphalt plant is located. Operations include importing bitumen to the site, storing bitumen on site, and adding aggregate materials (via hoppers and a conveyor) to produce asphalt, which is then dispatched to market.

Project Approval (MP07_0020) for the Blakebrook Quarry Project was granted on 24 November 2009 by the Minister for Planning under the former Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This approval initially applied only to quarry operations.

The asphalt plant was operated separately under development approval DA90/341, granted in December 1990. On 28 February 2019, LCC submitted Modification 3 (MP07_0020 Mod 3) under section 4.55(2) to include the asphalt plant within the State significant development (SSD) consent, increase asphalt production limits to 50,000 tpa, and update administrative conditions. The Department approved this modification on 20 July 2021, resulting in a consolidated SSD consent that covered both quarry and asphalt plant operations. DA90/341 was later surrendered by 20 July 2022, making MP07_0020 the only applicable consent.

Under the original Project Approval, the development allowed for:

- extraction (utilising drill and blast techniques) of up to 600,000 tonnes per annum (tpa) of hard rock material (basalt), over a 30-year period until 2039;
- processing of extracted material on site;
- transportation of up to 100 laden trucks per day of quarry products from the site via public roads; and
- progressive rehabilitation of the quarry.

In September 2017, the first modification (MP07_0020 Mod 1) permitted extraction of cap rock in the existing south pit. A second modification (MP07_0020 Mod 2), lodged in March 2018, was later withdrawn. DA90/341, the asphalt plant consent, was also modified four times to allow:

- the production of up to 15,000 tpa of asphalt; and
- operation from 6:00 am to 5:30 pm Monday to Saturday, except for emergency or specific works related to traffic management.

The most recent modification (MP07_0020 Mod 3), approved under section 4.55(2) of the Act, allowed:

- amalgamation of the asphalt plant approval (DA90/341) into Development Consent (MP07_0020);
- an increase in asphalt production from 15,000 tpa to 50,000 tpa;
- an increase in daily truck dispatches from 100 to 150 laden trucks; and
- administrative changes to consent conditions.

Downer now proposes the following modifications:

- processing of up to 15,000 tpa of Reclaimed Asphalt Pavement (RAP) and storage of up to 10,000 tonnes of RAP (unprocessed and processed combined) on site;
- processing of up to 10,000 tonnes per year of recycled glass sand;
- processing of up to 1,500 tonnes per year of crumb rubber;
- processing of up to 350 tonnes per year of TonerPlas (recycled plastic);
- an increase in asphalt production and transport limits from 50,000 tpa to 100,000 tpa;
- extended asphalt plant operating hours (not quarry operations) to allow round-the-clock operations; and
- minor administrative changes to existing consent conditions.

This is referred to as the 'proposed modification'. Importantly, the quarrying activity remains the core purpose of the SSD, and nothing in this proposal changes that primary focus.

Section 4.55(2) of the EP&A Act allows modification to a development consent where the consent authority is satisfied the development remains substantially the same as originally approved. This report demonstrates that the proposed modification is substantially the same development, results in minimal environmental and social impact, and is appropriate for approval under section 4.55(2).

Element Environment Pty Ltd (Element) has prepared this modification report on behalf of Downer to address the requirements of Section 4.55(2) of the EP&A Act. It follows the *State significant development guidelines – preparing a modification report* (Department of Planning and Environment (now DPPI), 2022).

1.2 The proponent

LCC holds the development consent for Blakebrook Quarry, which includes the asphalt plant. Downer, as the asphalt plant operator, will act as the proponent for the proposed modification. Details are provided in the Table 1.1.

Table 1.1 Proponent details

Item	Detail
Project contact	Downer (on behalf of LCC)
Postal address	60 Lancaster Drive Goonellabah NSW 2480
ABN	60 080 932 837
Report authors	Shania Van Cuylenburg, Darren Green, Neville Hattingh
Site owner	Lismore City Council

The Lismore Asphalt Plant (LAP) is in Lismore, New South Wales (NSW), within the Blakebrook Quarry, Lot 53 DP1254990 and Lot 54 DP1254990.

1.3 Secretary's environmental assessment requirements

This modification report addresses the specific requirements in the Secretary's environmental assessment criteria (SEARs) issued by the Department of Planning, Housing and Infrastructure (DPHI) on 30 July 2025. The SEARs are included in Appendix A, along with details on where each requirement has been addressed in the modification report. The report has also been prepared with input from several technical specialists.

1.4 Needs and alternatives

1.4.1 Needs for modification

The LAP has operated in the region for over 35 years, supplying asphalt to Lismore and the northern NSW region and plays a crucial role in supporting local construction and road infrastructure projects.

Lismore sits on a floodplain where several creeks meet the Wilsons River, making the entire catchment susceptible to frequent and rapid flooding. Recent floods in 2022, 2024, and March 2025 severely damaged roads and infrastructure, increasing demand for asphalt to support urgent recovery works. To meet this demand, Downer proposes to increase their annual asphalt production from 50,000 tonnes to 100,000 tonnes.

Downer also proposes round-the-clock asphalt plant operations to address key challenges. While Downer can currently apply to work outside standard hours through the Out of Work Hours Work Protocol (approved by the Secretary), this process is often not efficient or timely. Reliance on this mechanism highlights why extended operating hours are essential. Key challenges include:

- Urgency of flood recovery works – some repairs require immediate night shifts, within short timeframes, to ensure safe access.
- Traffic management – major roadworks, particularly on high-traffic routes, must be completed at night to minimise disruptions.
- Funding allocation and deadlines – Government funding for flood recovery is typically subject to strict timelines, requiring increased asphalt production to ensure projects are completed within funding windows.
- Unpredictable weather conditions – rain can cause delays, requiring extra night shifts to stay on schedule.
- Coordination with other contractors – asphalt production must align with other roadwork activities.

The industry is also shifting towards sustainability. Governments and clients are increasingly requiring higher recycled content in construction materials. In line with the National Waste Policy Action Plan 2024, Transport for NSW (TfNSW) has raised RAP content requirements from 30% to 40%, while Aus-Spec has removed limits for local government projects.

To meet these demands, the proposed modification enables the incorporation of a wider range of recycled materials into asphalt production, including:

- 15,000 tonnes/year of RAP;
- 10,000 tonnes/year of recycled glass sand;
- 1,500 tonnes/year of crumb rubber;
- 350 tonnes/year of TonerPlas (recycled plastic).

These measures will help TfNSW, LCC, and other clients increase recycled content in roads, reduce landfill waste, and align with government sustainability targets. Importantly, the SSD's primary activity remains quarrying, and this modification does not alter that fundamental focus.

1.4.2 Consideration for alternatives

Several alternatives to the proposed modification were considered.

Alternative 1: Do nothing

The asphalt plant would continue to operate under the current approval (50,000 tpa, daytime operations only). While feasible, this option would not allow the plant to meet increased demand

driven by several factors, including major flood recovery works, population growth, increased infrastructure investment, and evolving government requirements for higher recycled content. From an environmental perspective, the plant would be unable to expand its use of recycled materials, missing opportunities to reduce waste and lower emissions. From a social perspective, delayed or constrained supply would hinder timely flood recovery and road upgrades, directly affecting community resilience and access. From an economic perspective, the region would face higher costs and reduced competitiveness, as critical works could be delayed or require sourcing from outside the area. Overall, this option would limit the plant's ability to meet regional needs and align with sustainability goals.

Alternative 2: Source asphalt from outside the region

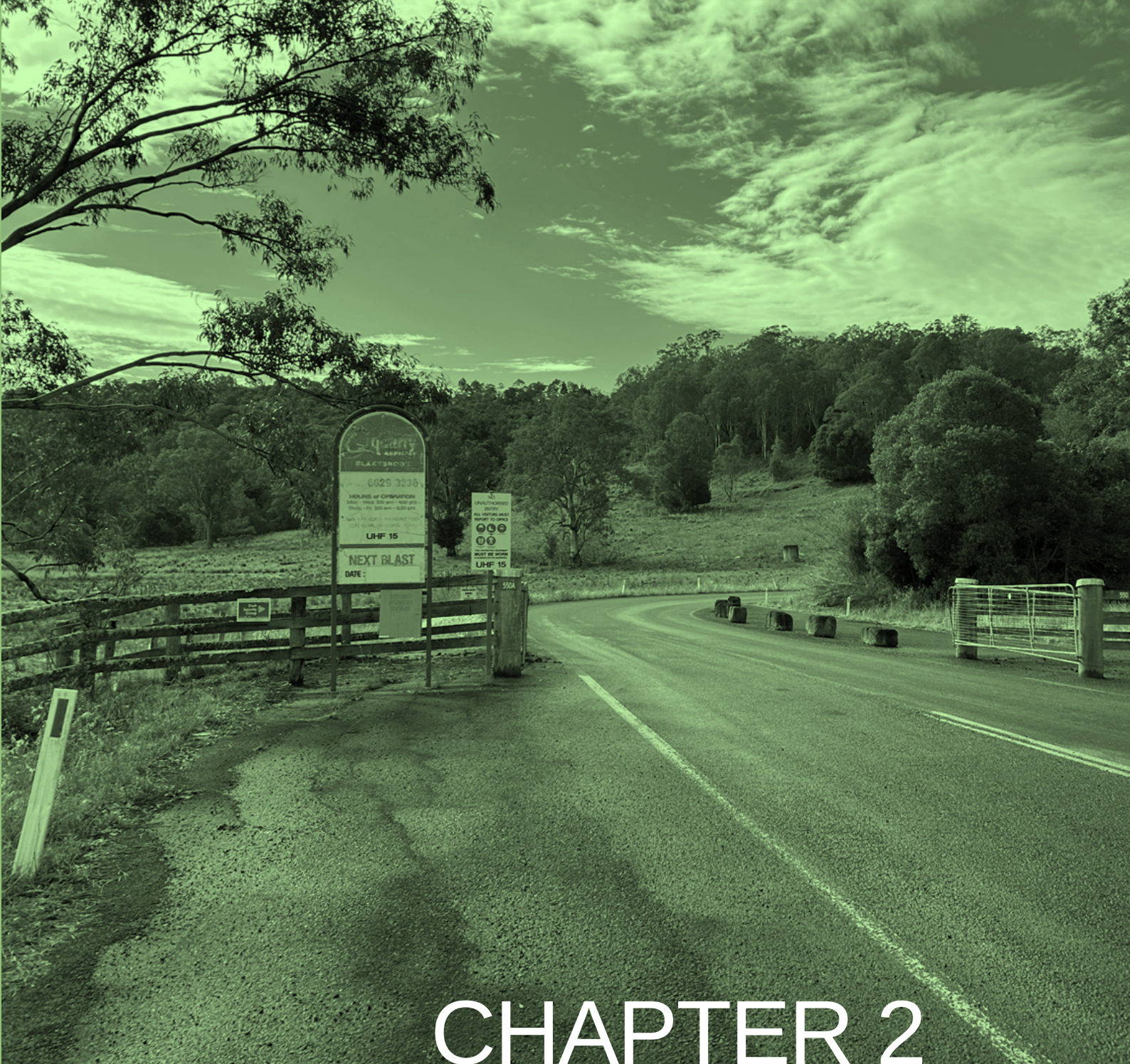
Asphalt could be imported from plants in neighbouring regions. From an environmental perspective, this would increase transport-related greenhouse gas emissions and energy use. For example, based on Australian transport guidelines (DCCEE National Greenhouse Accounts Factors 2024 and ATAP), transporting 50,000 tonnes of asphalt annually from 100 kilometres (km) away using heavy vehicles (assuming 25-tonne loads and 0.12 kg CO₂e/tonne-km for diesel trucks) could generate approximately 600 tCO₂e annually in additional emissions. This excludes return trips for empty trucks, which would further increase emissions. From a social perspective, it would delay delivery of materials needed for flood recovery and infrastructure projects, reducing community confidence in recovery timelines. From an economic perspective, additional transport distances would increase project costs and divert investment away from the local economy. Collectively, this option would undermine the efficiency, sustainability, and community benefit achieved by producing asphalt locally.

Alternative 3: Establish a new asphalt facility elsewhere

Developing a new facility would involve significant capital investment, new land disturbance, and time delays associated with planning, approvals, and construction. From an environmental perspective, establishing a greenfield site would create unnecessary disturbance, duplicate impacts, and generate avoidable emissions. From a social perspective, it would divert resources and focus away from the existing quarry precinct, potentially creating community concern about new land use conflicts. From an economic perspective, it would duplicate infrastructure already available at Blakebrook Quarry, require major upfront investment, and deliver poorer value for money compared with optimising the existing site. For these reasons, it is not considered a feasible or sustainable option and would not be consistent with efficient land use planning.

Preferred option: Proposed modification

The proposed modification is the most effective and sustainable option. From an environmental perspective, it optimises the existing site, reduces the need for new land disturbance, and significantly increases the use of recycled materials such as RAP, recycled glass sand, crumb rubber and TonerPlas. From a social perspective, it ensures timely delivery of asphalt for flood recovery, road upgrades and infrastructure works, improving community resilience, access and confidence in recovery programs. From an economic perspective, it enhances efficiency by avoiding duplication of facilities, reducing transport costs, and keeping investment and employment within the local region. Collectively, these benefits make the modification preferred to the alternatives considered.



CHAPTER 2

EXISTING ENVIRONMENT AND SITE CONTEXT

2 EXISTING ENVIRONMENT AND SITE CONTEXT

This chapter describes the site context and existing environment relevant to the Blakebrook Quarry and LAP. It outlines the physical setting, surrounding land uses, environmental values, and management framework that form the baseline against which the proposed modification is assessed.

2.1 Location

The Blakebrook Quarry and associated asphalt plant (collectively referred to as the Northern Rivers Quarry site) are located approximately 7 km north-west of Lismore, within the Lismore Local Government Area (LGA) (Figure 2.1). The site is accessed from Nimbin Road (MR142), a regional road managed by TfNSW, with haulage routes connecting to the Lismore urban area and the broader Northern Rivers region.

The site sits wholly within the broader Lot 53 DP1254990, which spans 128 ha and accommodates the main quarry operations, internal access road, and biodiversity offset commitments totalling about 62.6 ha, comprising a 17.6 ha Protected Habitat Zone within the Dedicated Vegetation Protection Area (DVPA) and a 45 ha conservation area.

Both the quarry and asphalt plant occupy elevated ground at approximately 100 m AHD, situated above surrounding low-lying rural land, particularly to the west where Terania Creek, Nimbin Road and associated agricultural holdings are located.

The site is heavily vegetated and well-screened by mature regrowth and remnant vegetation on surrounding slopes. Neither the quarry nor the asphalt plant is visible from the nearest sensitive receivers. The closest dwelling lies approximately 650 m to the south-west, with surrounding land uses comprising agriculture and rural residential holdings.

2.2 Site infrastructure

The quarry and asphalt plant are supported by a range of established infrastructure.

Quarry infrastructure (Lot 53):

- Main quarry entrance and access road
- North Pit and South Pit areas
- RAP stockpile area
- On-site weighbridge and site office
- Workshop facilities
- NATA-accredited laboratory for quality testing

Asphalt plant infrastructure (Lot 54):

- Crib office
- Shed
- Asphalt plant
- Workshop for maintenance
- Stockpiles of raw and processed materials

The proposed modification does not materially change the existing site layout or physical infrastructure.

Figure 2.1
Regional context

Blakebrook Quarry Project - Modification 4 - Asphalt Plant
Modification Report

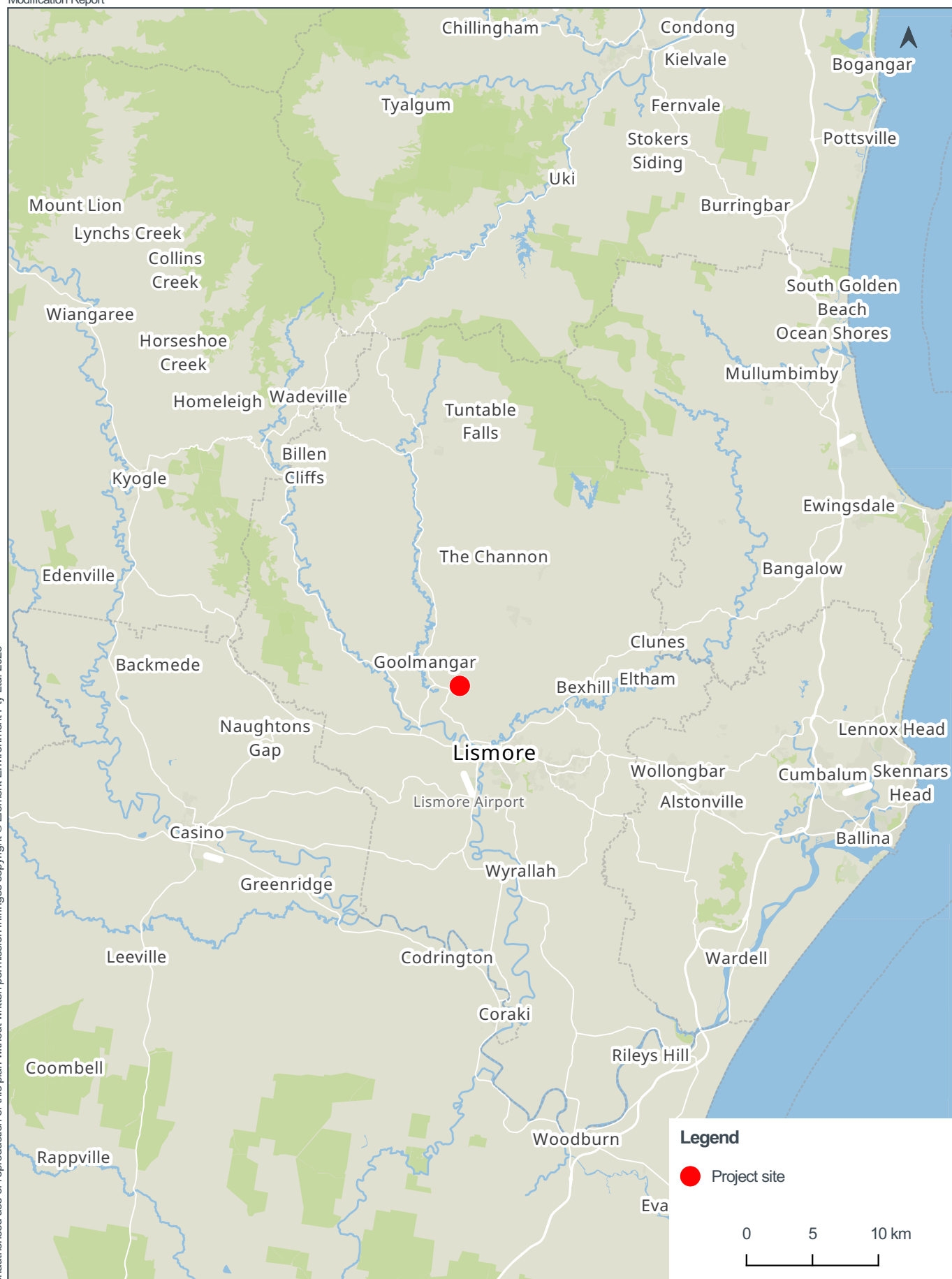
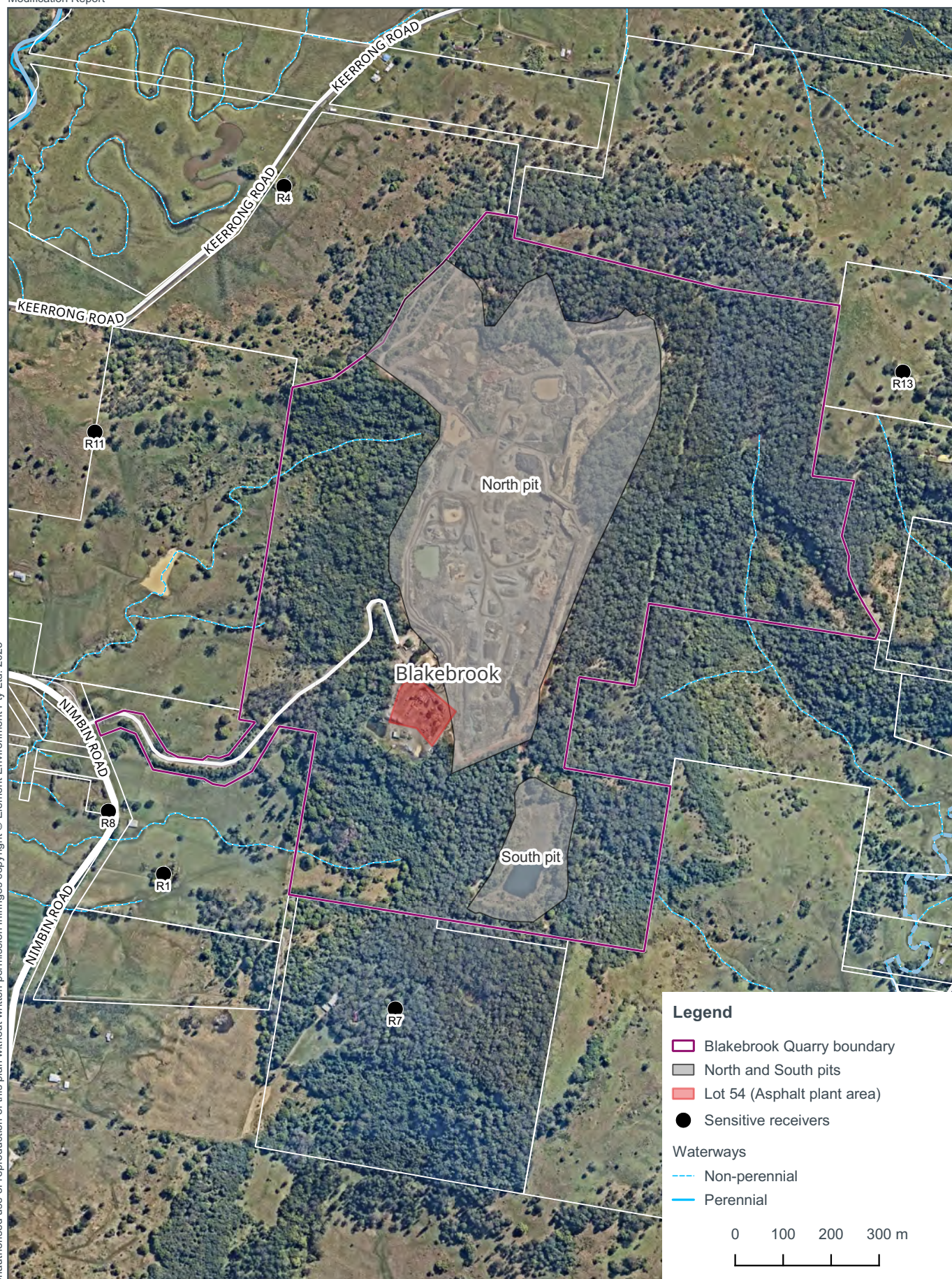


Figure 2.2
Local Context

Blakebrook Quarry Project - Modification 4
Modification Report



2.3 Land use, ownership and zoning

The Blakebrook Quarry site encompasses Lot 53 and Lot 54 DP 1254990, covering an area of approximately 128 ha. The asphalt plant is contained within Lot 54 DP1254990, which covers approximately 1.07 hectares (ha). While the asphalt plant is a discrete facility within the quarry footprint, it is governed by the quarry's overarching development consent.

The majority of the land is zoned RU1 Primary Production under the Lismore Local Environmental Plan 2012, reflecting its rural setting and predominant use for extractive industry. In December 2020, approximately 45 ha of the site were rezoned to C2 Environmental Conservation (formerly E2), with the amendment gazetted on 18 December 2020. This rezoning secured part of the quarry's biodiversity offset commitment and provides permanent protection for key ecological values. The balance of the offset requirement, approximately 17.6 hectares, is secured within a Protected Habitat Zone located in the DVPA on-site (refer to Appendix F), as established under the approved Biodiversity Offset Strategy.

The site is owned by LCC, with quarry operations managed through Council's commercial business unit, Blakebrook Quarry. The asphalt plant area within Lot 54 is leased to Downer, which operates the facility under the terms of the overarching quarry development consent.

The surrounding land is zoned RU1 and is characterised by a mix of agricultural and rural residential uses. Typical activities include cattle and horse grazing, small-scale cropping, and hobby farming. Rural residential dwellings are scattered throughout the locality, with the nearest residence located approximately 650 m south-west of the asphalt plant. The closest business premises is the Goolmangar General Store, situated about 3 km to the north.

2.4 Sensitive receivers

No land zoned for residential purposes directly adjoins the site. The nearest sensitive receptor is a dwelling at 588 Nimbin Road (R1), located approximately 650 metres (m) south-west of the asphalt plant. Other receptors are situated at varying distances up to about 1.25 km from the site. All are located within land zoned RU1, where the surrounding land use consists of agriculture, grazing and rural residential holdings. Within this context, sensitivities are primarily associated with amenity issues such as background noise intrusion, dust deposition and changes to visual character.

The original environmental assessment of the asphalt plant (Assured Environmental Pty Ltd, 2019) identified seven dwellings (R1–R7) located in proximity to the quarry and asphalt plant. These same seven receivers were subsequently adopted for the air quality impact assessment (Todoroski Air Science, 2025) prepared for this modification.

The updated noise and vibration impact assessment (Muller Acoustic Consulting, 2025) retained those same 7 receivers (R1–R7) and identified a further ten dwellings (R8–R17) within approximately 1.25 km of the asphalt plant.

For consistency across disciplines, this modification adopts a single framework of R1–R17, as shown in Table 2.1. Within this framework, R1–R7 represent the core receivers that have been assessed historically and continue to be used in both air quality and noise assessments, while R8–R17 were introduced through the updated noise study to provide broader coverage of nearby residences.

Table 2.1 Consolidated sensitive receivers

Receiver ID	Address	Receiver type	Included in Historic (2019)	Included in Air Quality (2025)	Included in Noise & Vibration (2025)
R1	588 Nimbin Road	Dwelling	✓	✓	✓
R2	22 Keerong Road	Dwelling	✓	✓	✓
R3	145 Pinchin Road	Dwelling	✓	✓	✓
R4	166 Keerong Road	Dwelling	✓	✓	✓
R5	365 Booerie Creek Road	Dwelling	✓	✓	✓
R6	210 Booerie Creek Road	Dwelling	✓	✓	✓
R7	484 Nimbin Road	Dwelling	✓	✓	✓
R8	533 Nimbin Road	Dwelling	–	✓	✓
R9	577 Nimbin Road	Dwelling	–	✓	✓
R10	28 Keerong Road	Dwelling	–	✓	✓
R11	37 Keerong Road	Dwelling	–	✓	✓
R12	38 Keerong Road	Dwelling	–	✓	✓
R13	387 Booerie Creek Road	Dwelling	–	✓	✓
R14	329A Booerie Creek Road	Dwelling	–	✓	✓
R15	289 Booerie Creek Road	Dwelling	–	✓	✓
R16	277 Booerie Creek Road	Dwelling	–	✓	✓
R17	263 Booerie Creek Road	Dwelling	–	✓	✓

2.5 Traffic and access

The quarry and asphalt plant are accessed via the Quarry Access Road, which connects to Nimbin Road, a two-lane sealed regional road linking Lismore and Nimbin. Nimbin Road is a winding and undulating rural corridor, approximately 6–7 m wide with narrow gravel shoulders, centreline markings, guideposts, and speed advisory signage. Several rural dwellings are located along the route, and the road also accommodates school buses and local traffic.

A series of road and intersection upgrades have been carried out to meet the conditions of consent, including the realignment of the Quarry Access/Nimbin Road intersection, the addition of auxiliary turning lanes, and improvements to nearby intersections such as Wilson Street and Booerie Creek Road. The Quarry Access intersection has been upgraded to a Type CHR-S (shortened channelised right-hand turn) configuration, ensuring compliance with Austroads sight distance requirements and enabling safe entry and exit of heavy vehicles.

Truck movements are the main traffic generated by the site. The consent currently allows up to 150 laden trucks per day after the access road upgrade is finished. About 80% of these vehicles are truck-and-trailer combinations, and 20% are single unit tippers. Since empty trucks return to the site, the actual number of truck trips on Nimbin Road is double the number of laden trucks. Quarry operators estimate that around 95% of the material is transported south towards Lismore, with about 70% using Wilson Street and 30% using Terania Street, while only about 5% of the product goes north.

Traffic surveys show that Nimbin Road handles an average between 2,300 to 3,200 vehicles on weekdays, with only a small number being quarry-related heavy vehicles. Accident records and recent safety audits confirm that the upgraded road network is safe and operates within capacity. The Quarry weighbridge, which can process up to 25 outbound trucks per hour, ensures truck dispatch runs efficiently and remains below maximum capacity.

Recent weighbridge data from January to June 2025 shows that actual truck dispatch volumes are significantly below the consented maximum. Over this six-month period, daily truck movements varied from an average of 10.9 laden trucks per day in March to 38.9 laden trucks per day in May, with an overall average of 27 laden trucks per day. Compared to the current consent limit of 150 laden trucks per day, this indicates that the quarry and asphalt plant are generally operating at less than 20% of their approved daily capacity, even during peak months. This demonstrates that there is considerable capacity within the existing traffic approvals to accommodate variations in demand and the proposed modification.

It should be noted that this period included a wet weather event between March and May 2025, as well as a changeover to a new asphalt plant. While these factors would typically be expected to reduce truck movements, the asphalt plant was confirmed to have maintained an overall average production level during this time.

2.6 Noise

Baseline monitoring undertaken as part of the Noise and Blast Management Plan (NBMP, September 2022) describes the local acoustic environment. Background noise is shaped largely by natural sources such as insects, birds, and wind moving through vegetation, with intermittent contributions from rural activities and vehicle movements along Nimbin Road. This reflects a rural setting where ambient noise levels are typically low but can fluctuate with natural cycles, creating a sound environment in which additional industrial noise may be readily perceptible.

No noise complaints have been attributed to asphalt plant operations. The asphalt plant already undertakes limited out-of-hours campaigns each month under the current consent, and these have not resulted in night-time amenity impacts.

2.6.1 Operating hours

The development consent sets the following permissible hours:

- Quarrying, asphalt plant operations and laden truck dispatch:
 - 7:00 am to 6:00 pm Monday to Friday;
 - 7:00 am to 3:00 pm Saturday;
 - not permitted on Sundays or public holidays.
- Blasting:
 - 10:00 am to 3:00 pm Monday to Friday (excluding public holidays);
 - not permitted on Saturdays, Sundays or public holidays.

- Maintenance: may occur at any time, provided activities are not audible at any privately-owned residence.

2.6.2 Out-of-hours operations

With prior written agreement of the Secretary, the proponent may undertake limited asphalt plant campaigns outside the standard operating hours, provided that:

- The works remain within noise limits under Schedule 2, Condition 8;
- An Out of Work Hours Protocol is prepared in consultation with the EPA and potentially affected residents; and
- The Protocol is approved by the Secretary before any campaign occurs.

Under this current process, Downer manages an average of 10 nights of out-of-hours work per month. However, the notification procedure is inefficient, as once approval is secured, the community and EPA must be notified at least seven days before work commences. If works are delayed by weather or other circumstances, the community and EPA must be re-notified. This repeated process can cause consultation fatigue for residents while creating operational challenges for Downer and the road projects supplied by the asphalt plant. Changes to this requirement is therefore a key element of the proposed modification application.

2.6.3 Noise limits

Operations must comply with EPL #3384 and development consent MP 07_0020, which establishes the following criteria:

- $L_{Aeq(15 \text{ minute})}$ of 36 dB(A) at Locations 2 and 7;
- $L_{Aeq(15 \text{ minute})}$ of 35 dB(A) at all other sensitive receivers.

Noise is managed in accordance with the NBMP, with regular monitoring conducted to demonstrate compliance and inform adaptive mitigation. During the Summer 2025 noise monitoring (Ambience Audio Services, February 2025), the asphalt plant was operating under normal load conditions with a front-end loader and haul trucks on the internal haul roads during the evening and night periods. At these times, the asphalt plant operations were measured as inaudible at the closest sensitive receivers.

2.7 Air quality

Ambient air quality in the surrounding area is influenced by a combination of site-related and regional sources. Within the quarry footprint, the primary contributors are the quarrying and asphalt plant operations, along with dust from internal haul roads. External contributions include dust from rural agricultural activities, emissions from motor vehicle traffic, and smoke from domestic wood heaters.

Local atmospheric pollutants of concern typically include deposited dust, total suspended particulates (TSP), PM₁₀ (particles $\leq 10 \mu\text{m}$), and PM_{2.5} (particles $\leq 2.5 \mu\text{m}$). Odour may also arise intermittently from asphalt production activities.

Air quality and odour are managed under the Air Quality Management Plan (AQMP). The AQMP identifies and ranks potential sources according to risk, including drilling and blasting, excavation and haulage of crushed rock, processing, silo rupture at the pugmill, wheel and wind-generated dust, emissions from heavy vehicles and plant (including idling engines), and the asphalt plant burner and drum operations. Mitigation measures are applied through a two-stage trigger response plan, which escalates controls if early signs of exceedance are observed.

Although the site's Environment Protection Licence (EPL #3384) does not prescribe specific dust monitoring requirements, monitoring is conducted monthly in accordance with the consent and the AQMP. Results are publicly reported annually on the LCC's website, ensuring transparency and community access.

2.8 Land resources

2.8.1 Topography

The quarry is situated within a catchment that lies between Blakebrook Creek to the east and Terania Creek to the west. The main northern pit is located on the west-facing slope of a central ridge, where the terrain drains westward via ephemeral gullies into Terania Creek. In contrast, the smaller southern pit sits on the eastern side of the ridge, with surface flows draining eastward towards Blakebrook Creek through ephemeral flow paths.

Terania Creek flows from the north-east to the south-west, meandering between Keerrong Road and Pinchin Road before passing under Nimbin Road and continuing in a generally southerly direction. While it lies to the west of the site, it does not intersect the quarry area or approach the asphalt plant.

The site occupies an area of approximately 128 hectares, with pre-quarrying elevations ranging from around 30 to 140 mAHD. It is proposed that, once fully developed, the quarry pits will cover a total area of 44.2 hectares. This includes the primary northern pit, approximately 40 hectares in size, extending to a maximum depth of 55 mAHD, and a smaller 4.2-hectare southern pit, reaching a depth of 105 mAHD.

The terrain is characterised by side slopes, ridge slopes, and narrow, sharply defined ridges and crests. Evidence of widespread mass movement has resulted in a hummocky microrelief and the presence of terracette landforms across the area (Soil and Water Management Plan (SWMP), January 2025).

2.8.2 Geology and soils

The site's geology consists mainly of residual landscapes known as the *Frederick* type, surrounded by *Georgica* colluvial landscapes. The Frederick landscape features low, gently rolling rises across a flat basalt plateau. Soils in this area include shallow, poorly drained Prairie Soils; some moderately deep, well-drained Krasnozems in iron-rich areas; and deeper, poorly drained Black Earths or Dense Clays in drainage depressions.

As detailed in the Quarry's SWMP, the surrounding Georgica landscapes are more rugged, with high, rolling to steep hills formed from Lismore Basalts. Soils vary by slope position: shallow, moderately well-drained Chocolate and Prairie Soils are found on crests and upper slopes; Chocolate Soils may also appear on upper slopes alone. Mid-slopes tend to have well-drained Prairie Soils or a mix of Chocolate and Prairie types, while the lower slopes and foot slopes contain deeper, poorly to moderately well-drained Black Earths. This variation across the slope indicates potential erosion risks in the upper and mid-slope areas, with soil more likely to accumulate lower down.

The quarry sits within Booerie Hill, an igneous outcrop made up of basalt flows from the Tertiary period, part of the Lamington Group. The basalt extracted at the quarry comprises layered lava flows, some massive, some vesicular, with sub-horizontal formations that vary in thickness and composition.

2.8.3 Land contamination

A search of the EPA's Contaminated Land Register on 6 August 2025 did not identify any recorded contaminated sites near the site. The site is subject to routine monitoring under its EPL, which includes management of potential contaminants such as hydrocarbons from machinery and asphalt production.

2.8.4 Land capability

Under the NSW Land and Soil Capability (LSC) mapping scheme, land is classified into eight classes (1–8) based on its inherent physical capacity to sustainably support rural land uses without degradation. Class 1 represents highly capable land, suited to intensive cropping and other high-impact practices, while Class 8 denotes land with severe limitations, only suitable for minimal uses such as conservation. As class numbers increase, limitations intensify, requiring progressively more management input and expertise.

Near Blakebrook Quarry, LSC mapping indicates that the low-lying plains and footslopes, typically outside the active quarry area and draining into Terania or Blakebrook Creeks, are probably classified as Class 3. This classification means they face moderate limitations but can still be utilised for farming with suitable management.

However, within the steep slopes, ridge crests, and actual quarry boundaries, land capability deteriorates due to factors such as slope, soil shallowness, erosion potential, and mass movement risk. These areas are more aptly described as Class 7, representing very low capability with severely restricted land uses. This aligns closely with the site's DVPA and steep slope zones, where only minimal disturbance and conservative management are appropriate.

2.9 Hydrology

2.9.1 Surface water

The quarry is located on an elevated basalt ridge (Booerie Hill), which drains via ephemeral gullies both westward towards Terania Creek and eastward towards Blakebrook Creek. These creeks are tributaries of Leycester Creek, which ultimately joins the Wilsons River in Lismore. There are no recorded permanent springs on the site or adjacent properties; minor seeps are only observed following prolonged rainfall, reflecting the episodic nature of surface recharge in this basaltic setting.

Surface water management is undertaken through a system of sediment basins, which capture runoff from disturbed areas. Before any off-site release (via pumping), captured water is tested for pH and total suspended solids (TSS, measured via NTU) and visually inspected for oil and grease. This process is governed by the site's SWMP, which also incorporates erosion and clean-water diversions.

Given the asphalt plant's location on Lot 54 in the south-western portion of the quarry footprint, it drains towards the western catchment, ultimately contributing to Terania Creek. However, stormwater from the plant is routed through the same sediment control systems as the quarry, ensuring consistency in monitoring and treatment.

2.9.2 Groundwater

A Hydrogeological Review (G&S, March 2019) confirmed that the quarry overlies a multi-layered basalt aquifer system that includes the following features:

- The shallow unconfined aquifer (approximately 113–109 mAHD) occurs in weathered basalt and krasnozem soils, recharging rapidly from rainfall and responding directly to local topography. This aquifer has already been intersected by the northern pit (105 mAHD) and will also be encountered in the southern pit (105 mAHD).
- Beneath this, intermediate aquifers (upper at 95–87.5 mAHD; lower at 72–65 mAHD) are semi-confined to confined by thick, massive basalt aquitards. The northern pit, once deepened to 55 mAHD, is expected to intersect the upper intermediate aquifer, with inflows estimated at 190 kL/day (≈2.2 L/s).
- A deeper confined system (28.5–22.5 mAHD) lies below the quarry's final extraction depth and is unlikely to be affected.

Overall, groundwater flow is largely controlled by topography, recharging on ridge slopes and discharging via ephemeral flow paths to surrounding creeks. Monitoring of seepage volumes and quality is required as part of the SWMP, with water quality parameters (pH, electrical conductivity, TDS, TSS, metals) tracked against interim triggers.

2.9.3 Implications for the asphalt plant

The asphalt plant is located on Lot 54 in the south-western portion of the quarry site, within an area that was previously cleared to install the original asphalt plant in 1990 but has not been quarried. As such, the plant sits outside both the northern and southern pits and is elevated above the quarry floor.

Its hydrological influence is therefore distinct from that of the pits as:

- The plant contributes to runoff generated from its sealed and unsealed hardstand areas. This runoff is directed into the site's sediment basins in accordance with the SWMP, ensuring capture and testing before any discharge.
- The asphalt plant does not intersect the shallow or intermediate basalt aquifers, nor does it contribute to pit inflows. Any groundwater dynamics at the quarry (such as seepage at 105 mAHD in the pits, or inflows from deeper aquifers as extraction progresses) are unrelated to the asphalt plant footprint.
- The primary hydrological risks associated with the asphalt plant are linked to potential surface contaminants (e.g. hydrocarbons from vehicles, asphalt burner operations, or silo rupture events). These are addressed through the AQMP, SWMP and EPL requirements.

In summary, the asphalt plant's role in quarry hydrology is limited to stormwater management. Broader groundwater interactions and inflows are associated with pit excavations, not the asphalt plant platform.

2.10 Aboriginal heritage

A search of the Aboriginal Heritage Information Management System (AHIMS) was done on 5 August 2025 for Lot 53 and Lot 54 DP1254990, including a 50 m buffer around both lots. The search confirmed that there are no registered Aboriginal sites or places within the quarry or its immediate surrounds.

Previous archaeological survey work undertaken by ERM in 2008, in support of the Blakebrook Quarry Aboriginal Heritage Management Plan, also found no Aboriginal heritage sites or cultural values within the existing quarry footprint.

The proposed modification will be entirely contained within the existing asphalt footprint on Lot 54, which is in an area that was cleared prior to development but has been highly disturbed through ongoing quarry operations. Importantly, no new ground clearance is proposed as part of this application.

Given the comprehensive AHIMS search, the absence of recorded or registered sites, and the outcomes of previous field investigations, the modification presents no potential to impact Aboriginal cultural heritage values. Accordingly, this proposed modification does not trigger further investigation under the *National Parks and Wildlife Act 1974* (NPW Act).

In the unlikely event that an Aboriginal object or suspected object is encountered during works, all activities in the immediate area will cease. Management would then proceed in accordance with the NPW Act, including notification to the Heritage NSW and consultation with relevant Aboriginal stakeholders.

2.11 Non-Aboriginal heritage

Blakebrook Quarry lies within the Northern Rivers region, historically occupied by the Bundjalung Nation, whose cultural sites and practices remain closely tied to country. European settlement from the 1840s brought cedar cutting and pastoral activity, which displaced Aboriginal people from their lands. By the 1860s, families were living in camps on the edge of town, and in 1908 some were relocated to the Dunoon Aboriginal Reserve at Modanville (Lismore City Council, n.d.).

Blakebrook Quarry itself was formally established in 1979, when the former Terania Shire Council granted development consent for extractive industry. Since then, the quarry has remained under LCC ownership and operation, providing basalt for road base, aggregates and construction materials across the region. A major expansion was approved in 1995 (DA 95/239), and subsequent modifications have included approval of the asphalt plant.

Desktop searches of statutory heritage registers were undertaken in August 2025, including the World Heritage List, Commonwealth Heritage List, National Heritage List, NSW State Heritage Register, Section 170 Registers and the Lismore LEP 2012. These searches confirmed that no listed heritage items occur within, or adjacent to, the quarry site. Given the highly disturbed nature of the quarry footprint and the absence of identified heritage listings, the proposed modification will have no impact on non-Aboriginal heritage values.

2.12 Biodiversity

The vegetation within the site reflects remnants typical of the upper slopes and plateaus of the Northern Rivers, much of which has been fragmented by historical clearing for logging and agriculture (CEG, 2008).

Five vegetation communities have been identified on-site (refer to Appendix F):

- Tall Open Forest dominated by Pink Bloodwood (*Corymbia intermedia*), White Mahogany (*Eucalyptus acmenoides*), Tallowwood (*Eucalyptus microcorys*) and Brush Box (*Lophostemon confertus*);
- Tall Open Forest/Woodland with Broad-leaved Apple (*Angophora subvelutina*), Forest Red Gum (*Eucalyptus tereticornis*) and Swamp Turpentine (*Lophostemon suaveolens*);
- Closed Forest;
- Regrowth Scrub; and
- Disturbed Grassland.

The Closed Forest community qualifies as the Threatened Ecological Community (TEC) “Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions”, listed under the NSW *Biodiversity Conservation Act 2016* (BC Act). Together, the open forest, woodland and closed forest areas form part of a larger remnant extending across the site and adjoining lands.

Surveys conducted for the Biodiversity and Rehabilitation Management Plan (BRMP, March 2019) identified two threatened flora species and eight threatened fauna species on-site. More

recently, an NSW BioNet search (August 2025) recorded 64 protected species sightings in the surrounding area, highlighting the ecological values of the locality.

Notably, parts of the site provide habitat important to the Koala (*Phascolarctos cinereus*), listed as endangered under both State and Commonwealth legislation. In August 2025, a thermal drone survey was conducted by SMT Ecology. The survey included an additional survey area of 60ha outside of the quarry boundary and concluded an overall validation of 14 Koalas (one joey). This included seven Koalas (one joey) within the same area surveyed in 2024, concluding the population has remained. An additional seven Koalas were also identified outside or just on the boundary which indicates there is a large broader population of 14 individuals (one joey) that would use the entire site intermittently.

2.12.1 Offsets and the DVPA

At the time of initial quarry development, approximately 60 ha of native vegetation was present, of which 10.8 ha was cleared. Further vegetation was removed during expansion works, but significant remnant areas have been secured for conservation.

The site includes a DVPA of approximately 34 ha, managed for long-term conservation under the BRMP (refer to Appendix F). Within this DVPA, 17.6 ha has been formally designated as an on-site biodiversity offset area, secured to satisfy part of the project's biodiversity offset obligations.

To complement this, in December 2020 a further 45 ha of land associated with the quarry was rezoned to C2 Environmental Conservation (gazetted 18 December 2020). This rezoning permanently secures the off-site offset component required under the Quarry's Biodiversity Offset Strategy.

Together, the 17.6 ha on-site offset (within the DVPA) and the 45 ha rezoned conservation land provide a total offset commitment of approximately 62 ha, which fully meets the project's biodiversity offset requirements. The balance of the DVPA (around 16.4 ha) remains as additional protected habitat under Council's management.

2.12.2 Relevance to the asphalt plant

The asphalt plant is situated within a previously cleared and disturbed area of Lot 54, outside designated native vegetation. The proposed modification will not necessitate further clearing nor directly affect biodiversity values. When operating the asphalt plant under the modified conditions, Downer will continue to implement and comply with the AQMP and BRMP, ensuring stormwater and potential pollutants are managed to prevent harm to surrounding vegetation, including the DVPA and offset areas.

2.13 Waste management

Waste management at the quarry and asphalt plant is undertaken in accordance with LCC Waste Policy, which reflects the Council's adopted 20-year waste strategy, and in compliance with EPL #3384. Under Clause L3.1 of the EPL, the site must not receive external waste for storage, treatment, processing, reprocessing or disposal, other than glass sand recovered from the Lismore Recycling and Recovery Centre.

The proposed modification will increase asphalt production from 50,000 to 100,000 tonnes per annum. This increase reflects the need to support regional flood recovery, meet government project deadlines, and align with industry sustainability targets. As part of this transition, the asphalt plant will play a greater role in repurposing waste-derived resources as inputs, rather than generating new waste streams. Annual recycled content use is expected to include:

- 15,000 tonnes of reclaimed asphalt pavement;
- 10,000 tonnes of recycled glass sand;
- 1,500 tonnes of crumb rubber; and
- 350 tonnes of TonerPlas (recycled plastic).

These materials are incorporated directly into asphalt production in line with TfNSW specifications and the National Waste Policy Action Plan 2024, diverting them from landfill and supporting government sustainability objectives.

In terms of on-site waste generation, the quarry and asphalt plant continue to produce modest volumes of operational and domestic waste. Key waste streams include:

- General waste and recyclables from staff amenities, collected through LCC's standard waste service.
- Asphalt product generated during plant start-up or shutdown, which is reprocessed and reused in new asphalt mixes.
- Chemical containers stored in the Dangerous Goods Package Store until disposal at the Wyrallah Road Waste Management Facility.
- Wastewater and sewage managed via septic systems, with removal and disposal at LCC Wastewater Treatment Plant by licensed contractors.
- Truck washdown residues captured via a gross pollutant trap, pumped out periodically for disposal at the LCC Wastewater Treatment Plant.

Overall, while the scale of asphalt production will increase, the modification does not introduce new uncontrolled waste streams. Existing measures remain in place to ensure compliance with EPL #3384, and the increased use of recycled materials represents a positive contribution to circular economy outcomes in line with State and national policy directions.

2.14 Socio-economic

Lismore LGA (code LGA14850) is experiencing steady growth and diversification, reflecting regional development goals and increased residential demand. Socio-economic indicators from the 2021 Census, reproduced in Table 2.2, provide a clear demographic profile of the area.

Table 2.2 Socio-economic indicators

Socio-economic indicator	Lismore LGA	NSW
Total population	44,344	8,072,161
Male	49.1%	49.4%
Female	50.9%	50.6%
Aboriginal and Torres Strait Islander	5.5%	3.4%

Socio-economic indicator	Lismore LGA	NSW
Median age	44	39
Average children per family for families with children	1.8	1.8
Average people per household	2.4	2.6
Median weekly household income	\$1,319	\$1,829
Median monthly mortgage repayments	\$1,517	\$2,167
Median weekly rent	\$310	\$420
Average motor vehicles per dwelling	1.9	1.8

The 2021 Census shows that within Lismore City LGA, 22.1% of households were couples with children, which is below the NSW average. Couple-only families made up 24.4%, while one-parent families accounted for 13.1%, slightly above the state average. With a median age of 44 years, higher than the NSW median of 39, the demographics indicate an older population with fewer young families.

Education levels also reflect this age structure. In the LGA, 9.4% of the population attended pre-school or primary school and 6.2% attended secondary school, while only 6.1% of residents were enrolled in university or TAFE. This profile highlights the smaller proportion of young families and tertiary students compared to the state average.

In terms of employment, the labour force participation rate in Lismore was 57.5%, slightly above the regional NSW average but below the broader state figure. Of those in the labour force, 94.9% were employed and 5.1% unemployed, a marginally higher unemployment rate than the NSW average. Housing data show that 93.0% of private dwellings were occupied, higher than the regional NSW average, with an average household size of 2.36 persons, again slightly lower than state and regional figures.

Indicators of disadvantage are also clear. Lismore has a SEIFA score of 966, indicating relatively higher socio-economic disadvantage compared to state and regional averages. Median household incomes are lower, and mortgage repayments and rents are well below state benchmarks, highlighting a modest level of economic resilience.

Against this socio-economic context, the proposed modification to the asphalt plant offers a positive contribution to the local economy. Increasing asphalt production from 50,000 to 100,000 tonnes per annum will provide vital support for flood recovery efforts following the extreme events of 2022, 2024, and 2025, while also enabling local delivery of government-funded infrastructure projects within tight timeframes. The ability to incorporate over 25,000 tonnes annually of recycled materials (including RAP, glass sand, crumb rubber, and plastics) further aligns the project with State and national sustainability targets, strengthening the region's role in the circular economy. In this way, the modification directly supports employment, infrastructure resilience, and economic stability in a community characterised by an older demographic, modest incomes, and higher levels of social disadvantage.

2.15 Hazard and risk

Hazardous substances are stored on site to support quarry and asphalt plant operations. The main materials are fuels, bitumen and associated additives, which are stored in accordance with relevant Work Health and Safety (WHS) and dangerous goods requirements. The principal substances and maximum storage quantities are summarised in Table 2.3.

Table 2.3 Inventory of hazardous substances

Substance	Maximum quantity stored	Storage method
Acetylene	7 m ³	Gas Cage
Bitumen	162,000 L	Self-bunded bitumen tanks
Diesel	30,000 L	Self-bunded diesel tank
Toluene	200 L	Self-bunded container

The site is located within a rural setting where bushfire risk is present. Management of bushfire risk is guided by Planning for Bush Fire Protection and undertaken in consultation with the NSW Rural Fire Service (RFS). Key measures include maintenance of perimeter access tracks every six months, establishment of defendable space around site buildings, provision of an on-site firefighting water supply (via multiple water bodies and a dedicated water truck), and consideration of biodiversity outcomes alongside operational asset protection.

The proposed modification does not alter the types of hazardous materials stored on site or the existing bushfire management arrangements. A more detailed assessment of potential hazard and risk issues, including consideration under SEPP 33, is provided in Section 6.6.

2.16 Environmental management

LCC (and subsequently Downer) operates an environmental management system (EMS) certified to ISO 14001. The EMS provides a systematic management framework for protecting the environment and ensuring compliance with the conditions of approval, EPL #3384 and relevant legislation. It incorporates a suite of management plans, supported by procedures and monitoring programs, to address specific environmental risks associated with quarrying and asphalt production.

The EMS functions as an overarching framework and includes the following key management plans:

- Aboriginal Heritage Plan;
- Air Quality Management Plan;
- Biodiversity and Rehabilitation Management Plan;
- Noise and Blast Management Plan;
- Operational Traffic Management Plan;
- Pollution Incident Management Plan;
- Safety Management Plan; and,
- Soil and Water Management Plan.

Standard operating procedures complement these plans by providing controls for high-risk activities such as blasting, asphalt production, fuel storage and chemical handling.

2.16.1 Environmental performance

The environmental performance criteria in Table 2.4 have been sourced from the development consent and EPL #3384.

Table 2.4 Environmental performance criteria

Aspect	Source	Criteria	Requirement
Production	Development consent	Limit on waste types	The site may only receive asphalt to be recycled.

Aspect	Source	Criteria	Requirement
	Development consent	Limit on extraction or production	Up to 600,000 tonnes per year until 2039 Asphalt production is limited to 50,000 tpa
Odour	EPL #3384	Nil odour	The operation of the premises must not cause or permit the emission of offensive odour beyond the boundary of the premises.
Dust	EPL #3384	Nil dust	The operation of the premises must not cause or permit the emission of offensive odour beyond the boundary of the premises.
Noise	Development consent EPL #3384	Limit on noise	Noise from the premises must not exceed an $L_{Aeq}(15 \text{ minute})$ noise criterion of 36dB(A) at Location 2 and 7 and 35dB(A) at all other sensitive receivers, except expressly provided by this licence.
	Development consent EPL #3384	Operating hours	7 am to 6 pm Monday to Friday 7 am to 3 pm on Saturday However, L6.3 of EPL #3384 and Condition 2A, Schedule 3 of the development consent indicate that the licensee may undertake limited campaign asphalt plant operations (within the limits imposed in the EPL and Approval) outside operating hours.
Water quality	Development consent EPL #3384	No pollution of waters	The Proponent must comply with discharge limits in any EPL, or with section 120 of the POEO Act.
		Run off management	Maximise the diversion of run-on waters from lands upslope and around the site whilst land disturbance activities are undertaken.
		Sediment basin discharge and management	The site must maximise the diversion of stormwater runoff containing suspended solids to sediment basins installed on the premises. Sediment basins are to be treated to a licensed concentration limit of 50 mg/l before being discharged with Gypsum and other EPA-approved materials.

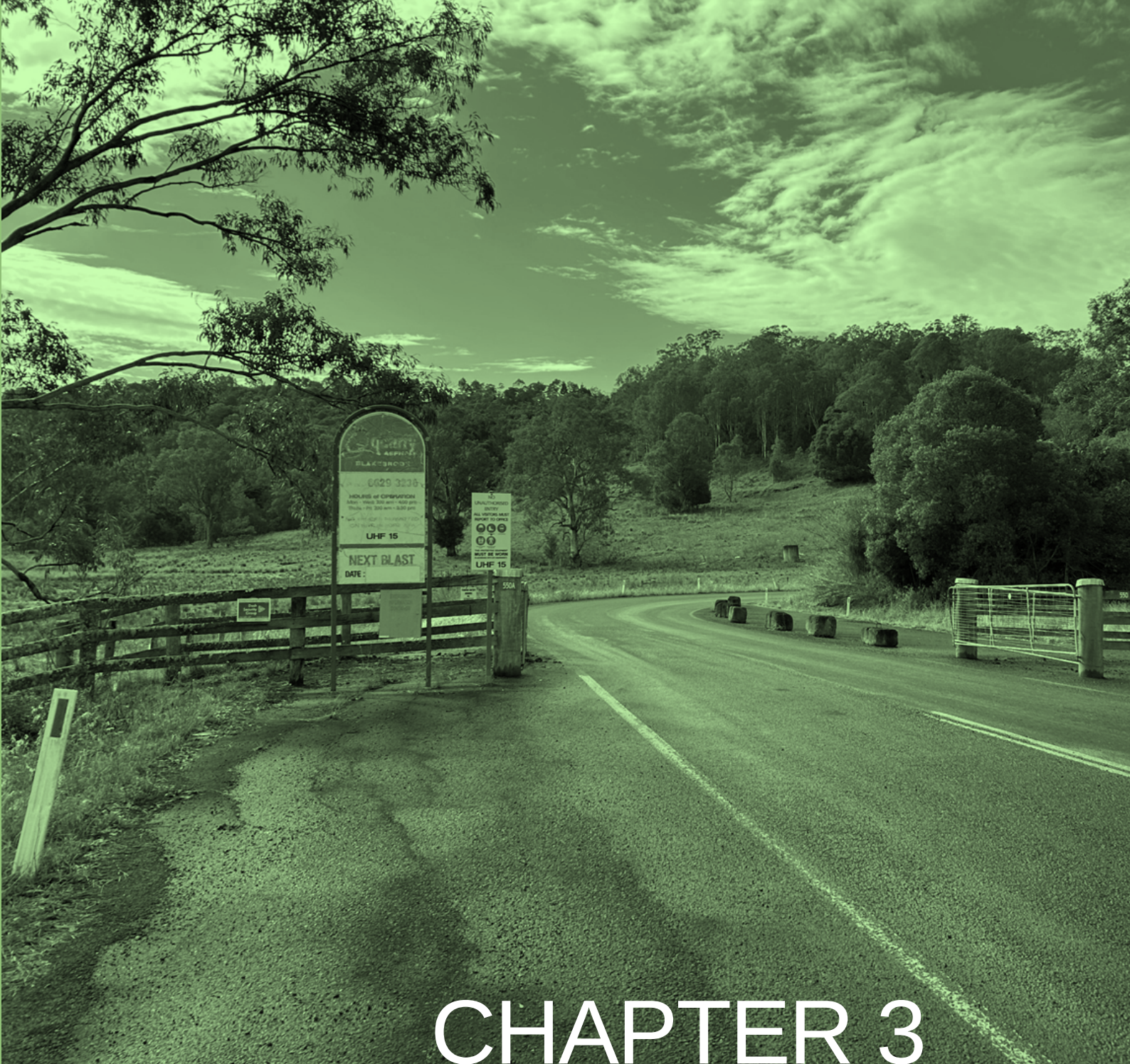
2.16.2 Environmental monitoring

Environmental monitoring programs are implemented to demonstrate compliance and to inform adaptive management. Current monitoring requirements are included in Table 2.5.

Table 2.5 Environmental monitoring requirements

Aspect	Source	Requirement															
Air Quality	Development Consent Schedule 3, Condition 10	The Proponent must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not cause exceedances of the criteria in Table 4 at any residence on privately-owned land.															
		<i>Table 4: Air quality criteria</i> <table> <tr> <th>Pollutant</th><th>Averaging Period</th><th>Criterion</th></tr> <tr> <td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>a.d 25 µg/m³</td></tr> <tr> <td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>b 50 µg/m³</td></tr> <tr> <td>Total suspended particulates (TSP)</td><td>Annual</td><td>a.d 90 µg/m³</td></tr> <tr> <td>^c Deposited dust</td><td>Annual</td><td>b 2 g/m²/month a.d 4 g/m²/month</td></tr> </table>	Pollutant	Averaging Period	Criterion	Particulate matter < 10 µm (PM ₁₀)	Annual	a.d 25 µg/m ³	Particulate matter < 10 µm (PM ₁₀)	24 hour	b 50 µg/m ³	Total suspended particulates (TSP)	Annual	a.d 90 µg/m ³	^c Deposited dust	Annual	b 2 g/m ² /month a.d 4 g/m ² /month
Pollutant	Averaging Period	Criterion															
Particulate matter < 10 µm (PM ₁₀)	Annual	a.d 25 µg/m ³															
Particulate matter < 10 µm (PM ₁₀)	24 hour	b 50 µg/m ³															
Total suspended particulates (TSP)	Annual	a.d 90 µg/m ³															
^c Deposited dust	Annual	b 2 g/m ² /month a.d 4 g/m ² /month															
	Development Consent Schedule 3, Condition 11	Regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop on-site operations to ensure compliance with the air quality criteria in this approval. (d) Monitor and report on compliance with this approval's relevant air quality conditions.															
	Development Consent	Include an air quality monitoring program that: - Is capable of evaluating the performance of the project.															

Aspect	Source	Requirement
	Schedule 3, Condition 12	- Includes a protocol for determining any exceedances of the relevant conditions of approval. - Effectively supports the air quality management system.
	Schedule 5, condition 3	The Proponent must ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include: (c) a description of the measures that to be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria; (d) a program to monitor and report on the: • impacts and environmental performance of the project; and • effectiveness of any management measures (see (c) above);
Blasting and Vibration	EPL #3384 M7	Airblast overpressure and ground vibration levels must be measured at the most affected residence or noise sensitive location that is not owned by the licensee or subject to a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative level - for all blasts carried out in or on the premises; and b) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.
Groundwater		Groundwater quality will be monitored against background levels established in the SWMP, Table 3.5.5.1, quarterly. Groundwater sampling will be undertaken generally in accordance with the Guidelines for Groundwater Documentation for SSD/SSI Projects (DPE 2022).
Noise	Mod 3, Schedule 3	Hours of operations must be adhered to. Noise criteria set out in Schedule 3 (3) is to be measured in accordance to the NSW Industrial Noise Policy.
	EPL #3384 M8	Noise monitoring must be carried out in accordance with Australian Standard AS 2659.1 – 1998: Guide to the use of sound measuring equipment – Portable sound level meters, and the compliance monitoring guidance provided in the NSW Industrial Noise Policy.
Pollutant Pollutants	EPL #3384 M2.2	Oil and Grease is to be monitored visually, pH and Total Suspended Solids are to be monitored through sampling. The frequency of monitoring is: ▪ once every 48 hours prior to actively emptying the sediment basin, and ▪ every 5 working days for ongoing discharge events arising from rainfall less than 60.2mm falling in total over a period of up to five days duration.
	EPL #3384 M3	The concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.
Rainfall	EPL #3384 M4	The licensee is required to install and maintain a rainfall depth measuring device. Rainfall at the premises must be measured and recorded in millimetres (mm) per 24-hour period, at the same time each day.
Surface Water	Soil Water Management Plan	Monitoring at surface water monitoring locations (as details in Table 3.5.4.2 in the SWMP) will be undertaken downstream of the operation quarterly and after a rainfall event greater than 15 mm over a 24-hour period.



CHAPTER 3

DESCRIPTION OF THE MODIFICATION

3 DESCRIPTION OF THE MODIFICATION

This chapter describes the proposed modification to the Blakebrook Quarry and LAP. It outlines the current development consent, the objectives of the modification, and the specific changes sought to production limits, operating hours, recycled material processing, and associated consent conditions.

3.1 Approved Project

Blakebrook Quarry (also known as Northern Rivers Quarry) operates under SSD MP07_0020. LCC is the consent holder and Downer leases and operates the asphalt plant within the approved quarry footprint.

The approval covers basalt extraction (up to 600,000 tpa to 2039), on-site processing, asphalt production up to 50,000 tpa, dispatch of up to 150 laden trucks per day, and progressive rehabilitation (see Section 2.2).

Current approval limits relevant to this modification include:

- Asphalt production: 50,000 tpa.
- Truck dispatch (combined quarry and asphalt): 150 laden trucks/day.
- Asphalt plant operating hours: 7:00–18:00 Mon–Fri; 7:00–15:00 Sat; no Sundays/public holidays (limited out-of-hours campaigns via approved protocol).
- RAP acceptance/processing: Limited to excess on-site asphalt only (i.e. surplus product returned from the plant).
- Recovered inputs (glass sand, crumb rubber, TonerPlas): Not currently permitted under the consent. Approval is sought in this modification to receive/process defined annual quantities with “at any one time” storage limits (see Section 3.3 and 3.4).

3.2 Objective of the modification

The objective of the proposed modification is to increase the asphalt plant’s capacity and operational flexibility so it can better support road construction and maintenance across Lismore and the broader Northern Rivers region. By doubling annual asphalt production and enabling the use of RAP and other recycled materials (glass sand, crumb rubber, TonerPlas), the modification will:

- ensure timely supply for flood recovery and critical infrastructure works;
- improve sustainability by reducing reliance on virgin aggregates; and
- align with government and industry commitments to increase recycled content in road construction.

3.3 Description of the modification

The proposed modification relates solely to the asphalt plant and does not alter the approved quarrying operations, extraction limits, site footprint or key infrastructure. Its purpose is to increase asphalt production capacity, extend operating hours, and introduce the controlled use of recycled materials as part of a more sustainable asphalt mix. Specifically, the modification seeks to:

- increase asphalt production from 50,000 tpa to 100,000 tpa;
- extend asphalt plant operating hours to 24/7 (quarry hours remain unchanged);

- permit the receipt, processing, and storage of specified volumes of recycled materials (RAP, recovered glass sand, crumb rubber, TonerPlas); and
- make minor administrative updates to ensure conditions remain contemporary and consistent with current regulatory terminology.

Table 3.1 summarises the proposed modifications against the current approval. Figure 3.1 shows the layout of the facility.

The modification introduces no new land uses, no increase to the quarry extraction rate, and no expansion beyond the existing approved footprint.

Table 3.1 Summary of approved and proposed development

Aspect	Current approval	Proposed modification	Change
Asphalt production	50,000 tpa	100,000 tpa	+50,000 tpa
Operating hours (asphalt plant only)	7am–6pm Mon–Fri; 7am–3pm Sat; closed Sun/PH (limited OOHW campaigns)	24/7 operations	Hours extended
RAP	Limited to excess asphalt returned to plant	Process up to 15,000 tpa; store up to 10,000 t at any one time	Expanded and capped
Recovered glass sand	Not permitted	Process up to 10,000 tpa; store up to 2,500 t at any one time	New input
Crumb rubber	Not permitted	Process up to 1,500 tpa; store up to 45 t at any one time	New input
TonerPlas (plastic)	Not permitted	Process up to 350 tpa; store up to 20 t at any one time	New input
Truck dispatch limit (combined quarry + asphalt)	150 laden trucks/day	No change	–
Quarry extraction	600,000 tpa basalt to 2039	No change	–

3.3.1 Increase in asphalt production

Under the current consent, asphalt production is limited to 50,000 tpa. The modification proposes to utilise the existing asphalt plant to increase production to 100,000 tpa. No changes are required to the physical plant or equipment to accommodate this increase.

3.3.2 Processing of RAP

The proposed modification seeks approval for the receipt and processing of up to 15,000 tpa of RAP. This includes both recyclable asphalt sourced externally and surplus asphalt returned from road projects. While Downer already holds an EPA resource recovery order and exemption for the lawful use of RAP under the Protection of the Environment Operations (Waste) Regulation 2014, the SSD consent must also expressly permit this activity to occur on site.

3.3.3 Processing of additional recycled materials

The proposed modification seeks to expand the range of recycled materials incorporated into asphalt production, consistent with Downer's Reconophalt™ mix. Specifically, the asphalt plant would be approved to receive and process:

- up to 10,000 tpa of recovered glass sand (with any-one-time storage of 2,500 tonnes);
- up to 1,500 tpa of crumb rubber (with any-one-time storage of 45 tonnes); and
- up to 350 tpa of TonerPlas (recycled plastic polymer) (with any-one-time storage of 20 tonnes).

These recycled and recovered waste material inputs are covered under the EPA's Downer Bituminous Pavement Order and Exemption (May 2024), which authorises their supply and use for road construction, provided quality and reporting requirements are met. This modification ensures alignment between the EPA approvals and the site's SSD consent.

3.3.4 Operating hours

Under the consent, the asphalt plant is currently limited to daytime and Saturday operations but may operate outside these hours under an Out-of-Hours Protocol approved by the Secretary. In practice, this protocol has allowed limited night-time campaigns to meet urgent roadworks and flood recovery needs. The protocol requires advance community notification for each campaign and rescheduling due to weather or other factors can trigger repeated notifications, creating inefficiencies for both operators and residents.

The proposed modification therefore seeks approval for the asphalt plant to operate on a 24/7 basis. This change would not apply to the quarry, which remains subject to its existing hours of operation. Extended asphalt plant hours would offer greater operational flexibility and responsiveness, particularly for night-time roadworks to support flood recovery programs.

3.3.5 Administrative changes

A small number of administrative changes to consent conditions are also proposed. These updates are detailed in Table 3.2 and are primarily intended to modernise terminology, align reporting timeframes with regulatory requirements, and ensure conditions reflect contemporary practice.

Figure 3.1
Site layout

Blakebrook Quarry Project - Modification 4
Modification Report



3.4 Conditions of consent to be modified

Table 3.2 Administrative changes to development consent conditions

Existing condition	Proposed change	Comments
SCHEDULE 2 ADMINISTRATIVE CONDITIONS		
Terms of Approval		
2. The Proponent must carry out the project: (a) generally in accordance with the EA (Mod1), and; (b) Project Layout Plan and the Statement of Commitments.	2. The development may only be carried out: (a) In compliance with the conditions of this consent; (b) In accordance with all written directions of the Planning Secretary; and (c) generally in accordance with the EA, EA (Mod 1), MR (Mod 3), Project Layout Plan and the Statement of Commitments.	The proposed changes are sought to ensure consistency with the current terminology in the Project Layout Plan.
Production Data		
14. The Proponent must: (a) from the commencement of quarrying operations provide calendar year annual quarry production data to MEG using the standard form for that purpose; and (b) include a copy of this data in the Annual Review.	14. The Proponent must: (a) from the commencement of quarrying operations provide annual quarry production data to MEG using the standard form for that purpose; and (b) include a copy of this data in the Annual Review.	The Extractive Material Return submitted online to the Resource Regulator is based on the financial year. Removing the reference to 'calendar year' will ensure consistency with the regulator's reporting requirements.
SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS		
Waste		
33. Except as expressly permitted in an EPL, the Proponent must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.	33. Except as expressly permitted in an EPL, or specific resource recovery order and/or exemption under the Protection of the Environment Operations (Waste) Regulation 2014, the Proponent must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.	The proposed change clarifies that the lawful receipt of materials under a specific EPA resource recovery order and/or exemption is permissible and not a breach of the general prohibition on receiving waste.
SCHEDULE 4 ADDITIONAL PROCEDURES		
Notification of Landowners		
1. As soon as practicable, and no longer than 7 days, after obtaining monitoring results showing: (a) an exceedance of any criteria in Schedule 3,	1. As soon as practicable, and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, blasting or air quality criterion in Schedule 3 of this consent, the	The proposed changes are intended to align with the current SSD approval

Existing condition	Proposed change	Comments
the Proponent must notify the affected landowners in writing of the exceedance, and provide regular monitoring results, at least every 3 months, to each affected landowner until the project is again complying with the relevant criteria; and (b) an exceedance of any air quality criteria in Schedule 3, the Proponent must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and current tenants of the land (including the tenants of land which is not privately-owned).	Proponent must: (a) provide to any affected landowners and tenants; and (b) For any exceedance of any air quality criteria in Schedule 3, the Proponent must also provide to any affected landowners and current tenants a copy of the fact sheet entitled "Mine Dust and You" (Minerals Council, 2011).	criteria outlined in Schedule 3. Given that the monitoring requirements in Schedule 3 are limited to air, blast and noise, it is considered appropriate to refine the wording to provide greater clarity and to streamline the monitoring information required. The revised wording is consistent with the approach adopted for comparable projects, including the Sancrox Quarry Expansion Project (SSD-7293) and the Stone Ridge Quarry Project (SSD-10432).

SCHEDULE 5

ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

Revision of Strategies, Plans & Programs

4A. Within 3 months of the submission of an: (a) incident report under condition 9 below; (b) Annual Review under condition 11 below; (c) audit report under condition 12 below; and (d) any modifications to this approval	4A. Within 3 months of: (a) the submission of an incident report under condition 9 below; (b) the submission of an Annual Review under condition 11 below; (c) the submission of an Independent Environmental Audit report under condition 12 below; (d) the approval of any modifications of the conditions of this approval; and (e) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review, the suitability of existing strategies, plans and programs required under this approval must be reviewed by the Proponent.	These changes are proposed to align with current SSD approvals.
4B. the Proponent must review the strategies, plans and programs required under this approval, to the satisfaction of the Secretary. The proponent must notify the Department in writing of any such review being undertaken. Where	4B. If necessary, to either improve the environmental performance of the project, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the	These changes are proposed to align with current SSD approvals and flexibility.

Existing condition	Proposed change	Comments
this review leads to revisions in any such document, then within 6 weeks of the review the revised document must be submitted for the approval of the Secretary. <i>Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.</i>	satisfaction of the Planning Secretary and submitted to the Planning Secretary for approval within six weeks of the review. <i>Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.</i>	
Annual Review		
11. The Proponent must ensure that copies of the Annual Review are submitted to Council and are available to the Community Consultative Committee (see condition 7 of Schedule 5) and any interested person upon request.	11. The Proponent must ensure that copies of the Annual Review are available on the Council website and to any interested person upon request.	Given that the proponent is the LCC, it is requested that the obligation to submit the Annual Review to Council be removed.
Independent Environmental Audit		
12. Within three years of the date of grant of this project approval, and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent must commission, commence and pay the full cost of an Independent Environmental Audit of the project. This audit must: (a) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; (b) include consultation with the relevant agencies and the CCC; (c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL or necessary water licences for the project (including any assessment, strategy, plan or program required under these approvals); (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; (e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, strategy, plan or program required under the abovementioned approvals; and (f) be conducted and reported to the satisfaction of the Secretary.	12. Within three years of the date of grant of this project approval, and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent must commission, commence and pay the full cost of an Independent Environmental Audit of the project that will be due by 30 June, and covers three full calendar years being audited. This audit must: (a) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; (b) include consultation with the relevant agencies and the CCC; (c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL or necessary water licences for the project (including any assessment, strategy, plan or program required under these approvals); (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; (e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, strategy, plan or program required under the abovementioned approvals; and (f) be conducted and reported to the satisfaction of the Secretary.	The wording change suggested here would be to define a due date to cover the 3 full calendar years. This would align with current SSD approvals.

3.5 Qualification as a modification

Section 4.55(2) of the EP&A Act allows a development consent to be modified where the consent authority is satisfied that the development, as modified, is substantially the same development as the development originally approved (and subsequently modified).

In this case, the proposed modification does not change the fundamental nature, purpose or scale of the development. The quarry remains the primary activity on the site, with the asphalt plant continuing to operate as an ancillary use. The proposed modification only seeks to adjust operating parameters of the asphalt plant (production limits, operating hours, and input materials), while quarrying operations, extraction limits, site layout, and overall development footprint remain unchanged.

Quantitative considerations

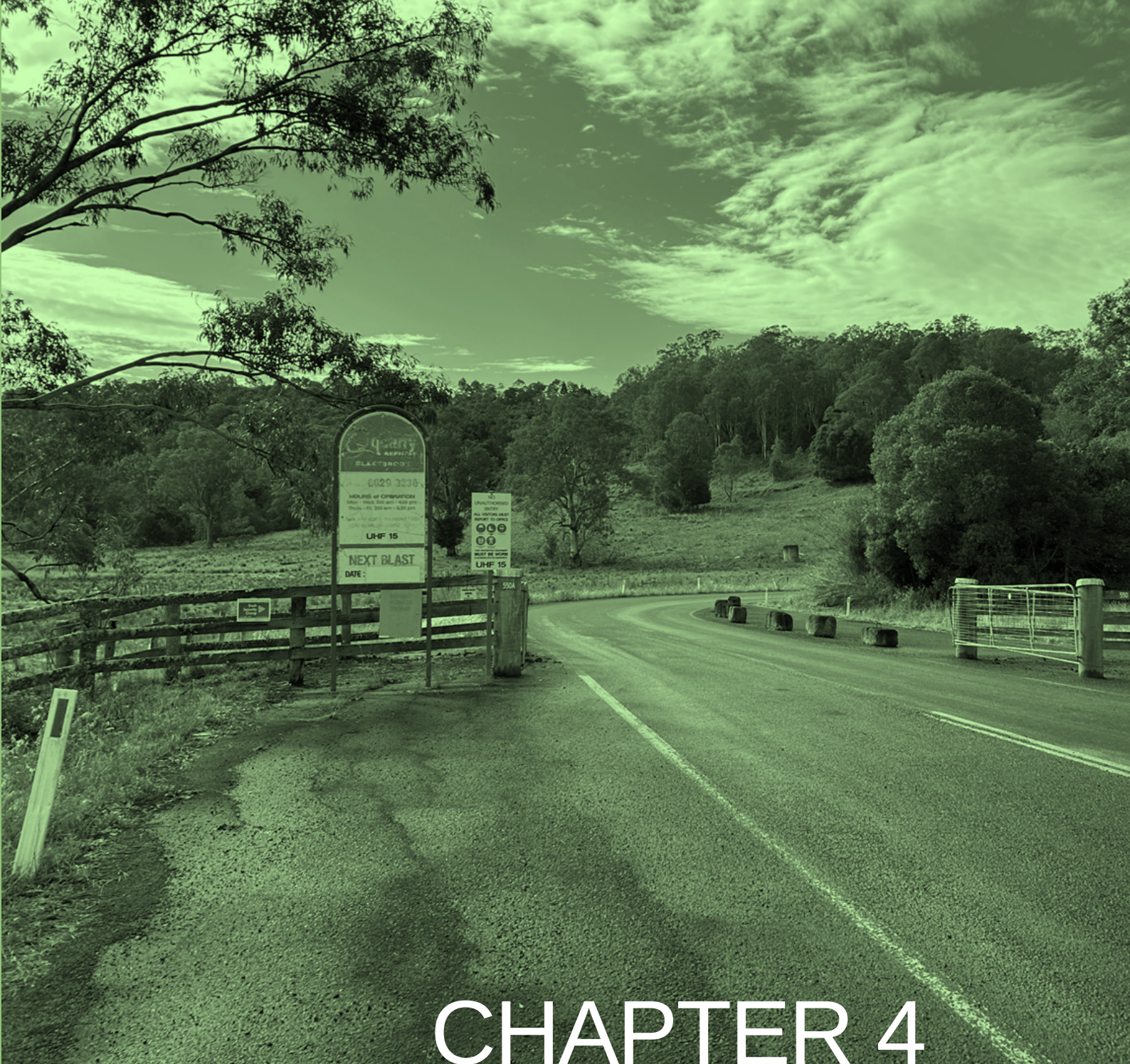
- The existing asphalt plant infrastructure will be used; no new buildings or major equipment are required.
- The site layout and disturbance footprint are unchanged.
- Production adjustments relate to asphalt only (increase from 50,000 tpa to 100,000 tpa), within the existing quarry site and truck dispatch limits.
- As the total approved production limit under the development consent is 650,000 tpa (quarry extraction and asphalt production combined), a 50,000 tpa increase in asphalt production only is a relatively minor increase of approximately 8% in total production.
- Environmental impact assessments (noise, air quality, traffic) confirm the proposed modification will remain within consent and licence criteria.

Qualitative considerations

- The land use remains unchanged: a quarry with an ancillary asphalt plant.
- The proposed modification does not introduce a new or distinct use but enhances existing capacity.
- The processes carried out on site remain the same, with the addition of recycled inputs already authorised by an EPA order and exemption.

Conclusion

On both a quantitative and qualitative basis, the proposed modification retains the same essence and purpose as the currently approved development. It does not represent a radical transformation but an operational adjustment to improve efficiency, capacity, and sustainability. Accordingly, the proposal qualifies as a modification under section 4.55(2) of the EP&A Act.



CHAPTER 4

STATUTORY CONTEXT

4 STATUTORY CONTEXT

4.1 Commonwealth legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is Australia's main federal law protecting matters of national environmental significance (MNES). It sets out a framework to ensure actions that could harm MNES or Commonwealth land do not proceed without approval from the federal Minister for Environment and Water.

Under the EPBC Act, an action must not proceed if it has, will have, or is likely to have a significant impact on MNES or Commonwealth land, unless the Minister grants approval first. Recent reforms (announced in 2024 and partly implemented by mid-2025) have streamlined assessments, but the main approval process remains unchanged for such modifications.

The Protected Matters Search Tool (PMST) helps identify potential MNES impacts from a development. A PMST was completed in August 2025, and the results are summarised in Table 4.1. This data has been combined with local knowledge, existing records, and targeted technical studies to assess if the proposed modification will, or is likely to, significantly impact any MNES or Commonwealth land. Our assessment confirms no significant impacts.

Table 4.1 MNES considered in the EPBC Act

MNES	Commentary
World heritage properties	No world heritage properties are near the site.
National heritage places	No national heritage places are near the site.
Wetlands of international importance (listed under the Ramsar Convention)	No wetlands of international importance are near the site.
Listed threatened species and ecological communities	The PMST identifies five threatened ecological communities and 55 threatened species in the search area. However, the site has been cleared historically, and the modification stays within the approved footprint, avoiding impacts on adjacent habitats (refer to Section 2.12)
Migratory species protected under international agreements	The PMST lists 12 migratory species. The site supports no large populations, and the modification will not significantly affect migratory species or their habitat due to prior disturbance and no expansion into adjacent vegetation.
Commonwealth marine area	No Commonwealth marine areas are near the site.
The Great Barrier Reef Marine Park	The Great Barrier Reef Marine Park is not near the site.
Nuclear actions (including uranium)	There are no nuclear actions near the site.
A water resource, in relation to coal seam gas development and large coal mining development	Not applicable, as this modification involves asphalt production and resource recovery, not coal-related activities.

4.1.2 Native Title Act 1993

The *Native Title Act 1993* (Cth) recognises Aboriginal and Torres Strait Islander rights and interests in land and waters based on traditional laws and customs, where those connections continue. Native title can be addressed through claims, Indigenous Land Use Agreements (ILUAs), or future act approvals.

The site is within the Widjabul Wia-bal Goori Land Use Agreement ILUA (NI2022/002) and the Widjabul Wia-Bal Native Title Determination (NCD2022/001) in the Lismore LGA. No new native title issues arise from the modification, as it aligns with the existing approved operations and ILUA terms.

4.1.3 National Greenhouse and Energy Reporting Act 2007

The *National Greenhouse and Energy Reporting Act 2007* (Cth) requires large energy users and greenhouse gas emitters to report their emissions and energy use annually. For this modification, asphalt production falls below the reporting thresholds. No additional reporting obligations apply, but we've incorporated emissions considerations into the ESD assessment (refer Section 4.2.2) to align with broader federal climate goals.

4.2 NSW Legislation

4.2.1 NSW Environmental Planning and Assessment Act 1979

Downer is applying to modify the existing development consent under section 4.55(2) of the EP&A Act. This section allows modifications where the changed development remains substantially the same as the original approval.

Table 4.2 Section 4.55 (2) requirements

Section and requirement	Comments
4.55 (2) Other modifications. A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if--	Downer is applying on behalf of LCC, the original consent holder.
(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and	As detailed in Section 3.5, the modification maintains the same core development: asphalt production within the approved footprint, with added resource recovery that enhances sustainability without expanding operations.
(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and	Consultation will occur as required; no objections anticipated based on the minor nature of changes.
(c) it has notified the application in accordance with – the regulations, if the regulations so require, or a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and	The application goes to DPHI, which may mandate notification or advertising.
(d) it has considered any submissions made concerning the proposed modifications with any period prescribed by the regulations or provided by the development control plan, as the case may be.	All submissions will be reviewed and addressed.

Section and requirement	Comments
Subsections (1) and (1A) do not apply to such a modification.	-
(3) In determining an application for modification of a consent under this section, the consent authority must take into consideration such of the matters referred to in section 4.15(1) as are of relevance to the development the subject of the application. The consent authority must also take into consideration the reasons given by the consent authority for the grant of consent that is sought to be modified.	Refer to Table 4.3
(4) The modification of a development consent in accordance with this section is taken not to be the granting of development consent under this Part, but a reference in this or any other Act to a development consent includes a reference to a development consent as so modified.	-

Under Section 4.55(3), the consent authority (DPHI) must consider the matters listed under Section 4.15(1) of the EP&A Act. These are addressed in Table 4.3, drawing on the original consent reasons (e.g. site's suitability for extractive industries) and confirming no material changes.

Table 4.3 Section 4.15(1) EP&A Act matters

Section and requirement	Comment
4.15(1) Matters for consideration – general 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	All relevant instruments are considered in Section 4.4.
(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	Not applicable. No such instruments notified for this site.
(iii) any development control plan, and	Lismore Development Control Plan (where LEP 2012 applies) has been considered when defining the proposed modification.
(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	Not applicable. No agreements in place.
(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),	Refer to Section 4.2.2 on EP&A Regulation.
(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,	Detailed in Chapter 6. No significant impacts expected.

Section and requirement	Comment
(c) the suitability of the site for the development,	The site is zoned for primary production and hosts an approved asphalt plant. Therefore, the site is suitable for the proposed changes to asphalt production.
(d) any submissions made in accordance with this Act or the regulations,	Downer will respond to any submissions DPHI requests a response to.
(e) the public interest.	Based on specialist assessments, the modification supports sustainable resource recovery without harming the environment or community. It aligns with public interest in circular economy goals.

4.2.2 Environmental Planning and Assessment Regulation 2021

Part 5, clause 100 (1) of the NSW Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) outlines what a modification application must include. Table 4.4 shows how this report meets those requirements.

Table 4.4 Requirements of Part 5, clause 100 (1) of the EP&A Regulation

Clause requirement	Comments
(1) An application for modification of a development consent under section 4.55(1), (1A) or (2) or 4.56(1) of the Act must contain the following information—	-
(a) the name and address of the applicant,	Section 1.2
(b) a description of the development to be carried out under the consent (as previously modified),	Section 3.1
(c) the address, and formal particulars of title, of the land on which the development is to be carried out,	Section 2.2
(d) a description of the proposed modification to the development consent,	Section 3.3
(e) a statement that indicates either— (i) that the modification is merely intended to correct a minor error, misdescription or miscalculation, or (ii) that the modification is intended to have some other effect, as specified in the statement,	Section 3.5 outlines how the modification is intended to enhance the operational efficiency and sustainability of the asphalt plant without changing the development's scale.
(f) a description of the expected impacts of the modification,	Chapter 6
(g) an undertaking to the effect that the development (as to be modified) will remain substantially the same as the development that was originally approved.	Section 3.5 and Chapter 7

Ecologically sustainable development

Section 1.3 of the EP&A Act promotes ecologically sustainable development (ESD) by balancing economic, environmental, and social factors in planning decisions. Clause 193 of the EP&A Regulation defines ESD principles, which we've integrated into the modification. The sections below explain alignment and where ESD is key to demonstrating minimal impacts.

Precautionary principle

Where there are threats of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent such damage.

Baseline environmental characteristics have been assessed using site data, regional records and specialist input to predict impacts. Chapter 6 details risk-proportional assessments, drawing on Downer’s experience with similar asphalt operations across Australia. This experience and knowledge has been applied to the proposed modification to predict and manage potential environmental impacts.

Management measures (e.g. dust and noise controls) prevent any unavoidable risks, ensuring negligible overall impact.

Inter-generational equity

The current generation must maintain or improve environmental health, diversity, and productivity for future generations.

As described in Chapter 6, the modification causes no significant noise, traffic, air quality or human health impacts. It promotes resource recovery, preserving clean air and water for future generations without depleting resources.

Conservation of biological diversity and ecological integrity

Biodiversity conservation must be a core consideration.

Chapter 6 confirms no significant biodiversity impacts, as the modification is within disturbed areas. Surrounding habitats remain unaffected.

Improved valuation, pricing and incentive mechanisms

Environmental factors should influence asset valuation, with polluters bearing containment, avoidance, or abatement costs.

Downer accepts all costs for licensing, mitigation, and management under the proposed EPL variation, incentivising sustainable practices like RAP use.

4.3 Other NSW Legislation

Table 4.5 summarises additional relevant NSW laws. All are current as of September 2025, with no rescissions.

Table 4.5 NSW legislation

Legislation	Objective and application to the proposed modification
<i>Protection of the Environment Operations Act 1997</i> (POEO Act)	The POEO Act aims to protect, restore and enhance the quality of the environment in the context of ecologically sustainable development and to reduce risks to human health and prevent degradation of the environment. LCC holds EPL #3384 for the quarry site, which includes the existing asphalt plant as a bituminous activity. The proposed modification, involving the receipt and processing of recycled materials (e.g. RAP), may necessitate an EPL variation to cover expanded waste handling. No new scheduled activities are triggered beyond the scope of the existing licence, and operations will adhere to all conditions.
<i>Contaminated Land Management Act 1997</i> (CLM Act)	The CLM Act establishes a process for investigating and, where required, remediating contaminated lands that pose a risk to human health and the environment. EPA searches (Contaminated Land Record and Notified Sites List) found no issues on or near the site. Operations are unlikely to encounter contamination. If unexpected contamination is discovered, Downer will notify under Section 60 of the CLM Act.

Legislation	Objective and application to the proposed modification
<i>Roads Act 1993</i> (Roads Act)	Section 138 of the Roads Act requires consent to be obtained prior to disturbing or undertaking work in, on or over a public road. Section 138 consent is not required as the proposed modification does not involve road disturbances or upgrades.
<i>NSW Biodiversity Conservation Act 2016</i> (BC Act)	The BC Act provides protection for threatened plants and animals native to NSW (excluding fish and marine vegetation) and integrates the conservation of threatened species into development control processes under the EP&A Act. The site has low-value habitat due to prior disturbance. The modification avoids impacts on threatened species or ecological communities. Higher-quality habitats in surrounding areas (e.g. DVPs) remain unaffected (refer to Chapter 6).
<i>Water Management Act 2000</i> (WM Act)	The WM Act regulates the management of water by granting licences, approvals for taking and using water, and trading groundwater and surface water. The WM Act applies to those areas where a water sharing plan has commenced. Alternatively, if a water sharing plan has not yet commenced, the <i>NSW Water Act 1912</i> (Water Act) applies. The WM Act is progressively replacing the Water Act as relevant water sharing plans are introduced across the State. The broader quarry site (managed by LCC) operates under existing water licences for extraction activities like dewatering, compliant with the Richmond River water sharing plan. However, the asphalt plant and proposed modification are separate from quarrying; they involve material processing without water extraction, use, or discharge impacts. Any minor water needs (e.g. for dust control) are met via mains supply or EPL-permitted recycling, with no change to licensed volumes. The modification does not trigger new WM Act approvals.
<i>Heritage Act 1977</i> (Heritage Act)	Non-Aboriginal historical archaeological relics, buildings, structures, archaeological deposits, and features are protected under the Heritage Act. As the modification is within disturbed areas it will not impact on heritage-listed sites.
<i>National Parks and Wildlife Act 1974</i> (NPW Act)	The NPW Act contains provisions for the protection and management of national parks, historic sites, nature reserves and Aboriginal heritage. The NPW Act provides statutory protection for Aboriginal objects by making it illegal to move, damage, deface or destroy a relic without written permission from DCCEEW. The site is highly disturbed. The proposed modification does not involve ground disturbance outside the approved disturbance footprint. Therefore, the proposed modification will have no impact on protected Aboriginal heritage values, and an Aboriginal Heritage Impact Permit is not required.
<i>Rural Fires Act 1997</i>	The NSW Rural Fire Service (NSW RFS) has an obligation under the <i>NSW Rural Fires Act 1997</i> to protect life, property and the environment through fire suppression and fire prevention. Section 4.14 of the EP&A Act requires all new development on bushfire-prone land to comply with the requirements of RFS (2019) Planning for Bushfire Protection (PBP). The modification does not affect vegetation or increase bushfire risk levels (refer to Section 2.15). Therefore, the modification complies with NSW Rural Fire Service Planning for Bushfire Protection 2019.
<i>Biosecurity Act 2015</i> (Biosecurity Act)	The Biosecurity Act provides a framework to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants. Downer has a duty of care when operating the asphalt plant, to prevent/minimise biosecurity risks. The modification does not involve additional ground disturbance, which reduces the likelihood of introducing weeds and aligns with regional weed plans. RAP materials imported to the site are typically free from animal and plant pests and weeds and are screened for contaminants.
<i>Waste Avoidance and Resource Recovery Act 2001</i> (WARR Act)	The purpose of the WARR Act is to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development. The WARR Act provides for the making of policies and strategies to achieve this. The modification supports the waste hierarchy of avoid, recover, dispose. The modification enables RAP recycling, diverting materials from landfill and achieving circular economy goals.

4.4 Environmental planning instruments

Environmental planning instruments (EPIs), such as State environmental planning policies (SEPPs), regional environmental plans (REPs), and local environmental plans (LEPs), regulate land use and development in NSW.

4.4.1 State environmental planning policies

No REPs apply. The SEPPs considered in relation to the proposed modification are summarised in Table 4.6.

Table 4.6 Relevant SEPPs

SEPP	Overview and application
State Environmental Planning Policy (Planning Systems) 2021	Part 2.2 of the Planning Systems SEPP declares certain developments as State Significant Development (SSD) per Schedules 1–2. The original consent (MP07_0020) is SSD for extractive industry. This modification aligns without triggering reclassification.
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BCD SEPP)	The BCD SEPP consolidates protections for biodiversity, coastal areas, and conservation zones. Chapters on vegetation clearing (e.g. Part 6.2) and threatened species align with the BC Act. For this modification, no clearing of native vegetation is proposed (site is disturbed), and no coastal or conservation zones are affected. A Biodiversity Development Assessment Report is not required, as impacts are negligible. Chapters 3 and 4 of the BCD SEPP apply to Koala protection. Site mapping (NSW Planning Portal, accessed August 2025) shows no identified koala habitat. Thermal drone surveys conducted by SMT Ecology identified 14 koalas including one joey. In comparison to 2024 survey data, this concludes a small population remains within and outside the site boundary.
State Environmental Planning Policy (Industry and Employment) 2021 (Industry SEPP)	The Industry SEPP permits industrial uses and applies to asphalt production/resource recovery. As no signage is proposed, and the site is not in Western Sydney, no additional controls required under the Industry SEPP apply to the modification.
State Environmental Planning Policy (Resilience and Hazards) 2021 (Hazards SEPP)	Chapter 3 of the Hazards SEPP requires the consent authority to consider whether a project is a potentially hazardous industry or a potentially offensive industry. The proposed modification was assessed in accordance with the screening process specified in <i>Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines</i> (NSW Department of Planning, 2011). The screening found that a detailed Preliminary Hazard Analysis (PHA) or Quantitative Risk Assessment (QRA) was not required. The assessment is summarised in Section 6.6. Under Chapter 4 of the Hazards SEPP, a consent authority must not consent to the carrying out of development on land unless it has considered potential contamination issues. EPA searches (Contaminated Land Record and Notified Sites List) found no contaminated sites on or near the site. Therefore, operations are unlikely to encounter contamination. If contamination is discovered, Downer will notify under Section 60 of the CLMA.
State Environmental Planning Policy (Transport & Infrastructure) 2021 (Infrastructure SEPP)	DPHI is required to forward applications for developments listed in columns 2 and 3 of Schedule 3 of the Infrastructure SEPP to TfNSW and consider any representations made by TfNSW. The proposed modification triggers traffic-generating development under Schedule 3 of the Infrastructure SEPP. The traffic impact assessment (Section 6.1 and Appendix C), concludes that the modification will have negligible traffic impacts on the local road network.

4.4.2 Lismore Local Environmental Plan 2012

The LLEP applies to the site, providing local planning provisions for land in the LGA under Section 3.20 of the EP&A Act.

The modification is in RU1 Primary Production zone (with adjacent C2 Environmental Conservation not impacted). Table 4.7 assesses the modification against objectives of the RU1 zone. The modification does not conflict with the objectives of the RU1 zone, therefore, no clause 4.6 variations are required.

Table 4.7 LLEP RU1 objectives

Zone objective	Consistency
To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.	The modification will not impact the natural resource base as it does not involve impacts to the primary activity at the quarry site (extracting hard rock). The modification will encourage sustainable industry practices in asphalt production with the use of recycled materials.
To encourage diversity in primary industry enterprises and systems appropriate for the area.	The modification will not result in an expansion of the approved development footprint and will not alter the character of the land.
To minimise the fragmentation and alienation of resource lands.	The modification will not change the type of development approved on the site or result in a significant impact on adjacent land uses.
To minimise conflict between land uses within this zone and land uses within adjoining zones.	The modification will not change the type of development (land uses) approved on the site or result in a significant impact on adjacent land uses.
To preserve rural resources by ensuring that the viability of rural land is not extinguished by inappropriate development or incompatible uses.	The modification will not expand the footprint of the asphalt plant and associated infrastructure across the quarry site sterilising the hard rock resource. The modification will not have a negative impact on quarry operations. The noise, air quality and traffic impacts associated with the modification can be accommodated in the receiving environment and will comply with relevant industry criteria.
To enable a range of other uses to occur on rural land providing such uses do not conflict with existing or potential agriculture and do not detract from the scenic amenity and character of the rural environment.	The modification will not result in any increased demand on public services or facilities. The local road network can accommodate the increased heavy vehicle movements without having a significant impact on its overall level of service.

4.4.3 Lismore Development Control Plan 2012

Development control plans (DCPs) are documents that supplement the provision of LEPs with more detailed planning and design guidelines. The DCP supports the LEP and provides guidance for applicants to achieve the aims and objectives of the LEP in relation to development in the applicable zones.

To ensure that the proposed modification does not conflict with the objectives of the Lismore DCP, relevant provisions have been incorporated where appropriate and feasible, ensuring no conflicts.

4.5 Strategic planning policies

Strategic planning policies at the local, regional, and state levels guide land use and development in NSW. They promote sustainable practices, resource efficiency, and infrastructure resilience; objectives that align well with the proposed modification to the asphalt plant. By incorporating recycled materials such as RAP, glass, crumb rubber, and TonerPlas into asphalt production, the modification supports a circular economy, meets increasing local demand for sustainable materials, and ensures operations remain within the approved footprint. The subsections below outline relevant policies and how the modification contributes to them.

4.5.1 Lismore City Council Resource Recovery and Residual Waste Strategy (2022-2032)

LCC's Resource Recovery and Residual Waste Strategy (RRWS) 2022–2032 outlines a 10-year plan to move away from traditional waste disposal towards valuing materials and establishing Lismore as a recycling leader. It emphasises reducing landfill use, boosting recovery rates, and integrating sustainable practices into local operations.

The proposed modification directly advances the RRWS key themes:

- **Key Theme 1: Transitioning to a Circular Economy**
Accepting asphalt waste and other recyclables for reuse in sustainable asphalt products enables their incorporation into local council projects, closing the loop on materials and benefiting the community.
- **Key Theme 2: Maximising Resource Recovery**
Processing materials like RAP, glass, crumb rubber, and TonerPlas diverts them from landfill, supporting the strategy's targets for higher recovery in construction and demolition waste.
- **Key Theme 3: Determining Solutions for Residual Waste**
Streamlining onsite acceptance of surplus asphalt and recyclables reduces operational waste, aligns with disaster recovery needs (e.g. post-flood rebuilding), and minimises landfill reliance.

4.5.2 Lismore Strategic Road Review 2013

The Lismore Strategic Road Review 2013 (LSRR) evaluates urban and rural road needs throughout the Lismore region, forecasting infrastructure requirements to 2033. It predicts a 65% rise in daily vehicle trips (to 60,000) from 2013 levels, suggesting \$35 million worth of upgrades to new routes and existing corridors to manage growth in freight, tourism, and population.

The modification enables the LSRR by addressing the region's asphalt shortage. It increases local production of sustainable asphalt using recycled inputs, providing resilient materials for road upgrades without burdening external supply chains. This supports efficient freight movement, essential for agribusiness and recovery efforts, while the plant's traffic remains within approved limits, preventing impacts on the local road network.

4.5.3 North Coast Regional Plan 2041

The North Coast Regional Plan 2041 establishes a 20-year land use framework for 13 local government areas, including Lismore, to protect environmental assets and promote sustainable growth. It balances economic opportunities, social needs, and ecological health, with an emphasis on resilience after events like floods. The modification supports core objectives by improving resource recovery and infrastructure supply in a low-impact manner as outlined below.

- **Objective 6: Creating a circular economy**

This objective aims to shift production and consumption to minimise waste, reduce environmental harm, and create jobs through hubs for recycling and renewables. Key strategies include developing circular infrastructure and integrating waste plans for disaster recovery. The modification achieves this by establishing an onsite circular hub for processing RAP and other recyclables into asphalt, diverting waste from landfill, creating local jobs, and supporting regional self-reliance in sustainable materials.

- **Objective 10: Sustainably manage the productivity of our natural resources**
This objective safeguards resources such as soils, minerals, and aggregates from sterilisation by incompatible uses, ensuring sensitive activities reduce impacts on the environment, water, and communities. Key strategies include avoiding noise and dust interfaces and planning for accessible extractive sites. The modification allows this by operating within the already disturbed quarry footprint, avoiding new resource extraction/sterilisation of resources, and using recycled materials to prolong the lifespan of local aggregates without conflicting with agricultural or biodiversity interests.
- **Objective 15: Improve state and regional connectivity**
This objective improves north-south and east-west connections (e.g. Pacific and Bruxner Highways) for freight, passengers, and tourism, while protecting corridors from fragmentation and supporting multimodal options. Key strategies include place-based transport plans and safeguarding rail, air, and freight assets. The modification promotes this by providing sustainable asphalt for road upgrades, allowing for increased heavy vehicle movements without harming the network, and strengthening connectivity for Lismore's growth and cross-border links to Queensland.

4.5.4 Reimagine Lismore Community Strategic Plan 2025–2035

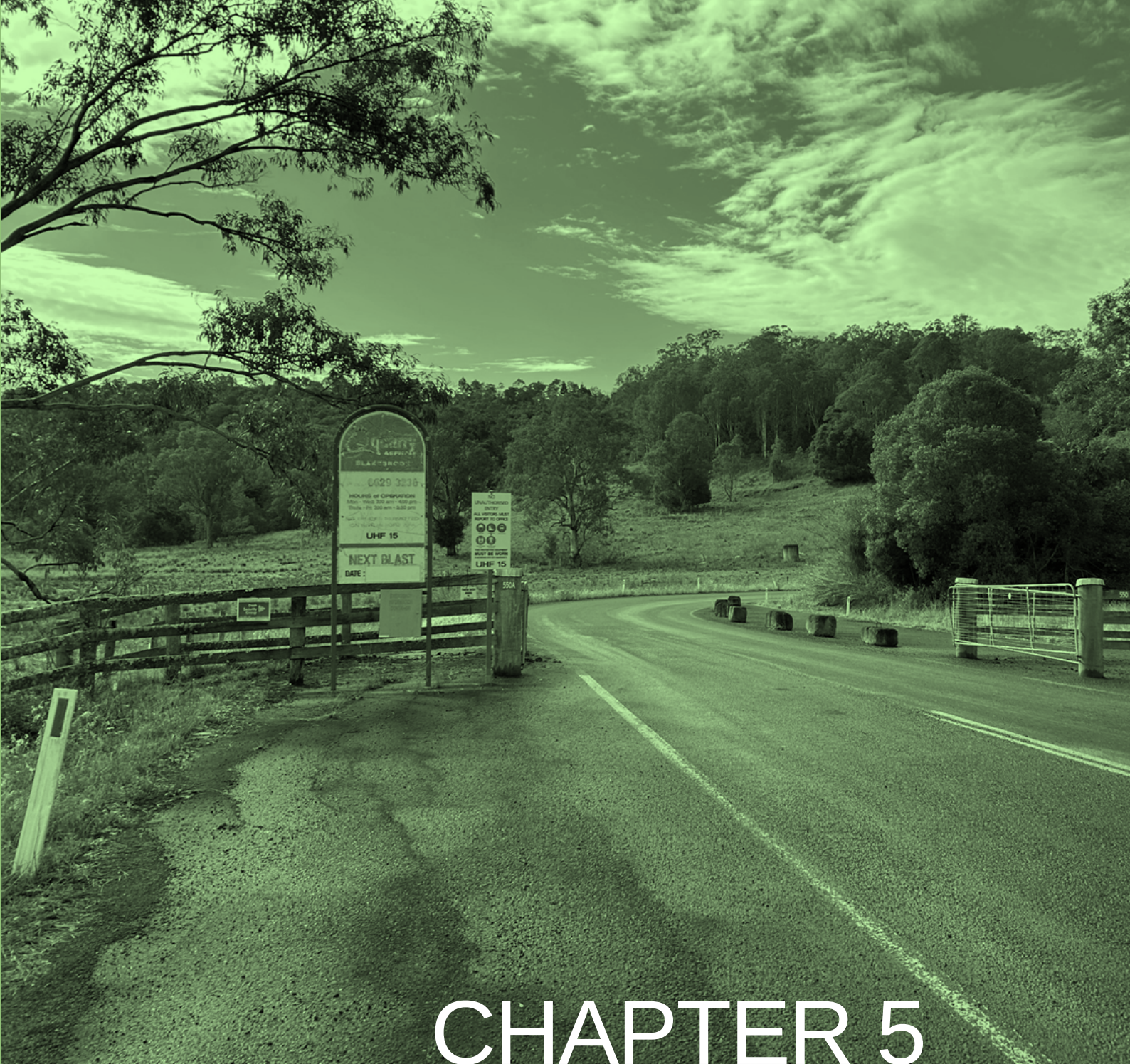
Adopted in 2025 following the 2022 floods, this plan guides Lismore's recovery and future to 2035, with themes of resilience, community wellbeing, economic vitality, and environmental sustainability. It prioritises circular economy actions, local job creation, and infrastructure using recycled materials to rebuild stronger and reduce import dependencies.

The modification allows this plan's goals by enabling resource recovery at the asphalt plant, supplying sustainable materials for flood-resilient roads and facilities, fostering local employment in processing, and aligning with waste minimisation targets for a greener Lismore.

4.5.5 NSW Waste and Sustainable Materials Strategy 2041

This state strategy (Stage 1: 2021–2027) transitions NSW to a circular economy by 2041, with 2030 milestones like reducing waste by 10% per person, achieving 80% recovery across streams, and tripling plastics recycling. It supports infrastructure for processing (e.g. MRFs, organics facilities) and targets construction/demolition waste through trials in modular design, recycled content procurement, and funds like the \$37 million Carbon Recycling and Abatement Fund.

The modification achieves these aims by increasing construction and demolition waste recovery (such as reclaimed asphalt pavement), establishing a processing hub that diverts materials from landfills, and encouraging government use of recycled aggregates. This directly supports the 80% recovery target and low-carbon infrastructure goals.



CHAPTER 5

ENGAGEMENT

5 ENGAGEMENT

5.1 Objectives and approach

Downer values active engagement with stakeholders and the community. Thorough and robust engagement is fundamental to minimising risk, optimising design, minimising social and environmental impacts, securing statutory approvals, and gaining and maintaining community acceptance.

Downer has formally consulted with DPHI, EPA, TfNSW, LCC and the local community during the preparation of the modification report.

The outcomes of this consultation are summarised in this chapter.

5.2 Consultation with Lismore City Council

As the consent holders, LCC has been actively involved in the modification process from its early stages. LCC's Compliance Coordinators participated in routine progress meetings, which delivered several key benefits, including:

- Providing LCC with the opportunity to raise concerns during the development and design of the modification;
- Building a cohesive understanding of both quarry and asphalt plant operations and impacts;
- Enabling LCC to incorporate administrative changes relevant to quarry operations;
- Drawing on agency experience at the quarry and within the existing approval framework;
- Engaging other LCC departments on potential future developments within the LGA;
- Contributing local knowledge of potential receivers and community-specific expertise during consultation;
- Demonstrating genuine support for the modification and proposed operations; and
- Reviewing the modification report as consent holders prior to submission.

On 4 July 2025, LCC as the landowner, granted consent to Downer EDI Works Pty Ltd's proposed modification to the development consent MP07_0020, under Clause 98(1)(b) of the Environmental Planning Assessment Regulation 2021. This landowner's consent has been attached in Appendix G.

5.3 Other government agency consultation

Other government agencies were consulted during the environmental assessment process to identify any requirements for consideration in the modification report.

Table 5.1 provides a summary of government agency consultation and outcomes.

Table 5.1 Summary of government agency consultation

Stakeholder	Consultation details	Comments/outcomes
DPHI	A scoping letter was submitted to DPHI on 11 June 2025, introducing the proposed modification and outlining the proposed approach to the impact assessment and consultation.	DPHI provided a response on 30 July 2025, accepting the modification application planning approval pathway and the proposed approach to the noise, air quality and traffic impact assessments. DPHI also requested that the modification report addresses potential impacts on surface water and appropriately describes the management of waste. DPHI was satisfied with the proposed

Stakeholder	Consultation details	Comments/outcomes
		approach to consultation outlined in the scoping letter.
EPA	The EPA was consulted via letter dated 29 August 2025 during the preparation of the modification report to identify any environmental protection requirements, including those related to air quality, odour, and waste management. Feedback was requested by 12 September 2025, with an invitation to discuss via email or online meeting. A phone call was held on 8 September 2025 to discuss the modification, followed by an email from Element the same day attaching the original scoping letter and DPHI's response for EPA's information.	No further response or additional requirements were received from the EPA by the date of this report (14 October 2025). The specialist assessments (noise, air quality and odour) confirm compliance with EPA criteria, and no changes were required to the modification to avoid, mitigate and/or manage any residual noise, air quality or odour impacts.
TfNSW	TfNSW was consulted via letter dated 29 August 2025 to inform them of the potential traffic and transport implications of the proposed increase in asphalt production and associated truck movements. The letter noted the modification would increase daily traffic by 27 trucks but remain within approved limits (e.g. below 25 outbound trucks per hour). Feedback was requested by 12 September 2025. Following the TIA, the actual increase daily was lower, 10 trucks and remained within the approved limits.	TfNSW responded on 2 September 2025 (via email), requesting that the modification application be supported by a Traffic Impact Assessment (TIA) prepared in accordance with the Austroads Guide to Traffic Management Part 12, the TfNSW Supplement, and the RTA Guide to Traffic Generating Developments. The TIA was prepared by SECA Solution, and comments from TfNSW were addressed in the final version, which is included in this report (refer to Appendix C). No other concerns were raised, and the assessment confirms the local road network can accommodate the changes without significant impacts.

5.4 Community consultation

All potentially affected residential properties near the site were notified of the proposed modification. LCC provided details of additional residents who had requested involvement in previous modifications, and these residents were included in the distribution list.

Downer distributed a notification letter on 18 August 2025, outlining the proposed modification, its rationale (including support for flood recovery and sustainability), associated environmental and social impacts, and opportunities for input. A community drop-in session was held at Goolmangar Hall on 3 September 2025 from 2 pm to 6 pm, giving interested participants the chance to ask questions and provide informal feedback. The session was attended by representatives from Downer (environmental manager and regional plant manager) and Element.

Four groups of local residents attended the drop-in session, representing neighbours from the general vicinity of the site (none in close proximity to the asphalt plant). Collateral displayed included the fact sheet and FAQ documents, engineering drawings of overall quarry operations, and a zoomed-in view of the asphalt plant area, along with comment forms for written feedback. Attendees were given the opportunity to discuss the proposed modification and complete forms.

Initial discussions focused on historical quarry operations rather than the proposed modification, which applies only to the asphalt plant. After clarification that no changes were proposed to quarry operations, attendees confirmed they had no concerns specific to the asphalt plant. In particular:

- Three groups (two couples from Pinchin Road and an individual from Keerrong Road) reported no experience of noise, odour or traffic impacts from current asphalt plant operations outside standard hours.
- No written comments were received from these groups, and they raised no further issues with the modification.

One formal comment was received via a completed feedback form, as summarised in Table 5.2.

Table 5.2 Summary of submitted feedback

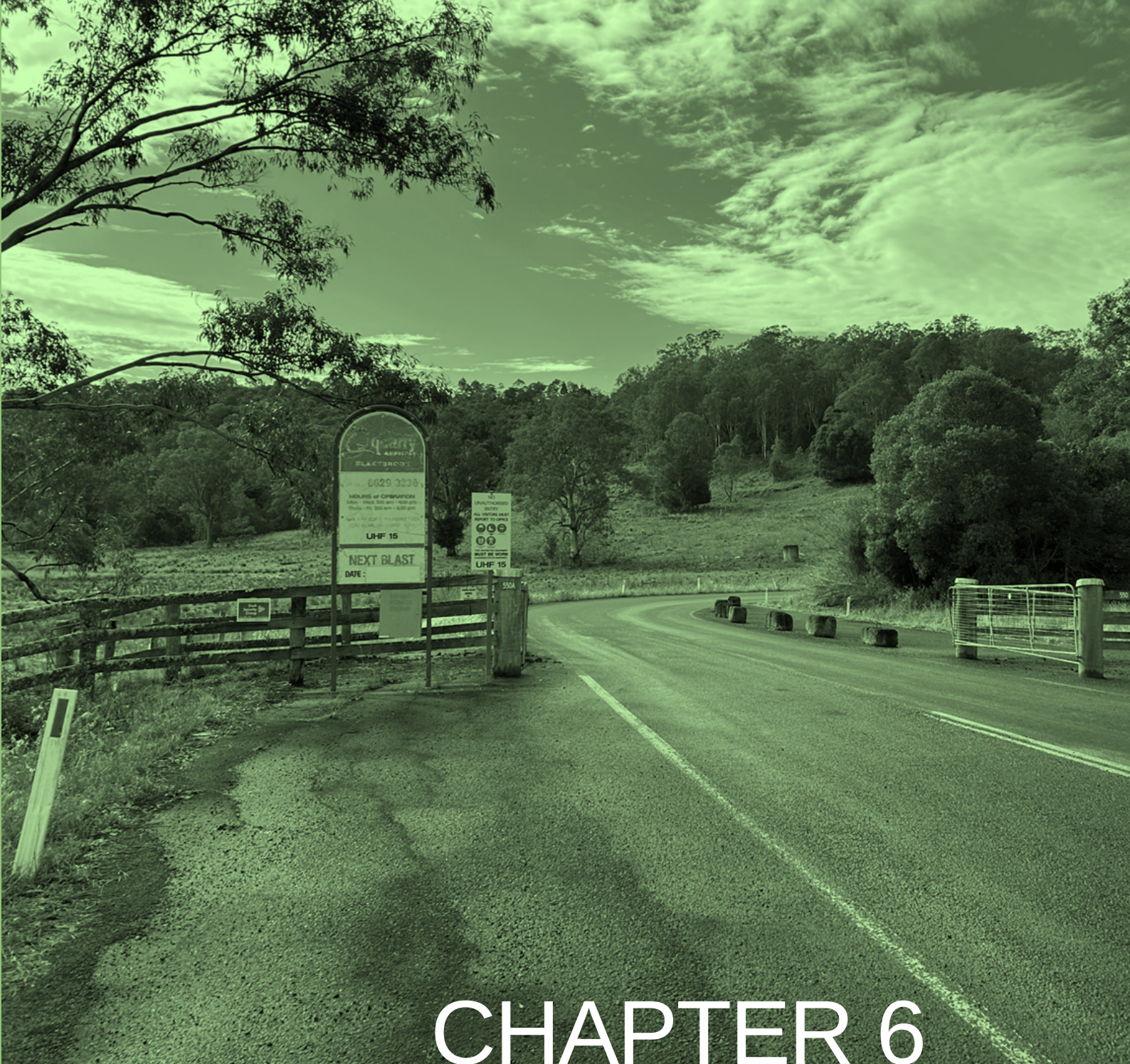
Stakeholder	Consultation details	Comments/outcomes
Resident of Keerrong/Blakebrook area. (Personal details withheld to respect privacy).	Feedback provided via form at the drop-in session on 3 September 2025.	Raised concerns about current noise levels from the quarry being very loud on some days, as the resident's property is directly in line with the site. Expressed worries about air quality (not wanting to breathe in dusty air) and chemicals, noting impacts on an organic farm producing fruit and vegetables for markets in and around the Northern Rivers. Requested to be notified when noise and air quality tests are completed, including the results of those tests. These concerns have been considered in reference to the relevant specialist assessments (noise, air quality and odour). It was explained to the resident that these assessments would be available during the modification's public exhibition. The assessments confirm compliance with NSW criteria and no significant additional impacts from the modification.
Resident within the distribution area	An email was received by the project team on 29 September 2025.	A resident living within the distribution area (address was not provided) requested minutes from the drop-in session. Since the drop-in session was not a formal meeting with minutes taken, no official minutes were available to give. Instead, the resident was provided with the information materials distributed during the session.

5.5 Continuation of stakeholder engagement

Downer is committed to ongoing engagement with stakeholders and the community throughout the assessment and implementation of the modification, if approved. This includes providing updates via the NSW Planning Portal during the public exhibition period and responding to any submissions received. Existing environmental management plans will be updated to reflect any new conditions, ensuring continued transparency and compliance. The resident who provided feedback will be notified directly of relevant assessment results, as requested.

The notification letter, fact sheet and FAQ document distributed to the community outlined the next steps in the modification process, including how to access the NSW Planning Portal (major projects site) to register for ongoing updates. Those that registered their interest in the community session will be notified when the modification goes on to public exhibition.

This modification will supersede the current Out of Hours protocol (set to expire in February 2026) and will be replaced with a new protocol to continue community engagement activities and provide clear guidance on how the community can stay informed and engaged.



CHAPTER 6

ENVIRONMENTAL ASSESSMENT

6 ENVIRONMENTAL ASSESSMENT

This chapter assesses the potential environmental impacts of the proposed modification, as required under section 4.55(2) of the EP&A Act. A risk-based approach has been used, concentrating on environmental factors likely to be affected, such as traffic, noise, air quality, surface water, waste, and hazards. Factors like biodiversity are not examined in detail, as the modification does not involve vegetation clearing or disturbance beyond the existing site footprint. Each section outlines potential impacts, assesses compliance with relevant statutory criteria, and suggests mitigation measures to minimise environmental effects. The assessment relies on technical studies, including traffic, noise, and air quality assessments, to provide a solid evidence base for the proposed changes, ensuring consistency with existing approvals and environmental management strategies.

6.1 Traffic and access

This section summarises the traffic impact assessment (TIA) report, which is provided in Appendix C. It assesses the potential impacts of the proposed modification on the road network and describes measures to minimise and manage these impacts.

6.1.1 Assessment approach

The objective of the TIA is to examine the impact of additional traffic generated by the proposed modification. Prepared by a suitably qualified traffic specialist, SECA Solutions, the TIA has been prepared in accordance with Austroads Guides to Traffic Management Part 12, the TfNSW Supplement and the RTA Guide to Traffic Generating Developments (superseded by the TfNSW Guide to Transport Impact Assessments). These guides outline key issues to address when assessing traffic impacts associated with a development.

The TIA is supported by data from the most recent traffic reports (September 2018, December 2019) prepared for consent and a site visit and traffic count conducted in May 2025.

6.1.2 Existing environment and road network

For a detailed description of the existing traffic and access environment, including the Quarry Access Road, Nimbin Road characteristics, road upgrades, truck movements, and traffic volumes, refer to Section 2.5.

6.1.3 Potential impacts

Traffic generation

The consent limits the dispatch of laden trucks from the site to not more than 150 per day across the combined quarry and asphalt operations. The site, however, is physically limited to 25 laden trucks outbound per hour by the operation of the on-site weighbridge. The consent does not prescribe a fixed allocation of the 150 laden trucks per day between quarry and asphalt options; this is to be managed operationally between LCC and Downer to ensure the combined limit is not exceeded.

The existing asphalt plant is approved for a production capacity of 50,000 tpa, with operations limited to an 11-hour day. This generates an estimated 4-5 laden truck movements per hour (9 truck movements in total, typically 4-5 inbound and 4-5 outbound), resulting in an average of approximately 50 laden truck movements per day when operating at capacity.

The proposed modification would increase the asphalt plant's production capacity to 100,000 tpa and extend operations to 24-hours a day, seven days a week. This would generate the heavy vehicle traffic demands detailed in Table 6.1.

Table 6.1 Daily truck movements associated with the asphalt plant

	External road movements	Internal quarry movements	Total
Import raw material	5	10	15
Import RAP material	5	-	5
Dispatch asphalt/product	50	-	50
TOTAL	60	10	70

The 10 internal truck movements per day involves transporting raw product from the quarry to the asphalt plant on internal haul roads and does not affect the external road network.

The proposed modification would therefore generate 60 external laden truck movements per day. This includes an allowance for the import of RAP material as well as raw materials (sand, crumb rubber, etc.) and not just the number of laden trucks. This represents an additional 10 laden trucks per day compared to the current consent.

Spreading these additional 10 laden trucks per day, across a 24-hour day, means the average hourly truck numbers would be lower under the proposed modification, despite the doubling of annual production capacity.

The site's weighbridge physically limits laden trucks to approximately 25 per hour, a constraint considered in the existing approval. The weighbridge would not be upgraded as part of this proposed modification, so the upper limit on hourly flows would remain the same as previously assessed and approved.

During the busiest hour of the day, the asphalt plant could generate up to 10 laden trucks (assumed 10 inbound unladen movements and 10 outbound laden movements). This would typically occur between 6am-7am and 6pm-7pm, under 24-hour operations. This represents 5 more laden trucks during the existing peak periods (one hour, twice per day). Combined with quarry demands, the site would still operate within the weighbridge constraint of 25 outbound laden trucks per hour.

The proposed modification, therefore, does not require a change to the current limit of 150 laden trucks dispatched per day.

In addition to the asphalt plant's operational demands, two service/maintenance trucks are used daily from Monday to Friday. Staff numbers are low, with a minimal increase (one) anticipated.

As detailed in Section 2.5, recent weighbridge data (January to June 2025) shows actual operations averaging 27 laden trucks per day against the 150 truck consent limit, indicating significant spare capacity to accommodate the proposed additional 10 laden trucks per day without exceeding approved limits or requiring infrastructure upgrades.

Traffic impacts on the road network

The proposed modification maintains the site's maximum daily dispatch limit of 150 laden trucks for the combined quarry and asphalt operations.

Extending asphalt operations to 24 hours would reduce average hourly demands compared to the current 11-hour schedule. The modification would have an acceptable impact on the road network's capacity, with peak-hour demands occurring between 6-7am and 6-7pm, earlier than the current morning peak. Traffic volumes on Nimbin Road during these peak periods align with the 2019 survey data, showing no significant growth along this corridor and reduced pressure on other roads. Overall, the traffic impact has the potential to be less than that assessed in 2019.

Peak hour impacts on intersections

In May 2025, SECA Solutions carried out updated traffic surveys at the intersection of Nimbin Road, Terania Street, and Wilson Street. These surveys showed that overall traffic flows have dropped, compared to the 2019 assessment. This is possibly due to the significant flood events that have occurred in Lismore since 2019.

During peak periods, up to 10 laden trucks could travel east of the site in each direction. This is a small increase of 2 trucks per hour compared with the 6 trucks per direction originally assessed. The shift to 24-hour operations would move these peak periods earlier (6-7am and 6-7pm),

resulting in less impact on the local road network. Outside peak periods, truck volumes may be lower than current levels due to the spread of activity over the day.

The operation of Nimbin Road and Wilson Street intersection was surveyed during the morning and afternoon peak periods, with the current demands similar to those recorded in 2019. The earlier SIDRA modelling therefore remains valid, backed by on-site observations showing the intersection functions with Levels of Service (LoS) A on each approach. This is the highest level of service with minimum delays (less than 15 seconds per vehicle) and queues. Adding 7-8 trucks per hour to turn right here (only two more than the existing operation) would have little effect and maintain LoS A.

The 2019 modelling is conservative, as traffic has fallen by 14-24% since then. Current peak volumes, like 350 vehicles per hour on Nimbin Road in the morning, are below what was modelled, ensuring no major issues with the extra 2 trucks per hour.

Other intersections along the haul routes also operate efficiently, with low delays and queues. The additional 2 truck movements per hour inbound and outbound are not expected to cause any material impact, particularly given the earlier peak distribution of traffic.

Road safety

Recent upgrades to the surrounding roads and intersections have ensured ongoing road safety. The proposed modification involves no changes to the current transport routes. With lower average hourly movements with only a minor increase in peak hours twice daily, the proposed modification would not introduce new safety concerns for site operations.

6.1.4 Mitigation and management measures

The TIA has considered the existing mitigation and management measures outlined in the Operational Traffic Management Plan (OTMP), specifically Section 7.2, which comply with current consent conditions under MP07_0020. These measures will be updated to accommodate the proposed 24/7 asphalt plant operations while maintaining established traffic protocols. The TIA confirms that no new mitigation or management measures are required, as the proposed modification does not introduce residual impacts or additional traffic impacts beyond those already approved under the consent.

All management plans, including the OTMP will be updated, as required in MP070020_Mod-3 Schedule 5, 4A.

6.1.5 Residual impacts

The TIA (Appendix C) demonstrates that the proposed modification will not exceed the current approved traffic impacts for the project. There will be no additional impact on road capacity, safety or intersection performance. There will be no additional impact on road capacity, safety, or intersection performance. Key points include:

- The 150 laden trucks per day dispatch limit remains unchanged;
- Hourly peaks are capped by the weighbridge at 25 trucks/hour;
- 24/7 operations lower average hourly demands compared to the current 11-hour days;
- Intersections maintain LoS A with minimal delays;
- Actual trucks per day figures indicate ample spare capacity.

6.2 Noise and vibration

The Noise Impact Assessment (NIA) in Appendix D, evaluates potential noise emissions from the proposed modification including increased plant activity, material processing, and traffic, as well as vibration impacts. The NIA confirms compliance with the Noise Policy for Industry (NPI), NSW Road Noise Policy (RNP), Environment Protection Licence (EPL #3384), and development consent (MP 07_0020, Mod 3).

6.2.1 Sensitive receivers

Sensitive receivers are defined in Section 2.4 (Table 2.1), comprising 17 locations (R1-R17). These include seven core receivers (R1–R7) from historical assessments and ten additional receivers (R8–R17) identified in the NIA, ensuring all potentially affected residential properties within approximately 1,250 m of the asphalt plant are considered.

6.2.2 Overview of assessment methods

The NIA used DGMR iNoise (Version 2024) software to model noise emissions at sensitive receivers, accounting for source sound levels, annoying noise characteristics (e.g. low frequency and tonality), and weather conditions (Appendix C, Section 5).

The assessment evaluates noise from increased asphalt production (100,000 tpa), extended hours (24/7), and new material processing during daytime (7 am–6 pm Monday–Saturday and 8 am–6 pm Sundays/public holidays), evening (6 pm–10 pm), and night (10 pm–7 am). The focus of the NIA is on evening and night periods as daytime operations remain consistent with existing approvals.

Vibration impacts were assessed as negligible due to the lack of significant new vibration sources (e.g. no additional blasting or heavy machinery beyond existing operations).

Road traffic noise was assessed against RNP criteria, with reference to the TIA in Appendix C.

6.2.3 Assessment criteria

Operational noise

Noise levels were compared to Project Noise Trigger Levels (PNTLs), derived from the NPI's intrusiveness (PINL) and amenity (PANL) criteria, taking the lower value. PNTLs apply at the most affected point on a receiver's property boundary. No adjustments for annoying characteristics (e.g. low frequency, tonality) were needed, as confirmed in Appendix C, Section 5.1.2.

Table 6.2 shows the PNTLs for rural residential receivers. Due to the rural setting, background noise monitoring was not conducted; a minimum rating background level (RBL) of 30 dB(A) was adopted for evening and night periods.

Table 6.2 Project noise trigger levels

Receiver	Assessment period ¹	PINL dB LAeq (15min)	PANL dB LAeq (15min)	PNTL dB LAeq (15min)
Residential Receivers (Rural)	Day	40	53	40
	Evening	35	48	35
	Night	35	43	35

¹ Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

The existing EPL #3384 and development consent set noise limits of 36 dB(A) $L_{Aeq(15min)}$ at receivers R2 and R7 and 35 dB(A) at other receivers, which the assessment aligns with.

Maximum noise levels

Short-duration but high-intensity activities (e.g. material loading) could disturb sleep at night, even if they do not significantly change $L_{Aeq(15min)}$ noise levels. The project operates 24 hours a day, and potential sleep disturbance from the highest noise events must be considered.

The NPI recommends that, when night-time noise levels at residential receivers exceed 52 dBA or the RBL plus 15 dBA, whichever is higher, a more detailed assessment of potential sleep disturbance impacts is needed.

Road traffic noise criteria

Increased traffic from higher production and new raw material deliveries was assessed against RNP criteria for Nimbin Road (refer Table 6.3). The criteria limit noise to 60 dB $L_{Aeq(15-hour)}$ for day and 55 dB $L_{Aeq(9-hour)}$ for night, with a maximum 2 dB increase above the 'no build' scenario.

Table 6.3 Road traffic noise criteria

Road category	Type of project/land use	Assessment criteria - dBA	
		Day (7 am – 10 pm)	Night (10 pm – 7 am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15-hour)}$ 60 dB	$L_{Aeq(9-hour)}$ 55 dB

The RNP states that the criteria for the relative increase to control the acceptable rise in road traffic noise from land use developments are:

For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.

Existing development consent and EPL

The Blakebrook Quarry and LAP currently operate under EPL #3384 and development consent MP 07_0020, which specify the following noise limits:

- Condition L4.1 of EPL #3384 states that noise from the premises must not exceed an $L_{Aeq(15min)}$ noise criterion of 36dB(A) at Location 2 and 7 and 35dB(A) at all other sensitive receivers, except expressly provided by the licence.
- The current approved hours of operation for the site, including the asphalt plant, are 7am to 6pm Monday to Friday and 7am to 3pm on Saturday. However, Condition L6.3 of EPL #3384 and Condition 2A of Schedule 3 of the development consent, specify that the licensee/proponent may carry out limited campaign asphalt plant operations (within the limits imposed in the EPL and development consent) outside of designated operating hours.

6.2.4 Potential impacts

The NIA modelled noise from the asphalt plant, including increased production and new material processing during the evening and night periods.

Predicted noise levels at receivers R1–R17 are shown in Table 6.4, with the highest level (35 dB $L_{Aeq(15min)}$) at R8 (nearest to the access road) during evening and night periods. Daytime levels remain compliant with PNTLs and EPL limits (e.g. 36 dB(A) at R2 and R7, 35 dB(A) elsewhere). Noise contours (Appendix C, Figures 3 and 4) indicate minimal noise impacts beyond the site boundary.

Table 6.5 shows maximum noise levels (L_{Amax}) for sleep disturbance events (truck pass by and impact noise), which are within the 40 dB $L_{Aeq(15min)}$ and 52 dB L_{Amax} thresholds.

Road traffic noise complies with RNP criteria, with levels of 45 dB $L_{Aeq(9hr)}$ at the nearest receiver (15 m offset from the road) against the 55 dB criterion, and no exceedances of the 2 dB increase limit.

Vibration impacts are negligible, as the proposed modification does not introduce new vibration sources.

Table 6.4 Predicted operational noise levels

Receiver	Predicted noise level ($L_{Aeq, 15min}$)		PNTL ($L_{Aeq, 15min}$)	Compliant
	Evening	Night		
R1	32	32	35	Yes
R2	32	32	35	Yes
R3	<30	<30	35	Yes
R4	<30	<30	35	Yes
R5	<30	<30	35	Yes
R6	<30	<30	35	Yes
R7	32	32	35	Yes
R8	35	35	35	Yes
R9	31	31	35	Yes
R10	<30	<30	35	Yes
R11	<30	<30	35	Yes
R12	<30	<30	35	Yes
R13	<30	<30	35	Yes
R14	<30	<30	35	Yes
R15	<30	<30	35	Yes
R16	<30	<30	35	Yes
R17	<30	<30	35	Yes

Table 6.5 Maximum noise levels (sleep disturbance, night/morning/evening shoulder)

Receiver	Predicted Noise Level		Maximum Trigger Levels		Compliant
	$L_{Aeq(15min)}$	L_{Amax} (truck pass by)	$L_{Aeq(15min)}$	L_{Amax} (truck pass by)	
R1	32	43	40	52	Yes
R2	32	35	40	52	Yes

Receiver	Predicted Noise Level		Maximum Trigger Levels		Compliant
	L _{Aeq} (15min)	L _{Amax} (truck pass by)	L _{Aeq} (15min)	L _{Amax} (truck pass by)	
R3	<30	<30	40	52	Yes
R4	<30	<30	40	52	Yes
R5	<30	<30	40	52	Yes
R6	<30	<30	40	52	Yes
R7	32	<30	40	52	Yes
R8	35	47	40	52	Yes
R9	31	35	40	52	Yes
R10	<30	<30	40	52	Yes
R11	<30	<30	40	52	Yes
R12	<30	<30	40	52	Yes
R13	<30	<30	40	52	Yes
R14	<30	<30	40	52	Yes
R15	<30	<30	40	52	Yes
R16	<30	<30	40	52	Yes
R17	<30	<30	40	52	Yes

6.2.5 Mitigation and management measures

The site operates in accordance with a NBMP, which includes noise control measures. The following measures from the NBMP (Section 6.3) will continue to be implemented for the modified operations, relevant to the asphalt plant:

- Ensure that all significant noise generating plant and equipment are procured, maintained and managed to reduce noise and that mitigation is applied where feasible, reasonable and necessary.
- Road traffic noise created by the haul trucks accessing the site is ameliorated by imposing a speed limit of 40 km/h in the site and compression braking is limited whilst on site.
- Avoid trucks congregating along internal haul roads.
- Instruct drivers to travel directly to site and avoid any extended periods of engine idling at or near residential areas.
- Ensure all machines used on the site are in good condition, with particular emphasis on exhaust silencers, covers on engines and transmissions and squeaking or rattling components. Excessively noisy machines will be repaired or removed from the site.
- All mechanical plant and equipment will be silenced by the best practical means using current technology. Mechanical plant, including noise-suppression devices, will be maintained to the manufacturer's specifications.
- All mechanical plant, equipment and vehicle movements are optimised in a forward direction to avoid triggering reversing motion alarms that are typically required when these items are used in reverse. Consideration for low frequency reversing alarms is to be prioritised.
- The location of activities, plant and equipment will optimise attenuation effects through measures such as topography, natural and purpose built barriers.
- Limiting contact of loader buckets with metal surfaces.
- Combine predictive meteorological forecasting and noise monitoring data to guide the daily planning of quarrying operations during noise-enhancing meteorological conditions.
- A site specific induction will be provided to all site personnel, drivers and contractors with an emphasis on understanding and managing noise impacts from the work activities being undertaken.

- Plant and equipment inspections will be undertaken through Operator Daily Prestart and serviced (to manufacturers specifications) via the maintenance program. If any validated noise complaints are received, operator attended noise measurements will be undertaken to measure and compare the site noise level contributions ($L_{Aeq(15-min)}$) to the criteria outlined in the conditions of consent.

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The NIA demonstrates with the implementation of all noise management measures, that the proposed modification will meet all relevant noise criteria. Therefore no additional noise management measures are proposed. However due to the proposed extended hours associated with asphalt plant operations, the NIA recommends updating the NBMP as follows:

- Defining the different operating hours for the Quarry and asphalt plant based on the development consent. The Quarry operating hours will remain between 7am and 6pm Monday to Friday, and 7am and 3pm Saturday, in an endeavour to undertake as much work as possible during standard work hours, unless work is approved in accordance with the approved OHWP. Asphalt operating hours are to be updated in the NBMP to reflect the development consent.
- Include provisions for investigating any community complaints related to the asphalt plant. Any concerns raised by community members will be reviewed, and steps will be taken to modify onsite processes to mitigate the identified noise sources, where practicable.
- Where consecutive noise complaints are received relating to the same noise source, and the noise source has been verified to be from the asphalt plant operations, attended noise monitoring will be undertaken as follows:
 - Attended noise measurements would be conducted to quantify noise emissions from the asphalt plant as well as the overall level of ambient noise.
 - When required, the operator shall quantify and characterise the energy equivalent (L_{Aeq}) intrusive noise level from the asphalt plant operations over a 15-minute measurement period.
 - The operator shall quantify and characterise the overall levels of ambient noise over the 15-minute measurement interval.
 - It is recommended that instrumentation used during the monitoring is to be equivalent to a Type 1 meter with 1/3 octave band analysis and have audio recording functionality for post processing source identification. It is noted that 1/3 octave band analysis is required to establish whether modification factors in accordance with the NPI are to be applied.
 - All acoustic instrumentation used as part of the attended monitoring program must be designed to comply with the requirements of AS IEC 61672.1-2019, Electroacoustics - Sound level meters - Specifications and shall have current calibration certificates.
 - All instrumentation shall be programmed to record statistical noise level indices in 15-minute intervals including L_{Amax} , L_{Amin} and L_{Aeq} .
 - Instrument calibration shall be checked before and after each measurement survey, with the variation in calibrated levels not exceeding ± 0.5 dBA.
 - The measurement position(s) should be selected considering:
 - weather conditions such as rain and wind;
 - insect noise;
 - the location and direction of any noise source/s;
 - the most sensitive position at the affected receiver; and
 - the need to avoid reflecting surfaces (where possible).

All management plans, including the NBMP will be updated as required in Condition 4A of Schedule 5 of MP070020.

6.2.6 Residual impacts

Noise generated during operation of the proposed modification will satisfy the relevant operational PNTLs at all assessed residential receivers. Residual noise impact is the exceedance of the PNTL after all feasible and reasonable mitigation measures have been considered. The proposed modification is not likely to generate residual noise impacts at any receivers and therefore receiver-based noise treatments or controls are not required.

6.3 Air quality and greenhouse gas

The Air Quality Impact Assessment (AQIA) in Appendix E evaluates potential emissions from dust, particulate matter, gases, and odour. The AQIA confirms compliance with NSW EPA criteria and the site's EPL #3384. Greenhouse gas emissions are managed under the existing Environmental Management Strategy and are not expected to significantly increase beyond current levels due to the proposed modification's focus on operational efficiency.

6.3.1 Sensitive receivers

Sensitive receivers for the air quality assessment are defined in Section 2.4 (Table 2.1). The assessment focuses on residential receivers (R1–R17).

6.3.2 Overview of assessment methods

The objective of the AQIA was to identify and assess the potential for adverse operational air quality impacts from the proposed modification. The proposed modification has the potential to emit the following atmospheric pollutants:

- Dust emissions including:
- PM₂₀, which is a subset of TSP and have a diameter of 20 µm or less.
- Carbon Monoxide (CO)
- Nitrogen Oxides (e.g. NO₂)
- Sulphur Dioxide (SO₂)
- Arsenic
- Beryllium
- Cadmium
- Chromium (VI)
- Copper
- Lead
- Manganese
- Mercury
- Nickel
- Zinc
- Acetone
- Acetaldehyde
- Benzene
- Formaldehyde
- Toluene
- Xylene
- Polycyclic Aromatic Hydrocarbons (PAH)

Dispersion of these air pollutants was modelled using the CALPUFF modelling software, which combines estimated emission rates, neighbouring sources, proposed emission control measures, and local meteorology to predict incremental and cumulative impacts. The model also calculates odour dilution in odour units (OU). Meteorological data from Casino Airport West South (AWS) for 2021 was selected as the representative year, based on analysis of trends from 2020 to 2024 (Appendix A of the AQIA).

6.3.3 Assessment criteria

Air quality criteria are benchmarks set to protect the general health and amenity of the community. The relevant goals from the NSW EPA's Approved Methods for the Modelling and Assessment of

Air Pollutants in New South Wales (2022) are shown in Table 6.6. These apply to total pollutant levels, including background contributions.

Table 6.6 NSW EPA air quality impact assessment criteria

Pollutant	Averaging Period	Criterion
TSP	Annual	90 µg/m ³
PM ₁₀	Annual	25 µg/m ³
	24 hour	50 µg/m ³
PM _{2.5}	Annual	8 µg/m ³
	24 hour	25 µg/m ³
Deposited dust	Annual	2 g/m ² /month
		4 g/m ² /month
SO ₂	1 hour	215 µg/m ³
	24 hour	57 µg/m ³
NO ₂	1 hour	164 µg/m ³
	Annual	31 µg/m ³
CO	15 minute	100,000 µg/m ³
	1 hour	30,000 µg/m ³
	8 hour	10,000 µg/m ³
Arsenic	1 hour	0.09 µg/m ³
Beryllium	1 hour	0.004 µg/m ³
Cadmium	1 hour	0.018 µg/m ³
Chromium (VI)	1 hour	0.09 µg/m ³
Copper	1 hour	3.7 µg/m ³
Lead	Annual	0.5 µg/m ³
Manganese	1 hour	18 µg/m ³
Mercury	1 hour	0.18 µg/m ³
Nickel	1 hour	0.18 µg/m ³
Zinc	1 hour	90 µg/m ³
Acetone	1 hour	22,000 µg/m ³
Acetaldehyde	1 hour	42 µg/m ³
Benzene	1 hour	29 µg/m ³
Formaldehyde	1 hour	20 µg/m ³
Toluene	1 hour	360 µg/m ³
Xylene	1 hour	190 µg/m ³
PAH (total)	1 hour	0.4 µg/m ³

Source: NSW EPA, 2022

µg/m³ = micrograms per cubic metre

g/m²/month = grams per square metre per month

Odour

Odour concentrations are used and are defined in OU, representing the dilution needed to make the odour just detectable. Odours below 1 OU are typically undetectable. The NSW EPA criteria for complex odorous mixtures (99th percentile, nose-response-time average) range from 2 OU in urban areas to 7 OU in rural settings (Table 6.7). A 7 OU criterion applies here due to the rural location.

Table 6.7 Impact assessment criteria for complex mixtures of odorous pollutants

Population of affected community	Impact assessment criteria for complex mixtures of odorous air pollutants (OU)
Urban ($\geq \sim 2000$) and/or schools and hospitals	2.0
~ 500	3.0
~ 125	4.0
~ 30	5.0
~ 10	6.0
Single rural residence ($\leq \sim 2$)	7.0

Peak-to-mean ratios (Table 3-3 in the AQIA) were applied to convert point-source odour emission rates to 99th percentile ground-level concentrations.

6.3.4 Summary of background air quality

No site-specific ambient air quality data are available, so results from the nearest NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) monitoring stations were used: Coffs Harbour (170 km south) for NO_2 and CO; Port Macquarie (300 km south) for SO_2 ; and Armidale (247 km southwest) for PM_{10} and $\text{PM}_{2.5}$. Since these monitoring stations are in more urban areas with higher anthropogenic sources, their data are considered a conservative representation of conditions at the site. Annual TSP and deposited dust were estimated from measured PM_{10} concentrations using the following NSW EPA relationship:

- 25 $\mu\text{g}/\text{m}^3$ PM_{10} which corresponds to:
 - 90 $\mu\text{g}/\text{m}^3$ TSP; and
 - 4 $\text{g}/\text{m}^2/\text{month}$ deposited dust.

Based on the measured annual average PM_{10} concentration of 10.4 $\mu\text{g}/\text{m}^3$, the estimated annual averages are 37.6 $\mu\text{g}/\text{m}^3$ TSP and 1.7 $\text{g}/\text{m}^2/\text{month}$ deposited dust.

The estimated background air quality levels used in the dispersion modelling are detailed in Table 6.8.

Table 6.8 Estimated ambient air quality

Pollutant	Background level	Units
Annual average TSP	37.6	$\mu\text{g}/\text{m}^3$
24-hour average PM_{10}	Daily varying	$\mu\text{g}/\text{m}^3$
Annual average PM_{10}	10.0	$\mu\text{g}/\text{m}^3$
24-hour average $\text{PM}_{2.5}$	Daily varying	$\mu\text{g}/\text{m}^3$
Annual average $\text{PM}_{2.5}$	7.2	$\mu\text{g}/\text{m}^3$
Annual average deposited dust	1.7	$\text{g}/\text{m}^2/\text{month}$
1-hour average NO_2	100.5	$\mu\text{g}/\text{m}^3$
Annual average NO_2	6.2	$\mu\text{g}/\text{m}^3$
1-hour average SO_2	8.6	$\mu\text{g}/\text{m}^3$
24-hour average SO_2	2.9	$\mu\text{g}/\text{m}^3$
8-hour average CO	875.0	$\mu\text{g}/\text{m}^3$

6.3.5 Potential impacts

Particulate matter concentrations

The results of the dispersion modelling for particulate matter are presented in Table 6.9 (incremental impacts) and Table 6.10 (cumulative impacts).

Table 6.9 24-hour and annual average particulate dispersion results – incremental

Receptor ID	PM _{2.5} (µg/m³)		PM ₁₀ (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
R1	1.7	0.2	7.3	0.6	2.1	0.1
R2	1.2	0.1	4.0	0.2	0.7	<0.1
R3	0.5	<0.1	1.0	0.1	0.1	<0.0
R4	0.8	0.1	3.6	0.3	0.7	0.1
R5	0.9	<0.1	5.6	0.1	0.3	<0.1
R6	0.4	0.2	2.0	0.2	0.5	<0.1
R7	1.7	0.2	10.5	0.6	1.4	0.1
R8	2.4	0.2	9.7	0.6	2.2	0.1
R9	0.7	<0.1	2.9	0.1	0.4	<0.1
R10	0.9	0.1	3.1	0.2	0.5	<0.1
R11	0.7	<0.1	2.5	0.1	0.3	<0.1
R12	0.7	<0.1	2.5	0.1	0.36	<0.1
R13	0.9	0.1	5.9	0.2	0.3	<0.1
R14	0.4	<0.1	1.7	0.1	0.2	<0.1
R15	0.4	<0.1	1.8	0.1	0.2	<0.1
R16	0.5	<0.1	1.8	0.1	0.2	<0.1
R17	0.5	<0.1	1.8	0.1	0.3	<0.1

Table 6.10 24-hour and annual average particulate dispersion results – cumulative

Receptor ID	PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)	TSP (µg/m ³)	Deposited Dust(g/m ² /mth)
	Cumulative			
	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria			
	8	25	90	4
R1	4.1	10.6	38.1	1.7
R2	4.0	10.2	36.7	1.6
R3	3.9	10.1	36.1	1.6
R4	4.0	10.3	36.7	1.7
R5	3.9	10.1	36.3	1.6
R6	4.0	10.2	36.5	1.6
R7	4.1	10.6	37.4	1.7
R8	4.1	10.6	38.2	1.7

Receptor ID	PM _{2.5} (µg/m³)	PM ₁₀ (µg/m³)	TSP (µg/m³)	Deposited Dust(g/m²/mth)
	Cumulative			
	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria			
	8	25	90	4
R9	3.9	10.1	36.4	1.6
R10	4.0	10.2	36.5	1.6
R11	3.9	10.1	36.3	1.6
R12	3.9	10.1	36.3	1.6
R13	4.0	10.2	36.6	1.6
R14	3.9	10.1	36.2	1.6
R15	3.9	10.1	36.2	1.6
R16	0.5	10.1	36.2	1.6
R17	0.5	10.1	36.3	1.6

A Level 2 contemporaneous assessment (NSW EPA, 2022) was conducted for 24-hour PM_{2.5} and PM₁₀, as initial modelling showed potential exceedances due to high background levels. This matched one year of monitoring data with modelled increments using the same day's weather, confirming the proposed modification does not increase the number of days above the 24-hour criteria (refer to Appendix D of the AQIA for details).

Overall, the dispersion modelling confirms that the proposed modification would not increase incremental or cumulative particulate matter concentrations above the NSW EPA criteria, ensuring no adverse air quality impacts from dust.

Other pollutants

Gaseous and metal emissions from the asphalt plant stack due to fuel combustion and bitumen heating were estimated using US EPA AP-42 factors (Table 5-2 in the AQIA). Predicted maximum 1-hour concentrations of all assessed pollutants at the worst-affected receptor (R7) or boundary are well below the criteria, as shown in Table 6.11.

Table 6.11 Predicted maximum impact at the worst-affected receptor (µg/m³)

Pollutant	Averaging Period	Incremental Impact	Location	Background	Total Impact	Criterion
NO ₂	1-hour	7.9	R7	100.5	107.4	164
	Annual	0.1	R7	6.2	6.3	31
SO ₂	1-hour	0.2	R7	8.6	8.8	215
	24-hour	0.03	R7	2.9	2.9	57
CO	15-minute	50.7	R7	-	50.7	100,000
	1-hour	38.4	R7	-	38.4	30,000
	8-hour	0.3	R7	875	875.3	10,000
Arsenic	1-hour	7.2E-05	Boundary	-	7.2E-05	0.09
Beryllium	1-hour	1.4E-05	Boundary	-	1.4E-05	0.004
Cadmium	1-hour	2.9E-05	Boundary	-	2.9E-05	0.018
Chromium (VI)	1-hour	7.9E-04	Boundary	-	7.9E-04	0.09
Copper	1-hour	4.1E-04	Boundary	-	4.1E-04	3.7
Lead	Annual	2.1E-06	R7	-	2.1E-06	0.5
Manganese	1-hour	7.2E-04	Boundary	-	7.2E-04	18

Pollutant	Averaging Period	Incremental Impact	Location	Background	Total Impact	Criterion
Mercury	1-hour	4.8E-07	Boundary	-	4.8E-07	0.18
Nickel	1-hour	9.8E-04	Boundary	-	9.8E-04	0.18
Zinc	1-hour	2.8E-03	Boundary	-	2.8E-03	90
Acetone	1-hour	0.42	Boundary	-	0.42	22,000
Acetaldehyde	1-hour	0.04	Boundary	-	0.04	42
Benzene	1-hour	0.08	Boundary	-	0.08	29
Formaldehyde	1-hour	0.24	Boundary	-	0.24	20
Toluene	1-hour	1.3E-02	Boundary	-	1.3E-02	360
Xylene	1-hour	0.03	Boundary	-	0.03	190
PAH (total)	1-hour	9.8E-03	Boundary	-	9.8E-03	0.4

Odour

The main sources of odour emissions from the proposed modification include:

- Loading asphalt to the truck
- Truck waiting to be tarped
- Plant stack exhaust

Odour emissions were estimated at 6,297 ou.m³/s from loading asphalt into trucks, 1,080 ou.m³/s from trucks waiting to be tarped, and 3,056 ou.m³/s from the asphalt plant stack (Table 5-4 in the AQIA). The predicted 99th percentile incremental odour ground-level concentrations are below 1 OU at all sensitive receivers as shown in Table 6.12, indicating that the proposed modification will have a negligible odour impact.

Table 6.12 Predicted cumulative odour impact

Receiver	Predicted odour concentration (OU)	
	Proposed modification	Criteria
R1	<1	7
R2	<1	7
R3	<1	7
R4	<1	7
R5	<1	7
R6	<1	7
R7	<1	7
R8	<1	7
R9	<1	7
R10	<1	7
R11	<1	7
R12	<1	7
R13	<1	7
R14	<1	7
R15	<1	7
R16	<1	7
R17	<1	7

6.3.6 Mitigation and management measures

The site operates in accordance with an AQMP, which includes provision for air quality control. Section 7.2 of the AQMP provides the following measures, which will continue to be implemented for the modified operations, relevant to the asphalt plant:

- Traffic on site to adhere to 40 km/hr speed limit.
- All unsealed roads on the site will be watered at a rate of 2 L/m²/minute, as required
- All unsealed roads will be kept clean from build-up of silt content.
- Water sprays will be used on all mobile crushing and screening equipment to minimise airborne particulate matter.
- Operator competencies to be undertaken as per VoC Procedure.
- Stockpiles to be kept damp to reduce dust emissions.
- Water sprays will be used on all mobile crushing and screening equipment to minimise airborne particulate matter.
- Maintain the dry baghouse system to capture and reuse particulates from Asphalt operations.
- Blending of materials using the Pugmill and incorporating additives (e.g. slag lime) will follow procedures as set out in the Job Safety Analysis Pugmill Operations. Procedures are maintained within LCC's electronic records management system (TRIM)).
- Additive material will be adequately stored to prevent uncontrolled suspension and release.
- Slag lime is stored in an isolated vertical silo. The material is automatically fed into the pugmill during blending activities.
- The water cart will be used for material stockpiling activities to minimise potential dust emissions.
- All road trucks must have tarpaulin covers in place prior to leaving the Quarry weighbridge in accordance with the Driver Induction procedure which is maintained within TRIM.
- Ensure engines used on-site are fuel efficient rated.
- Maintain engines as per manufacturer's recommendations, including use of recommended fuels.
- Ensure engine idling of all machinery on site is minimised as per Driver Induction procedure
- Conduct asphalt plant exhaust stack testing.
- Asphalt plant burner temperature is regulated to reduce emissions.
- Dust deposition gauges are erected at sensitive receivers for monthly monitoring against criteria.
- Visual inspection of the site will be recorded on the Daily Toolbox form and Site Daily and Weekly Checklist.
- Weather conditions will be noted on Site Daily and Weekly Checklist for monitoring of wind speed.

All management plans, including the AQMP will be updated as required in Condition 4A of Schedule 5 of MP070020.

6.3.7 Residual impacts

The AQIA predicts that all assessed air pollutants and odours from the modified operations will comply with relevant NSW EPA criteria at all assessed sensitive receivers. Therefore, the proposed modification can operate without causing significant air quality impacts in the surrounding environment.

6.4 Surface water

The assessment evaluates how the proposed modification could affect surface water flows, quality, and runoff, building on the existing SWMP and historical assessments. It confirms that existing controls are generally sufficient but recommends minor enhancements to ensure minimal environmental impact and consistency with the approved development (MP 07_0020) and EPL #3384.

6.4.1 Existing environment

The existing surface water environment is described in Section 2.9.1. The site is situated on the upper western slopes of Booerie Creek catchment, a tributary of the Wilsons River, with natural drainage flowing northeast. An ephemeral gully to the north of the quarry is likely spring-fed and contributes to Booerie Creek. No downstream water abstraction is known. The quarry operates in a region with an average annual rainfall of about 1,200 mm, with more intense events (up to 50 mm/hour) increasing runoff risk. Surface water is managed through specific catchments: the North Pit (largest - supplying most onsite water), Southern Pit (focused on treatment and discharge), and south-western catchments (SW1 and SW2, discharging to licensed point LPD1). The SWMP includes a water balance assessment showing that existing storages can manage a 1-in-10-year storm event without overflowing.

6.4.2 Assessment approach

The surface water assessment for the proposed modification was carried out using a qualitative, risk-based approach, aligned with the requirements of section 4.55(2) of the EP&A Act and the site's approved SWMP (Version 9, January 2025). This approach is suitable since the proposed modification does not change the site's drainage catchments, impervious areas, or extraction footprint; factors that would otherwise require quantitative hydrologic or hydraulic modelling (e.g. through HEC-RAS or similar tools for peak flow or flood routing analysis). Instead, the assessment relies on established qualitative principles from the Managing Urban Stormwater: Soils and Construction (Blue Book) guidelines (Landcom, 2004), focusing on source control, pathway interception, and receptor protection to assess potential variations in runoff volume, quality, and downstream impacts.

6.4.3 Summary of baseline surface water conditions

The SWMP's surface water and water balance were examined, which detail site hydrology, ephemeral flow paths to Terania Creek (west) and Blakebrook Creek (east), and the design of erosion/sediment controls. These incorporate a conceptual water balance that accounts for:

- rainfall inputs (average annual ~1,500 mm in Lismore LGA);
- evapotranspiration losses (~1,000 mm/year); and
- storage in sediment basins sized for the 90th percentile 5-day rainfall event (~60.2 mm).

Recent surface water monitoring data (quarterly samples from 2023–2025 at upstream SW2 and downstream SW1/SW3 sites) were analysed for trends in key parameters: pH, total suspended solids (TSS), turbidity (as proxy for TSS), electrical conductivity (EC), and nutrients (nitrate, ammonia, phosphate). Data were compared against site-specific trigger criteria (SWMP Table 9.1.2) and EPL #3384 limits.

The proposed modification doesn't change the southwestern catchment #2 area, runoff volume or peak rates in the SWMP's water balance drawings (Appendix 1 of SWMP).

Potential pollutant sources from increased production were identified and evaluated against existing controls using a source-pathway-receptor framework. Risks were rated conservatively (assuming worst-case exposure) based on SWMP commitments and literature on runoff from recycled material.

6.4.4 Potential impacts

The proposed modification could marginally influence surface water through increased operational intensity, but impacts remain confined on-site due to existing hydrology (ephemeral gullies with no permanent streams intersected).

Runoff quantity and erosion

Increasing asphalt production to 100,000 tonnes per annum would involve more truck movements on site to handle incoming materials and outgoing product. This could generate slightly more dust and loose material on haul roads during dry conditions, potentially contributing a small amount of sediment to stormwater if rain follows soon after. However, operating 24 hours a day would distribute the traffic more evenly, reducing concentrated wear on roads. A review of the site's water balance confirms no material change to overall runoff volume or peak rates, as the extent of sealed or disturbed areas remains unchanged. Any additional erosion would be confined to existing roads and represent less than 1% of the site's annual sediment yield, approximately 0.06 tonnes per hectare from traffic, compared to the quarry's baseline of around 5 tonnes per hectare from broader operations.

Water quality

Managing larger amounts of materials, including stockpiles of up to 10,000 tonnes per year of RAP and glass sand, could cause minor fine particles to enter stormwater during rain. Monitoring data for the site (which covers both quarry and asphalt sources) shows occasional peaks in total suspended solids after rain, but these peaks have cleared quickly and been effectively managed. Past exceedances, such as those self-reported in 2024, were addressed swiftly (for example, through basin maintenance), with no ongoing issues linked to asphalt production.

Chemical contaminants from recycled materials

The RAP and recovered glass will be stored in stockpiles, while the TonerPlas will be stored in bags within a container. While rain could theoretically mobilise trace amounts of substances like polycyclic aromatic hydrocarbons from asphalt (less than 0.2% of the binder content) or zinc from rubber, storage times of these recycled materials on site will be short to support just-in-time production, limiting exposure. Any such traces would be heavily diluted in the quarry's water balance and further attenuated through settling and natural processes in the basins. The plastic additive (TonerPlas) and glass sand present minimal solubility risks. Regular on-site testing before discharge, combined with quarterly downstream monitoring, ensures compliance with site-specific water quality trigger criteria (SWMP Table 3.5.4.1). Overall, these controls mean no discernible impact on water quality is anticipated.

No cumulative or off-site flooding risks are predicted, as discharges are controlled (LDP1 spillway) and creeks are ephemeral.

6.4.5 Mitigation and management measures

The site operates under the approved SWMP (Version 9, January 2025), which includes commitments specifically addressing surface water impacts. These will continue to apply to the

modified asphalt plant operations, ensuring effective control of any minor additional risks from increased production. Key measures include:

- Commitment 1: LCC will implement the approved SWMP as amended from time to time by the Secretary, providing an overarching framework for all site activities, including asphalt handling.
- Commitment 2: LCC will fulfil all commitments in the SWMP and conduct operations in line with relevant statutory requirements and approved amendments, including EPL #3384 limits for discharges.
- Commitment 3: LCC will ensure all employees, contractors, and subcontractors are aware of and comply with Development Consent MP07_0020 conditions relevant to their work, such as spill prevention during material deliveries.
- Commitment 6: Site management will promptly authorise and install appropriate erosion and sediment controls to minimise movement of material off-site during storms, including inspections of haul roads after truck movements.
- Commitment 7: Clean water from undisturbed upslope areas will be diverted around the pits and asphalt plant to natural discharge points, preventing mixing with operational runoff.
- Commitment 8: Dirty water from the asphalt plant and quarry will be managed for sediment settling, on-site reuse (e.g. dust suppression), and discharge only when compliant with EPL #3384 to receiving waters via Licensed Discharge Point 1 (LDP1).
- Commitment 9: Site operations will comply with section 120 of the *POEO Act* at all times, prohibiting pollution of waters through measures like bunded stockpile bays.
- Commitment 10: The Quarry Manager will monitor and maintain sediment basins to ensure off-site discharges meet EPL #3384 and SWMP requirements, including pre-release testing for pH, TSS, and oil/grease.
- Commitment 11: The Quarry Manager will approve discharges and additional controls (e.g. silt fences near new material bays) to maintain compliance with EPL #3384 and the SWMP.
- Commitment 12: Management will ensure downstream surface water quality is not degraded by site activities, supported by the Trigger Action Response Plan for rapid issue resolution.

6.4.6 Residual impacts

It is predicted that the modified operations would be sufficiently managed by the onsite controls at the asphalt plant. Monitoring and auditing, as detailed in the current SWMP, will ensure current controls are sufficiently managing marginal risk increases.

The SWMP should be updated to consider microplastics and hydrocarbons associated with RAP. Overall, the assessment in this section demonstrate that the proposed modification can operate without causing any significant surface water quality impact in the surrounding environment.

6.5 Waste

The proposed modification would enable the asphalt plant to receive and process additional recycled materials, including up to 15,000 tonnes per annum (tpa) of RAP, 10,000 tpa of recovered glass sand, 1,500 tpa of crumb rubber, and 350 tpa of TonerPlas (a recycled plastic additive). These would be used as aggregates in asphalt mixes, supporting sustainable road construction and aligning with the *Waste Avoidance and Resource Recovery Act 2001* and the National Waste Policy Action Plan 2024. This section outlines the site's existing waste practices, the proposed additional waste streams, and the assessment of potential impacts, confirming they can be managed without significant environmental effects.

DPHI noted in their response to the scoping letter submitted in June 2025 that specific attention should be given to waste, including alignment with the POEO Act for material receipt, storage, and processing. This assessment addresses that feedback, drawing on the site's EMS (Version 4.3, January 2024) and relevant EPA instruments.

6.5.1 Existing waste management

Waste at Blakebrook Quarry, including the asphalt plant, is managed under the EMS and EPL #3384. Current waste streams include:

- General office waste (e.g. paper and food scraps), separated into recyclables and general waste by staff and collected weekly by LCC waste service.
- Surplus asphalt from plant start-up/shut-down, which is reprocessed on-site for reuse.
- Used chemical drums/containers, stored securely in the Dangerous Goods Package Store before transport to the Wyrallah Road Waste Management Facility.
- Wastewater from amenities and sewage, collected in septic tanks and pumped out six-monthly by licensed contractors for disposal at the LCC Wastewater Treatment Plant.
- Runoff from truck washdowns and refuelling, captured in a Gross Pollutant Trap, inspected regularly, and pumped out as needed for licensed disposal.
- Recovered glass sand from the Lismore Recycling and Recovery Centre, authorised under EPL #3384 (Clause L3.1).

6.5.2 Proposed waste streams

The proposed modification would enable the asphalt plant to receive and process additional recycled materials as aggregate inputs, aligning with Downer's Reconophalt™, a high-recycled-content asphalt mix that diverts waste from landfill while meeting TfNSW specifications. These materials are authorised under the EPA's Downer Bituminous Pavement Order and Exemption (May 2024) and would be sourced from licensed suppliers (e.g. Lismore Recycling and Recovery Centre for glass sand, and certified processors for RAP, crumb rubber, and TonerPlas). Incoming loads would be weighed and visually inspected at the site's shared quarry/asphalt weighbridge to confirm compliance (e.g. no contaminants). Processed materials would be incorporated directly into asphalt, with no off-site disposal.

The proposed waste streams are summarised in Table 6.13. Annual limits ensure controlled volumes, and storage is capped "at any one time" to prevent accumulation.

Table 6.13 Proposed material streams

Material	Annual Processing Limit	Maximum Storage (at any one time)
Reclaimed Asphalt Pavement (RAP)	Up to 15,000 tpa	Up to 10,000 tonnes (unprocessed and processed combined)
Recovered Glass Sand	Up to 10,000 tpa	Up to 2,500 tonnes

Material	Annual Processing Limit	Maximum Storage (at any one time)
Crumb Rubber	Up to 1,500 tpa	Up to 45 tonnes
TonerPlas (recycled plastic)	Up to 350 tpa	Up to 20 tonnes

RAP would include surplus asphalt returned from clients (often without leaving the delivery truck) and off-cuts from start-up/shut-down, which is clean material with no contamination risk.

The current EPL #3384 authorises extractive activities and limited glass sand acceptance but requires variation to include resource recovery (Schedule 1, Clause 34(1) of the POEO Act). Following approval of the modification, Downer (on behalf of LCC) would apply to the EPA to vary EPL #3384, to include the new waste streams with conditions for tracking, reporting, and quality assurance.

6.5.3 Potential impacts

The modification does not involve construction, so no construction waste would be generated. The proposed modification focuses on receiving, storing, and processing recycled materials, which are not classified waste but authorised recyclables under EPA exemptions. If mishandled, risks could include:

- Inappropriate receipt: Unauthorised or contaminated loads could introduce hazards, but weighbridge inspections and sourcing from EPA-approved suppliers minimise this.
- Storage and handling: Uncovered stockpiles could lead to wind-blown dust or minor leaching (e.g. trace metals from rubber), potentially affecting visual amenity, water quality, or the nearby DVPA. However, secure bins (aligned with existing aggregate storage) and short storage times limit exposure.
- Operational waste: Staff-generated waste (office/domestic) would remain minimal and unchanged.

These risks are low, as materials are inert and processed quickly. Inappropriate management could theoretically affect amenity, water quality, DVPA health, or worker safety, but existing controls (detailed below) prevent off-site effects. The site's EMS already manages similar streams effectively, with no waste-related complaints recorded.

6.5.4 Mitigation and management measures

Waste will continue to be managed under the EMS, with no new infrastructure required. Key ongoing management measures include:

- Waste minimisation strategies on site align with the LCC Corporate Waste Policy.
- Waste generated by staff is separated into general waste and recyclables.
- LCC provide a weekly 'standard' waste collection service.
- Any asphalt generated during plant startup or shutdown is reprocessed into product to be reused and sold.
- Chemical drums are securely stored in the Dangerous Goods Package Store, from where they are transported to a licensed Waste Management Facility.
- Wastewater and sewage is managed via septic systems, inspected six-monthly and pumped to the Lismore Wastewater Treatment Plant by licensed contractors.
- Gross Pollutant Trap for truck washdown/refuelling runoff, is inspected regularly and pumped as needed for licensed disposal.

For the proposed new waste materials:

- Receipt will be limited to EPA-authorised sources, with visual/weight checks at the weighbridge to exclude contaminants.
- Storage will be in secure, bunded bins (Figure 3.1 shows location within the plant), covered during rain and inspected weekly to prevent dust or leaching.
- Prior to operations, an application will be made to the EPA to vary EPL #3384 to authorise resource recovery, including tracking/reporting conditions.

6.5.5 Residual impacts

With the EMS and proposed EPL variation in place, residual impacts from the new waste streams are negligible. Materials will be fully processed on-site, diverting them from landfill without generating new waste or off-site effects. Monitoring (e.g. quarterly water checks) and audits will confirm compliance, ensuring no degradation to amenity, water quality, or the DVPA.

6.6 Hazard and risk (SEPP 33 assessment)

This section assesses hazards and risks associated with the proposed modification, in accordance with Chapter 3 of the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP). The asphalt plant is classified as a potentially hazardous industry due to its storage and use of flammable substances like bitumen and fuels. However, the proposed modification does not increase storage volumes or introduce new hazardous materials, so risks remain consistent with the approved development. The assessment confirms no unacceptable risks to nearby land uses, supporting approval under section 4.55(2) of the EP&A Act.

6.6.1 Assessment criteria and methodology

The Resilience and Hazards SEPP requires consent authorities to consider whether a development is potentially hazardous or offensive before granting consent. For potentially hazardous industries, the Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011) outlines a screening process to determine if further detailed assessment is needed.

The methodology followed here includes:

- Screening for hazardous materials: Inventory of substances from Table 2.3, classified per the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code, 7th edition). Quantities were compared to screening thresholds (e.g. Table 3 for non-graph classes; Figure 9 graph for Class 3 flammable liquids) based on distance to sensitive receivers (~650 m to R1 dwelling).
- Risk evaluation: Qualitative review of potential events (e.g. spills, fire) using the site's Safety Management Plan and bushfire controls. No quantitative risk assessment (QRA) was conducted, as screening indicates low risk below thresholds.
- Bushfire hazard: Assessed per Planning for Bush Fire Protection 2019 (NSW Rural Fire Service), considering the rural setting and existing measures.

This aligns with the multi-level risk assessment approach and planning circular PS 21-031 (2021).

6.6.2 Existing hazardous substances

Hazardous substances are stored on-site to support quarry and asphalt operations, in compliance with Work Health and Safety (WHS) regulations and the Dangerous Goods (General) Regulation 2020. Quantities and storage are summarised in Table 6.14 Inventory of hazardous substances.

Table 6.14 Inventory of hazardous substances

Substance	ADG Class	Maximum Quantity Stored	Storage Method	Storage Location	Distance to Nearest Receiver
Acetylene	2.1 (Flammable gas)	7 m ³	Cylinders	Gas cage (SE corner of asphalt plant workshop)	~650 m
Bitumen	9 (Miscellaneous)	162,000 L	Tanks	Three self-bunded bitumen tanks (asphalt plant area)	~650 m
Diesel	3 (PG III flammable liquid)	30,000 L	Fuel tank	One self-bunded fuel tank (quarry workshop)	~650 m
Toluene	3 (PG II flammable liquid)	200 L (0.173 tonnes)	Drum	Self-bunded container (laboratory)	~650 m

All storage is bunded (110% capacity), with spill kits and fire suppression available. No changes are proposed to type, quantities or storage of hazardous substances.

6.6.3 Screening assessment under SEPP 33

The screening confirms the development is potentially hazardous but does not exceed thresholds for unacceptable risk (per Applying SEPP 33, 2011):

- Acetylene (Class 2.1): 7 m³ is below the 16 m³ threshold (Figure 6 graph at 650 m).
- Bitumen (Class 9): Excluded from risk screening (guidelines, p. 20).
- Diesel (Class 3 PG III): 30,000 L (~24 tonnes) is below the 10-tonne package threshold (Table 3); bulk storage at 650 m falls under Figure 9 line (~500 tonnes allowable).
- Toluene (Class 3 PG II): 200 L (0.173 tonnes) is well below the 2.5-tonne threshold (Table 3).

Transport risks are also below the unacceptable risk thresholds.

Therefore, no detailed preliminary hazard analysis or quantitative risk assessment is needed, as risks associated with the storage and transport of hazardous substances are low and managed. The proposed modification does not increase storage volumes or introduce new hazardous materials, so risks remain consistent with the approved development.

6.6.4 Potential impacts and management measures

Potential hazards associated with asphalt production and the proposed modification include:

- Spills: Small releases during transfer of hazardous substances (e.g. bitumen) could affect soil or water if not contained.
- Fire or explosion: Vapours from toluene or diesel could ignite, but small volumes and distance to receivers (~650 m) limit effects.
- Bushfire: The site is in a bushfire-prone area. However, the proposed modification will not increase the risk of bushfire or an intensity of a fire if a bushfire was to occur near the site.

Measures from the Safety Management Plan (EMS, January 2024) include:

- Bunded storage: 110% of the volume of the hazardous substance and spill kits for immediate containment and clean-up.
- Fire controls: Extinguishers, suppression systems, and hot work permits as well as annual drills.
- Bushfire: Perimeter tracks are maintained six-monthly. Asset protection zones are established and maintained. On-site water truck available to fight fires. The Rural Fire Service is consulted with regularly.
- Emergency: Pollution Incident Response Management Plan, with EPA/DPHI notifications for incidents.

These management measures keep risks as low as reasonably practicable.

6.6.5 Residual risk

Residual risks associated with the storage and transport of hazardous substances and bushfires are low and acceptable, with no off-site impacts expected. SEPP 33 screening confirms compliance, and controls like bunding and monitoring ensure events have negligible consequences at 650 m. Annual EMS audits will ensure measures to manage hazards are maintained.

6.7 Other environmental matters and cumulative impacts

This section addresses additional environmental matters not covered in detail earlier, including greenhouse gas emissions and climate resilience, biodiversity, and heritage. It also evaluates cumulative impacts from the proposed modification alongside existing operations and regional activities. The assessment confirms there are no new or unacceptable impacts associated with the proposed modification.

6.7.1 Greenhouse gas emissions and climate resilience

The proposed modification would increase asphalt production to 100,000 tpa, potentially raising energy use for heating bitumen and processing materials. However, this would be offset by greater incorporation of recycled content (up to 26,850 tpa total), which reduces embodied carbon compared to virgin aggregates (e.g. RAP recycling saves ~20–30% CO₂e per tonne per EPA life-cycle data). A qualitative estimate, based on the site's EMS (January 2024) and industry benchmarks, suggests Scope 1 emissions could rise by ~500–1,000 tCO₂e/year from higher throughput, but remain below the 25,000 tCO₂e threshold for *National Greenhouse and Energy Reporting Act 2007* reporting.

The site's rural location enhances climate resilience: elevated topography (~100 m AHD) avoids flood risks in the Wilsons River catchment, and operations support post-flood recovery (e.g. 2022–2025 events). No vulnerability to sea-level rise or extreme weather is increased, with the SWMP (January 2025) including adaptive measures like basin reinforcements for intensified storms. This aligns with the NSW Climate and Energy Action Plan 2024 and Net Zero Plan 2040, promoting low-carbon materials.

6.7.2 Biodiversity

As detailed in Section 2.12, the proposed modification is confined to the existing, disturbed asphalt plant footprint (Lot 54), with no clearing or new disturbance. The site's biodiversity offsets (62.6 ha secured, including the DVPA and C2-zoned area) remain unaffected, and stormwater from the plant routes through quarry controls to prevent runoff impacts on adjacent habitats. Recent BioNet searches (August 2025) confirm no new threatened species risks, and the Biodiversity and Rehabilitation Management Plan (March 2019) ensures ongoing protection. No Biodiversity Development Assessment Report is required, as impacts are negligible.

6.7.3 Heritage

Aboriginal and non-Aboriginal heritage assessments (Section 2.13 – 2.14) found no registered sites within 50 m of the site (AHIMS search, August 2025). The proposed modification involves no ground disturbance beyond the cleared asphalt plant area, so no impacts on cultural values are anticipated. Compliance with the *National Parks and Wildlife Act 1974* and *Heritage Act 1977* is maintained through the Aboriginal Heritage Management Plan, with a stop-work protocol if unexpected finds occur.

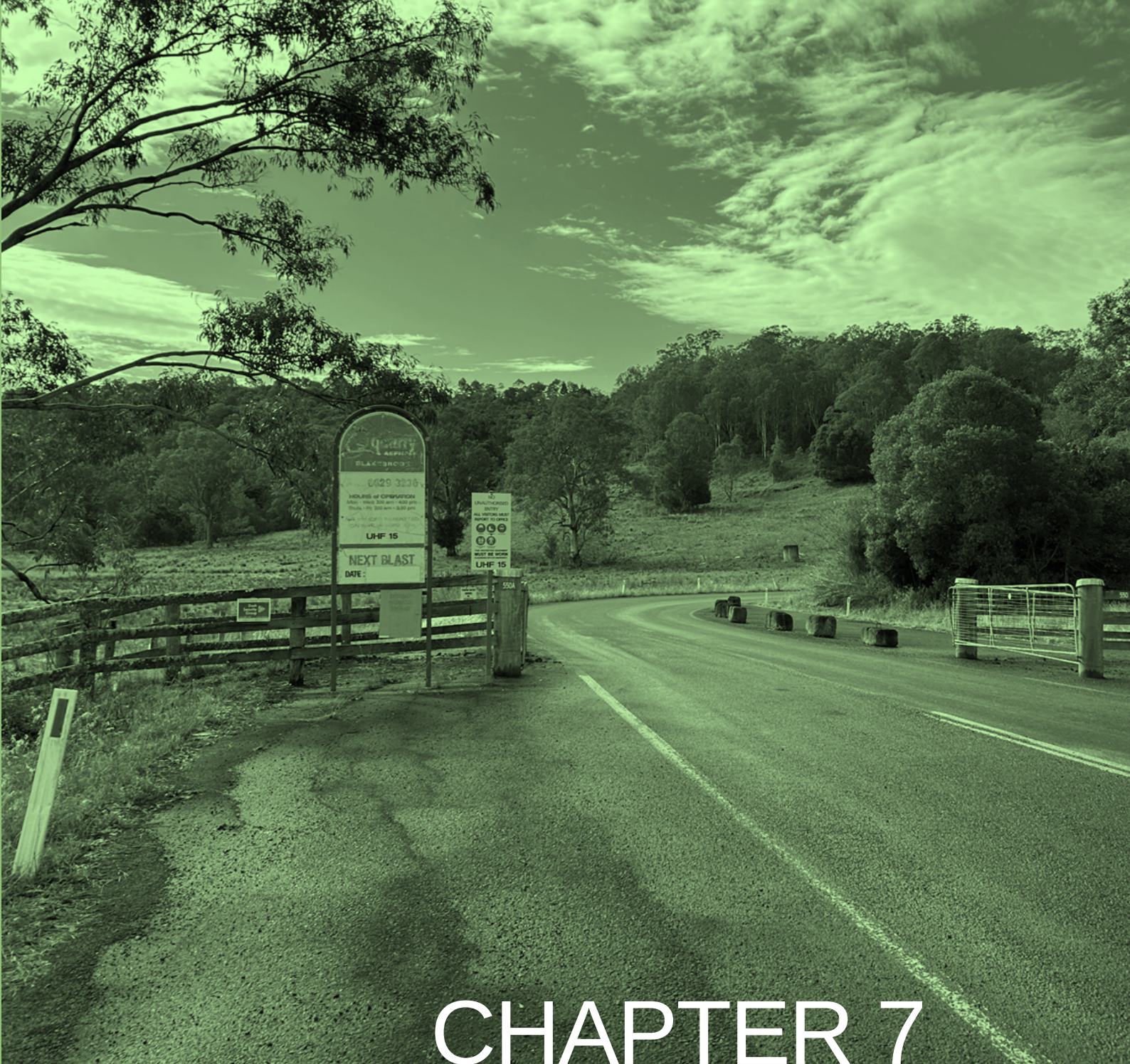
6.7.4 Cumulative impacts

Cumulative impacts consider the proposed modification alongside existing quarry/asphalt operations and regional activities (e.g. Nimbin Road traffic, nearby agriculture). Monitoring data (2023–2025) shows the site operates well below limits: e.g. noise <35 dB(A) L_{Aeq} at receivers (Muller Acoustic, 2025); air quality compliant (Todoroski Air Science, 2025); surface water TSS averaging 32 mg/L downstream (EAL reports). Past exceedances (e.g. dust at D2/D3 in 2024; noise at R8 in May 2024) were self-reported, investigated, and closed out by DPHI/EPA, with no

patterns linking to the asphalt plant (per Community Consultative Committee minutes, November 2024).

The proposed modification adds marginal loads (e.g. ~27 trucks/day within 150/day limit, and 10–20% more particulates, handled by basins). However, 24/7 operations disperses activity, reducing peaks. Regionally, increased asphalt supply aids flood recovery without straining infrastructure (e.g. Nimbin Road upgrades complete). No cumulative exceedances of EPL #3384 or approval criteria are predicted, as confirmed by integrated assessments (noise/air/traffic). The EMS's adaptive management (e.g. TARP) ensures ongoing monitoring captures any interactions, aligning with the *Biodiversity Conservation Act 2016* and POEO Act.

Overall, cumulative effects remain within approved parameters, with benefits from sustainability gains (e.g. waste diversion) outweighing minor increments.



CHAPTER 7

CONCLUSION

7 CONCLUSION

This modification report has outlined the proposed changes to the development consent, MP07_0020, for the Blakebrook Quarry and LAP, operated by LCC with the asphalt plant leased to Downer. The key elements of the proposal are an increase in the limits of asphalt production from 50,000 to 100,000 tonnes per annum, extension of asphalt plant hours to 24/7 (while quarry hours stay the same), processing of up to 15,000 tpa of RAP with 10,000 tonnes storage at any one time, up to 10,000 tpa of recycled glass sand with 2,500 tonnes storage, up to 1,500 tpa of crumb rubber with 45 tonnes storage, and up to 350 tpa of TonerPlas (recycled plastic) with 20 tonnes storage. Minor administrative updates to consent conditions are also sought.

The proposed modification responds to pressing regional needs, including urgent flood recovery after events in 2022, 2024 and March 2025, strict funding deadlines, and growing demand for sustainable materials with higher recycled content. It aligns with state and national policies like the NSW Waste and Sustainable Materials Strategy 2041 and National Waste Policy Action Plan 2024, by diverting waste from landfill and supporting a circular economy without expanding the site footprint or altering quarry operations.

Compliance with section 4.55(2) of the EP&A Act

Under section 4.55(2), DPHI can approve a modification if satisfied the development remains substantially the same as originally approved. This report demonstrates that the proposed modification meets this test on both quantitative and qualitative grounds:

- Quantitative factors: Asphalt production doubles, but stays within the existing plant's capacity and the 150 laden trucks per day limit. No new infrastructure, land disturbance or extraction changes are involved. Specialist assessments confirm operations will comply with:
 - existing noise limits (35–36 dB(A) $L_{Aeq}(15 \text{ min})$);
 - air quality criteria (e.g. PM_{10} annual average below $25 \mu\text{g}/\text{m}^3$);
 - traffic capacity on Nimbin Road; and
 - EPL #3384 discharge standards.
- Qualitative factors: The core development, a quarry with ancillary asphalt production, remains unchanged. The proposed modification enhances efficiency and sustainability through recycled inputs, without introducing new land uses or risks. It fits the site's RU1 Primary Production zoning under the Lismore Local Environmental Plan 2012 and supports regional plans like the North Coast Regional Plan 2041.

The report also addresses section 4.15(1) matters, including environmental planning instruments, likely impacts, site suitability and public interest. No significant environmental, social or economic effects are predicted, with benefits like timely road repairs and waste reduction outweighing any minor operational increments.

Key assessment findings

Detailed studies show the proposed modification will have negligible impacts, as outlined in Table 7.1.

Table 7.1 Key assessment findings

Aspect	Key findings	Compliance
Noise and vibration	Predicted levels at 17 receivers (R1–R17) below project noise trigger levels (e.g. 35 dB(A) evening/night) and EPL limits. No sleep disturbance or vibration issues.	Full compliance with Noise Policy for Industry and Road Noise Policy.
Air quality	Incremental $PM_{2.5}$, PM_{10} and TSP below criteria (e.g. max 24-hour PM_{10} increment $10.7 \mu\text{g}/\text{m}^3$ at R7); odour	Meets Approved Methods for Modelling and Assessment of Air Pollutants (NSW EPA, 2022).

Aspect	Key findings	Compliance
	<1 OU. Cumulative levels include background and stay under thresholds.	
Traffic	Additional ~27 laden trucks/day within 150/day limit. Nimbin Road operates below capacity with no safety concerns.	Aligns with Austroads GTM Part 12, the TfNSW Supplement, and the RTA Guide to Traffic Generating Developments and subsequent TfNSW Guide to Transport Impact Assessments.
Surface water	No change to runoff volume or quality; existing sediment basins and testing handle minor increments from runoff from trafficked surfaces/material stockpiles.	Complies with EPL #3384 and SWMP commitments.
Waste	New recycled streams authorised under EPA exemptions; no uncontrolled waste generated.	Supports Waste Avoidance and Resource Recovery Act 2001.
Hazards	Storage below SEPP 33 thresholds; no new risks from fire/spills/bushfire.	Low residual risk per Hazardous and Offensive Development Application Guidelines.
Other matters	No biodiversity/heritage impacts (disturbed footprint only); GHG increase offset by recycling savings; cumulative effects managed within approvals.	Aligns with EPBC Act, BC Act and ESD principles.

These outcomes are supported by:

- Technical studies conducted by suitably qualified and experienced specialists to assess key matters associated with the proposed modification including noise, air quality and traffic.
- Robust mitigation under the site's ISO 14001-certified EMS, including the NBMP, AQMP and SWMP.

Response to SEARs

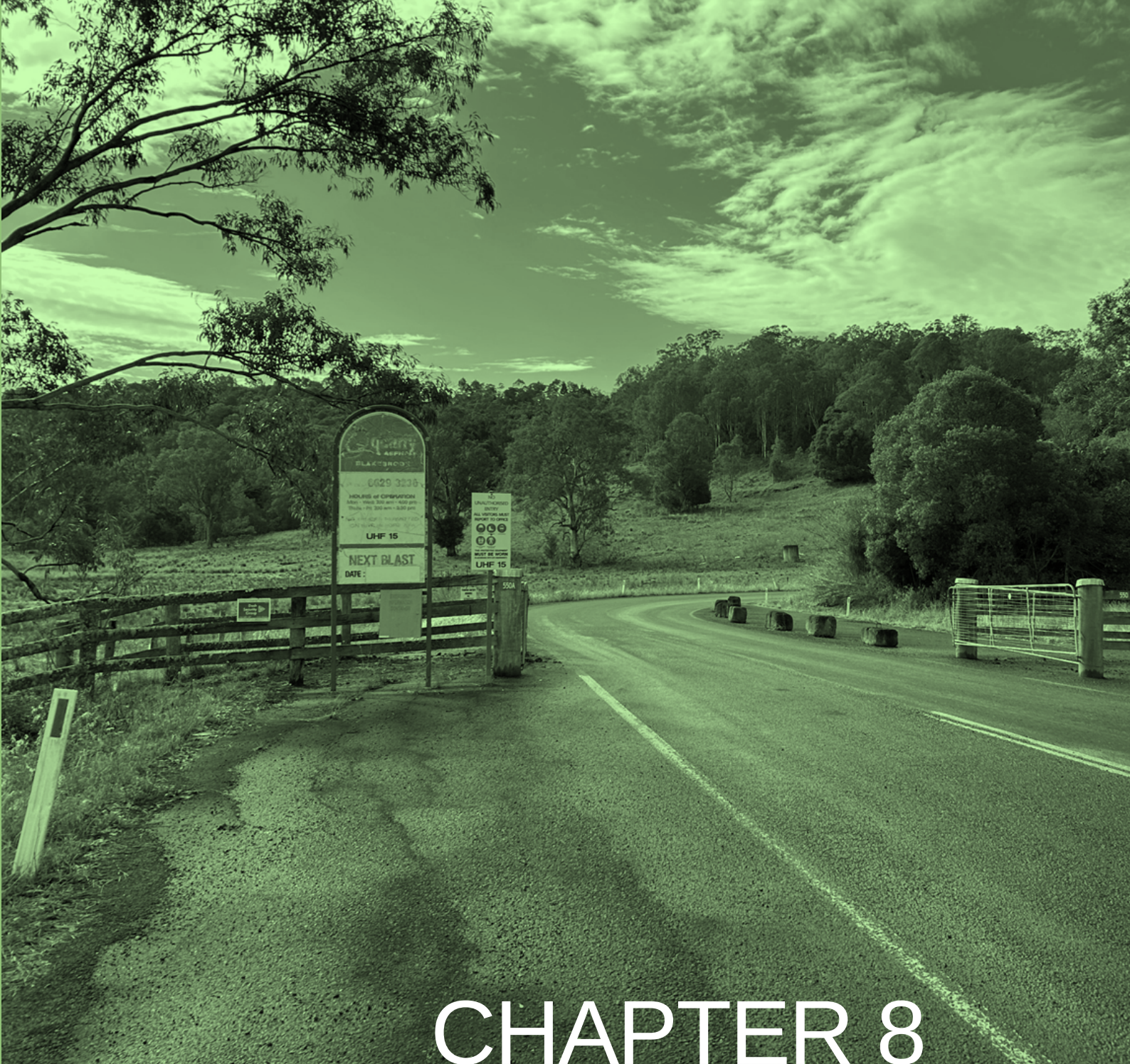
The report fully addresses the Secretary's Environmental Assessment Requirements (SEARs) issued on 30 July 2025 (Appendix A). All specified matters, such as needs/alternatives, impacts on noise/air/traffic/water/waste/hazards, and cumulative effects, have been evaluated, with no unresolved issues.

Stakeholder engagement

Consultation with LCC, DPHI, EPA and TfNSW confirmed support or no objections, with TfNSW's traffic comments incorporated into the assessment. Community notification reached nearby residents, with a drop-in session on 3 September 2025 yielding minimal feedback focused on historical quarry issues, not the proposed changes to asphalt operations. One resident requested monitoring results, which will be provided. Ongoing engagement via the NSW Planning Portal will continue.

Recommendation

The proposed modification is substantially the same development as approved under MP07_0020 and will not result in significant environmental or social impacts. It delivers clear public benefits by bolstering flood recovery, road infrastructure and sustainability in the Northern Rivers. Element Environment recommends DPHI approve the proposed modification under section 4.55(2) of the EP&A Act, subject to the administrative condition updates in Table 3.2 and an EPL variation for resource recovery. If approved, Downer commits to updating management plans and monitoring to ensure ongoing compliance.



CHAPTER 8

REFERENCES

8 REFERENCES

Aboriginal Heritage Management Plan (AHMP) (Lismore City Council, July 2024)

Air Quality Management Plan (AQMP) (Lismore City Council, September 2023)

Australian Bureau of Statistics. (2021). *2021 Census QuickStats: SED10045*. <https://abs.gov.au/census/find-census-data/quickstats/2021/SED10045>

Biodiversity and Rehabilitation Management Plan (BRMP) (Lismore City Council, March 2019)

Conacher Environmental Group (CEG) (2008) Proposed Quarry Extension: Ecological Site Assessment. CEG, Lismore NSW.

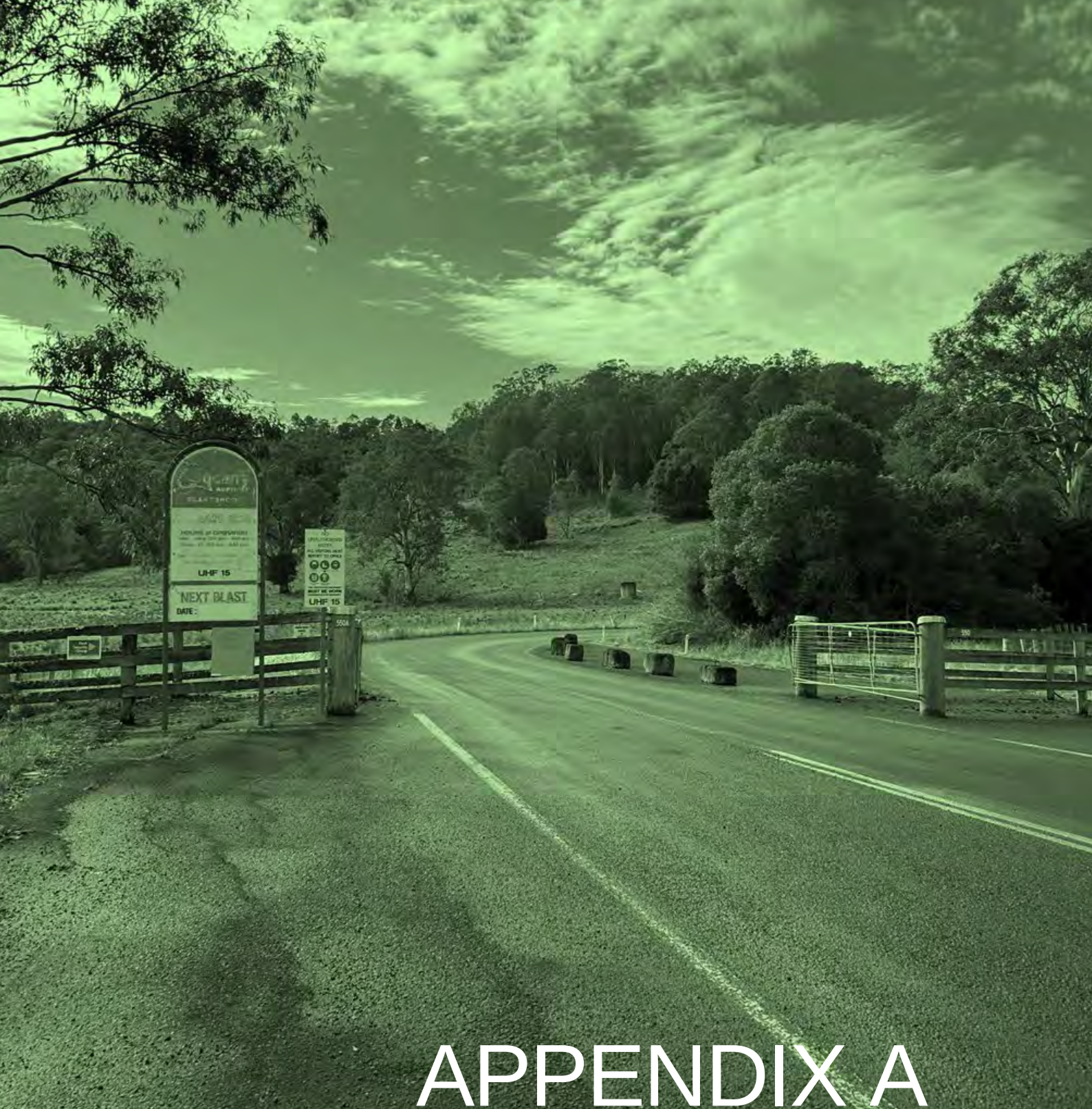
Lismore City Council. (n.d.). Lismore's First Peoples. In Discover Lismore's history. Lismore City Council. Retrieved August 8, 2025, from <https://www.lismore.nsw.gov.au/Community/Discover-Lismores-history/Lismores-First-Peoples>

Locality snapshots – Lismore. Retrieved [Month Day, Year], from <https://profile.id.com.au/lismore/locality-snapshots>

Noise & Blast Management Plan (NBMP) (Lismore City Council, October 2022).

Soil and Water Management Plan (SWMP) (Lismore City Council, January 2025)

NSW EPA (2022) "Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales", NSW Environment Protection Authority, August 2022.



APPENDIX A

SEARS

Department of Planning, Housing and Infrastructure

Our ref: MP07_0020-Mod-4

Dale Thomas

Environment and Sustainability Manager

Downer Group

Via email: Dale.Thomas1@downergroup.com

30 July 2025

Subject: Environmental assessment requirements for Blakebrook Quarry Modification 4

Dear Mr Thomas

I refer to your scoping report dated 11 June 2025 seeking confirmation of the approval pathway and environmental assessment requirements for a proposed modification (Mod 4) to the development consent for the Blakebrook Quarry (MP07_0020).

The Department understands that the proposed modification would involve:

- an increase in asphalt production and transportation limits from 50,000 tonnes per annum (tpa) to 100,000 tpa;
- a change in operating hours of the asphalt plant to allow 24/7 operations;
- receipt and processing of reclaimed asphalt pavement, recovered glass sand, crumb rubber and TonerPlas; and
- administrative changes to a number of conditions.

Based on the information contained in the scoping report, the Department considers that the proposal can be assessed under section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), provided that the supporting Modification Report demonstrates that the modified development is substantially the same as the development for which the consent was last modified under Section 75W of the EP&A Act. In particular, this justification should address the scale of the proposed production increase and extension of operating hours, as well as the proposed importation of various waste materials.

The Modification Report should include adequate justification for the proposed changes to the consent and have regard to the NSW Government's *State Significant Development Guidelines*, including *Appendix E, Preparing a Modification Report*.

The Department is generally satisfied with your preliminary identification of key issues and requests the modification report include a proportionate assessment of all relevant matters under the EP&A Act, with particular attention to:

- Traffic and transport;
- Noise and vibration;

Department of Planning, Housing and Infrastructure

- Air quality;
- Surface water; and
- Waste, including addressing any relevant requirements made under the *Protection of the Environment Operations Act 1997* with regard to the proposed material importation, storage and processing.

Notwithstanding the above, I remind you that assessment of the potential impacts of the proposed modification must cover all relevant matters, be consistent with contemporary guidelines and policies governing the assessment of these matters and include all feasible measures to avoid or mitigate impacts.

The Department notes that you have proposed to undertake consultation with potentially impacted residents, Lismore City Council, Transport for NSW and NSW Environment Protection Authority. The Department is generally satisfied with this approach and requests the outcomes of this consultation be documented in the Modification Report, including the issues that were raised and how they have been addressed.

Please contact the Department at least two weeks before you plan to submit the modification application and supporting Modification Report. This will enable the Department to confirm the applicable fee and discuss exhibition periods. Please note that your modification application is not taken to be lodged until the fee has been paid.

If you have any questions, please contact Jarrod Blane, who can be contacted on (02) 8275 1831 or jarrod.blane@dpie.nsw.gov.au.

Yours sincerely,

A handwritten signature in black ink that reads "Jessie Evans".

Jessie Evans

Director

Energy and Resource Assessments
as delegate for the Planning Secretary



APPENDIX B

CONSULTATION

Residential Notification Letter



PO Box 1563
Warriewood
NSW 2102

ABN 45 162
835 083

Dear resident/landowner,

We're writing to you on behalf of Downer to let you know about a proposed modification to the existing asphalt operations at the Blakebrook Quarry in your area.

The proposed changes to the asphalt plant would allow the site to receive and process additional materials and increase the plant's operational capacity. It would also extend the hours of operation for the asphalt plant (not the quarry) to operate 24 hours a day, 7 days a week. These updates are being proposed to improve the plant's efficiency (especially during urgent weather-impacted recovery work), include sustainable products to meet environmental goals, and support future roadworks and infrastructure projects in the region.

What's changing and what could it mean for you?

The Blakebrook Quarry is seeking approval to modify the existing development consent. The proposed changes include:

- Allowing the Asphalt Plant operations to receive and re-use recycled materials in its asphalt production. This heavily reduces the reliance on virgin materials, as well as reducing the embodied carbon emissions associated with asphalt, making operations more environmentally friendly and sustainable. The recycled materials proposed to be used include:
 - o Allowing the site to receive and process up to 15,000 tonnes of Reclaimed Asphalt Pavement (RAP) each year, with a maximum of 10,000 tonnes stored on-site at any one time. RAP is a recycled road product and by utilising this, the reliance on virgin materials required to make asphalt will be reduced.
 - o Receiving and processing up to 10,000 tonnes per year of recovered glass sand, with storage of up to 2,500 tonnes at any time.
 - o Receiving and processing up to 1,500 tonnes per year of crumb rubber and 350 tonnes per year of TonerPlas (a recycled plastic product), with up to 45 tonnes of crumb rubber and 20 tonnes of TonerPlas stored on-site at once.
- Increasing the asphalt production and transport limit from 50,000 tonnes to 100,000 tonnes per year.
- Extending the operating hours of the asphalt plant to permit operations as needed on a 24-hour basis, while the quarry will continue to operate within its existing approved hours. This extension does not necessarily mean the plant would operate 24/7, however as required based on demand.
- Making minor administrative updates to some of the existing consent conditions.

We are currently undertaking environmental studies to assess potential impacts from these proposed changes – including traffic, noise, and air quality – to ensure the surrounding community and environment are carefully considered. The results of these studies will be made available as part of the formal assessment process. Community members will have the opportunity to raise their concerns during the drop-in session, as detailed below.

Want to learn more?

We invite you to attend a community drop-in session to discuss the proposed changes, ask questions, and share any feedback.

 **Goolmangar Hall/School of Arts, 863 Nimbin Road**

 **Wednesday 3 September 2025**

 **2:00 pm – 6:00 pm**

Contact us

If you have any questions or would like more information and cannot attend the drop-in session, please don't hesitate to get in touch.

 **Email:** community@elementenvironment.com.au

 **Phone:** 0448 910 192

Your privacy

Personal contact details will be collected solely to inform you about this proposed modification. They will not be used for any other purpose or shared without your consent.

Community Drop in Session - Fact Sheet

FACT SHEET

Blakebrook Quarry Asphalt Plant Modification

What's happening?

Downer is seeking approval to make changes to the asphalt plant located within the Blakebrook Quarry. These changes are needed to meet increased demand for asphalt following recent floods and to support future resilience in the Lismore region.

Important to know

- 🔑 The modification is **only for the asphalt plant**.
- 🔑 **No changes are proposed to the quarry operations.**

What is being proposed?

- **Increase asphalt production** from 50,000 to 100,000 tonnes a year.
- **Operate the asphalt plant 24/7** (the quarry will continue to operate only during daytime hours).
- **Use more recycled materials** in asphalt, including:
 - Up to 15,000 tonnes/year of reclaimed asphalt pavement (RAP)
 - 10,000 tonnes/year of recycled glass sand
 - 1,500 tonnes/year of crumb rubber
 - 350 tonnes/year of TonerPlas (recycled plastic)
- Minor updates to existing approval conditions (administrative only).

Why is this needed?

- **Faster flood recovery** – helps repair roads more quickly.
- **Less traffic disruption** – allows more night work, reducing daytime delays.
- **Supports sustainability** – diverts waste from landfill by using recycled materials.
- **Better value for money** – helps meet strict government funding deadlines.

What about impacts?

Independent experts assessed the modification for traffic, noise, and air quality. Results show:

- **Traffic** – the local road network can safely accommodate the increase.
- **Noise** – predicted levels meet NSW criteria; sleep disturbance is not expected.
- **Air quality** – no significant impacts at surrounding homes.

Community consultation

Drop-in session: ♀ Goolmangar Hall | 📅 3 Sept 2025 | ⌚ 2–6 pm.

If you have any questions or would like more information and cannot attend the drop-in session, please don't hesitate to get in touch.

✉ **Email:** community@elementenvironment.com.au

☎ **Phone:** 0448 910 192

Agency Consultation – EPA Notification & Response

29 August 2025

Attention:
EPA
6 Parramatta Square (10 Dary Street)
Parramatta
NSW 2150



PO Box 1563
Warriewood
NSW 2102

ABN 45 162 835 083

Dear Kirsty,

Consultation for Blakebrook Quarry Project – Modification 4 (Asphalt Plant)

Element Environment Pty Ltd (Element) is acting on behalf of Downer EDI Works Pty Ltd (Downer), who operate an existing asphalt plant situated within the Blakebrook Quarry site at 550 Nimbin Road, Blakebrook, NSW.

The Blakebrook Quarry, otherwise known as the Northern Rivers Quarry, is owned and operated by Lismore City Council (LCC) and Downer lease a portion of the site on which the asphalt plant is located.

The quarry and ancillary asphalt plant currently operate under State significant development (SSD) consent MP07_0020.

The proposed modification will involve the following:

- the receipt and processing of up to 15,000 tpa of Reclaimed Asphalt Pavement (RAP) and any-one-time storage of up to 10,000 tonnes of RAP (unprocessed and processed combined) on the site;
- the receipt and processing of up to 10,000 tpa of recovered glass sand and any-one-time storage of up to 2,500 tonnes of recovered glass sand on the site;
- the receipt and processing of up to 1,500 tpa of crumb rubber and 350 tpa of TonerPlas and any-one-time storage of up to 45 tonnes of crumb rubber and 20 tonnes of TonerPlas on the site;
- an increase in asphalt production and transportation limits from 50,000 tonnes per annum (tpa) to 100,000 tonnes tpa;
- a change in operating hours of the asphalt plant (not the quarry) to allow 24/7 operations; and
- minor administrative changes to several of the existing consent conditions.

Element has completed technical studies on potential noise and air quality impacts. Preliminary results indicate the criteria will not be exceeded. These assessments will support the modification report when it is submitted to the Department of Planning.

On behalf of the NSW EPA, Element invites you, as the EPA Operations Officer, to raise any preliminary queries or concerns regarding the proposed modification. These can be addressed in writing or via an online meeting with relevant stakeholders. If you are not the appropriate contact for this request, please let us know.

If you or your colleagues have any questions or want to discuss the proposal further, please get in touch with me at 0447 209 363 or **shania@elementenvironment.com.au**. If your organisation has no comments or concerns about the proposal, we would appreciate a response indicating this.

We kindly request your feedback within 14 days of the date of this correspondence on 12 September 2025.

Thank you for your interest in this letter. We look forward to hearing from you soon.

Kind Regards



Shania Van Cuylenburg
Environmental Consultant

0447 209 363
shania@elementenvironment.com.au

Agency Consultation – Transport for New South Wales Notification & Response

29 August 2025

Attention:
Transport for New South Wales
PO Box 576
Grafton NSW 2460
Australia



PO Box 1563
Warriewood
NSW 2102

ABN 45 162 835 083

To whom it may concern,

Consultation for Blakebrook Quarry Project – Modification 4 (Asphalt Plant)

Element Environment Pty Ltd (Element) is acting on behalf of Downer EDI Works Pty Ltd (Downer), who operate an existing asphalt plant situated within the Blakebrook Quarry site at 550 Nimbin Road, Blakebrook, NSW.

The Blakebrook Quarry, otherwise known as the Northern Rivers Quarry, is owned and operated by Lismore City Council (LCC) and Downer lease a portion of the site on which the asphalt plant is located.

The quarry and ancillary asphalt plant currently operate under State significant development (SSD) consent MP07_0020. Access to the site was upgraded to current AUSTROADS standards in line with Condition 21(f) following approval of Modification 3.

The proposed modification will involve the following:

- the receipt and processing of up to 15,000 tpa of Reclaimed Asphalt Pavement (RAP) and any-one-time storage of up to 10,000 tonnes of RAP (unprocessed and processed combined) on the site;
- the receipt and processing of up to 10,000 tpa of recovered glass sand and any-one-time storage of up to 2,500 tonnes of recovered glass sand on the site;
- the receipt and processing of up to 1,500 tpa of crumb rubber and 350 tpa of TonerPlas and any-one-time storage of up to 45 tonnes of crumb rubber and 20 tonnes of TonerPlas on the site;
- an increase in asphalt production and transportation limits from 50,000 tonnes per annum (tpa) to 100,000 tonnes tpa;
- a change in operating hours of the asphalt plant (not the quarry) to allow 24/7 operations; and
- minor administrative changes to several of the existing consent conditions.

The proposed modification would impact the local traffic network from the site. Traffic movements are being assessed by a qualified Traffic Consultant, SECA Solution, in accordance with the *Austrroads Guidelines* and *Guide to Transport Impact Assessments* (TfNSW 2024).

The current project approval (MP07_0020) permits up to 150 laden truck movements per day. . The site is, however, physically constrained to a maximum of 25 laden outbound trucks per hour due to the operation of the on-site weighbridge.

The proposed modification would increase daily traffic volumes by 27 trucks. With extended operational hours, this equates to an average of 9 movements (4.5 trucks) per hour. Accordingly, hourly truck movements would remain below the current limit of 25 outbound trucks per hour.

Two peak periods were identified: 6:00 - 7:00 AM and 6:00 - 7:00 PM. A site visit recorded the current maximum at 5 truck movements per hour during these times. Under the modification, peak throughput may increase to 10 movements per hour (combined in-bound and outbound). This level remains consistent with the approved hourly limit of 25 outbound trucks.

Overall, the modification remains within the approved truck movement limits, both daily and during peak periods. The designated haulage route has also been assessed and found to provide adequate safety, with existing intersections offering sufficient capacity to accommodate the heavy vehicle turning movements associated with quarry haulage.

Element requests TfNSW to raise any preliminary queries or concerns regarding the modification, as detailed above. This can be coordinated through an online meeting with relevant stakeholders or through a written form.

If you or your colleagues have any questions or want to discuss the proposal further, please get in touch with me at 0447 209 363 or shania@elementenvironment.com.au. If your organisation has no comments or concerns about the proposal, we would appreciate a response indicating this.

We kindly request your feedback within 14 days of the date of this correspondence on 12 September 2025.

Thank you for your interest in this letter. We look forward to hearing from you soon.

Kind Regards



Shania Van Cuylenburg
Environmental Consultant

0447 209 363
shania@elementenvironment.com.au

2 September 2025

File No: NTH24/00077/003
Your Ref: MP07_0020

Shania Van Cuylenburg
Element Environment Pty Ltd
shania@elementenvironment.com.au

Attention: Shania Van Cuylenburg

Nimbin Road (MR142): Modification to Blakebrook Quarry, Lot 53/-/DP1254990, 550 Nimbin Road Blakebrook

Thank you for your request seeking Transport for NSW (TfNSW) pre-lodgement advice in relation to proposed Development Application for the Modification to Blakebrook Quarry

TfNSW requests the Development Application is supported by a Traffic Impact Assessment (TIA), prepared by suitably qualified person/s in accordance with the Austroads Guide to Traffic Management Part 12, the complementary TfNSW Supplement and RTA Guide to Traffic Generating Developments. The TIA is to identify the impacts of the overall development and the proposed on-site and off-site measures proposed to mitigate the impacts of the development on any road related infrastructure. The TIA must explain and justify all inputs informing the proposed mitigation measures.

Should you require further information please contact Kane Hitchcock, Development Services Case Officer, on 1300 207 783 or by emailing development.north@transport.nsw.gov.au.

Yours faithfully



Shelby Wells

A/Team Leader Development Services
Technical Advice & Development Services
Transport Planning | Planning, Integration & Passenger

OFFICIAL



APPENDIX C

TRAFFIC IMPACT ASSESSMENT

7 October 2025

P1292A Asphalt Plant Modification, Blakebrook Quarry Lismore

Element Environment

Attn: Shania Van Cuylenburg

Dear Shania,

Proposed modification to Asphalt Plant, Blakebrook Quarry, north of Lismore, NSW

Further to our site visit and review of the documentation provided for the above development we provide the following Traffic Impact Assessment. This assessment has been prepared in accordance with Austroads GTM Part 12, the TfNSW Supplement, and the RTA Guide to Traffic Generating Developments and subsequent TfNSW Guide to Transport Impact Assessments which outlines the structure for the reporting of key issues to be addressed when determining the impacts of traffic associated with a development.

Background

Downer EDI Works Pty Ltd (Downer) operate an existing asphalt plant situated within the Blakebrook Quarry site at 550 Nimbin Road, Blakebrook, NSW. The Blakebrook Quarry, otherwise known as the Northern Rivers Quarry, is owned and operated by Lismore City Council (LCC) and Downer lease a portion of the site, on which the asphalt plant is located.

The quarry and ancillary asphalt plant currently operate under State significant development (SSD) consent MP07_0020.

Development consent MP07_0020 for the Blakebrook Quarry Project was originally granted on 24th November 2009 by the Minister for Planning, under the former Part 3A of the EP&A Act. The consent has since been modified on two separate occasions.

Downer is now seeking approval to further modify development consent MP07_0020, under Section 4.55(2) of the EP&A Act, to allow:

- the receipt and processing of up to 15,000 tpa of Reclaimed Asphalt Pavement (RAP) and any-one-time storage of up to 10,000 tonnes of RAP (unprocessed and processed combined) on the site;
- the receipt and processing of up to 10,000 tpa of recovered glass sand and any-one-time storage of up to 2,500 tonnes of recovered glass sand on the site;
- the receipt and processing of up to 1,500 tpa of crumb rubber and 350 tpa of TonerPlas and any-one-time storage of up to 45 tonnes of crumb rubber and 20 tonnes of TonerPlas on the site;
- an increase in asphalt production and transportation limits from 50,000 tonnes per annum (tpa) to 100,000 tonnes tpa;
- a change in operating hours of the asphalt plant (not the quarry) to allow 24/7 operations; and
- minor administrative changes to a number of the existing consent conditions.

No changes are proposed to the existing operations of the quarry.

In proposing the increase in throughput per annum of the asphalt plant, the additional traffic demands per hour may be offset by the increase in operating hours. This traffic report therefore quantifies and provides an assessment of the *additional* demands associated with this modification.

Seca Solution prepared a traffic impact assessment for the site in 2019 for the Mod-3 application. This has been considered in the preparation of this assessment.

The subject site is located to the north of Lismore off Nimbin Road, as shown in Figure 1 to follow.

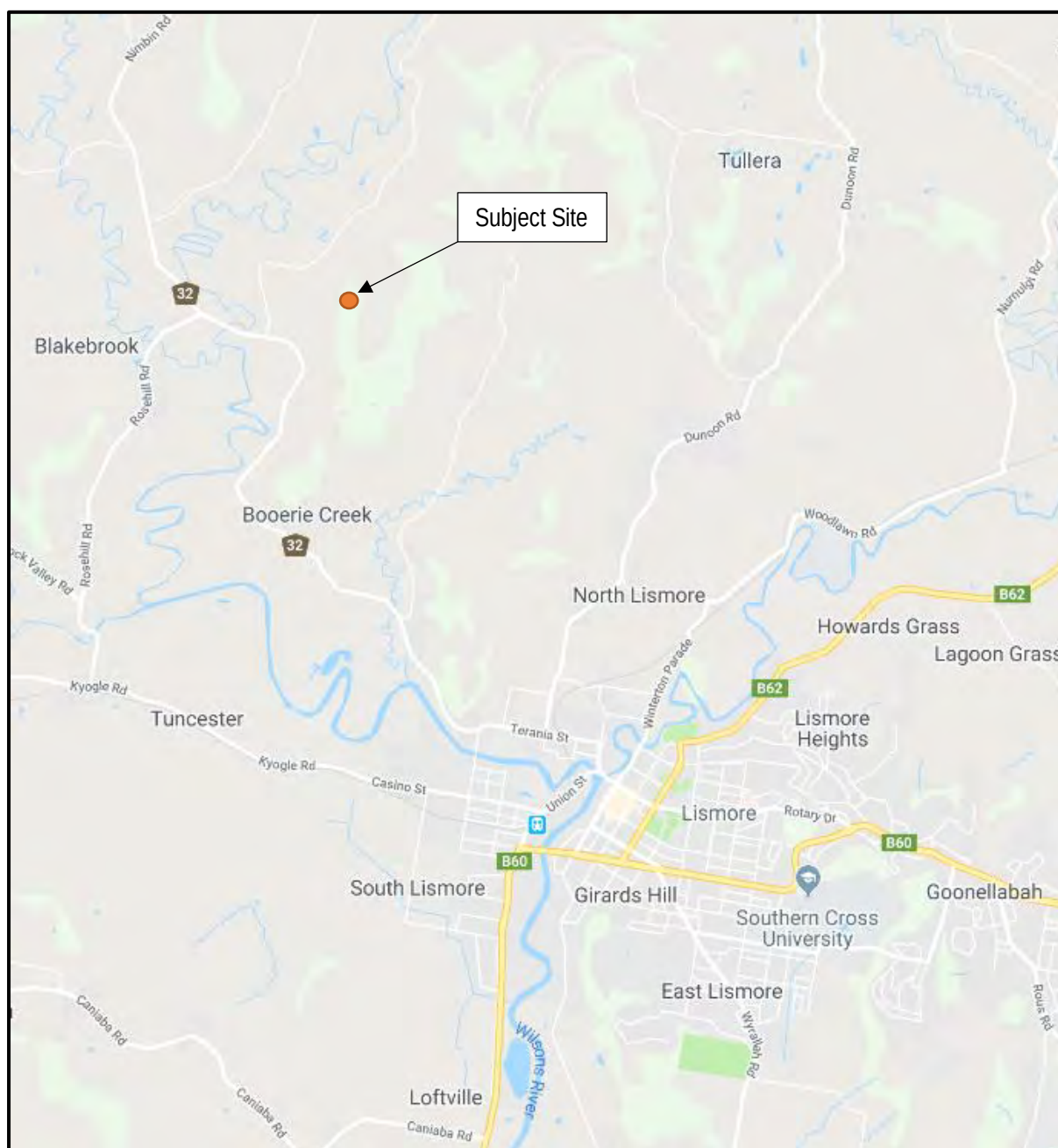


Figure 1 – Subject site in the context of the surrounding road network

Traffic Impact Assessment:

Item	Comment
<i>Existing Situation</i>	
2.1 Site Location and Access	The subject site is located approximately 6 kilometres northwest of Lismore Town Centre, just before Blakebrook with access off Nimbin Road via a sealed access roadway (Quarry Access Road).
2.2.1 Road Hierarchy	The main road through the locality is Nimbin Road which forms part of the regional road network providing connection between Lismore and Nimbin, with the network continuing on to Murwillumbah to the north. In the locality of the subject site it allows for a single lane of travel in each direction, with a pavement width varying between 6-8 metres. The posted speed limit is 80 km/hr in this location, with no kerb and guttering or street lighting. A channelised right turn treatment is provided for northbound vehicles, to allow for through traffic to pass vehicles turning into the quarry access road. The Quarry Access Road provides a sealed surface along its length until reaching the quarry operations, where the movements are distributed across the unsealed internal roads. It operates under the posted speed limit of 40km/hr with no kerb and guttering or street lighting provided. It has a pavement width in the order of 8.5 metres along the majority of its length, with the road widening significantly at the intersection with Nimbin Road to allow for more efficient turning movements for heavy vehicles into and out of Nimbin Road. To the south of the site, approaching north Lismore, Nimbin Road meets Wilson Street at a priority-controlled T-intersection, with Nimbin Road having priority. On the southern approach to this intersection, Wilson Street provides a left turn slip lane allowing for free flow for vehicles turning left onto Nimbin Road, with an acceleration lane (140 metres) provided after which drivers are required to merge to form one lane. A channelised right turn is also provided on Nimbin Road.
2.2.2 Current and Proposed Roadworks, Traffic Management Works and Bikeways	Roadworks and road maintenance, particularly associated with flood events, are occurring along many roads in the Lismore region.
2.3 Traffic Flows	Seca Solution has collected traffic data at the key intersection of Nimbin Road and Wilson Street during a typical morning and afternoon peak period (27th/28th May 2025) as well as an evening count. The surveys show that the current peak hour traffic flows are relatively low in this location with the 2-way flow on Nimbin Road to the immediate west of this intersection being: • 350 vehicles per hour (vph) in the AM peak and • 341 vph in the PM peak • 65 vph in the evening

Item	Comment
	These flows are similar to the counts undertaken by Seca Solution in 2019 which showed that the peak hour traffic flows on Nimbin Road were 381 in the AM peak and 333 in the PM peak. On Wilson Street to the immediate south of this intersection the two-way flows were: • 300 vph in the AM peak and 264 in the PM peak. These traffic demands have reduced between 14-24% since 2019. This intersection was observed to operate very well with very low delays and queues. Flows on Nimbin Road in the vicinity of the quarry access would be similar given there are no significant generators or attractors of traffic along this length of road.
2.3.1 Daily Traffic Flows	Whilst traffic growth along Nimbin Road had historically been determined as approximately 2.2% per annum, based on a comparison of count data between 1970 to 2007 (Roadnet 2008) from the recent counts (2019 to 2025) it appears there has been no growth to speak of. This potentially reflects the impact of flooding events during this period on local population and in turn traffic demands during this period. The Austroads Guide provides advice on peak hour flows typically representing 8-12% (average 10%) of daily flows. As such, the current daily flows along Nimbin Road would be in the order of 3,500 vehicles two way, consistent with the 2019 report prepared by Seca Solution.
2.3.2 Annual Average Daily Traffic (AADT)	There is no AADT data available in the locality from the road authority.
2.3.3 Daily Traffic Flow Distribution	The majority of vehicles along Nimbin Road passing the Quarry Access would be southbound in the AM, reflecting drivers travelling to work or school in the Lismore area, with the reverse pattern in the PM.
2.3.4 Vehicle Speeds	No speed surveys were completed as part of the survey work. It is considered drivers travel at or just above the posted speed limit of 80 km/hr along Nimbin Road passing the subject site, given the low traffic flows and relatively easy flowing road geometry in this location.
2.3.5 Existing Site Flows	The movements inclusive of both operations (Quarry and Asphalt) entails a maximum of 150 laden trucks per day, with an average in the order of 125 trucks per day. All trucks pass over the existing on-site weighbridge which places a limit of 25 trucks per hour that can exit the site.
2.3.6 Current Road Network Operation	Observations on site indicate that the local roads currently operate well with minimal delays or congestion observed during the survey work, undertaken during a typical morning and afternoon peak period as well as early evening to coincide with proposed 24/7 operation of the asphalt plant. The intersection of Nimbin Road and Wilson Street has been observed in September 2018, December 2019 and May 2025 and

Item	Comment
	continues to operate very well with minimal delays and queues. This intersection was observed during the morning and afternoon peak period when there were trucks associated with the current operations on site travelling through this intersection, together with peak hour demands associated with school and work trips by commuters. The operation of this intersection has been confirmed with Sidra modelling in 2019 with the results provided in Attachment C. Given the lack of traffic growth these results are still considered valid with no updates required. Observations on site noted that there were sufficient gaps in the flow of traffic to allow turning movements onto Nimbin Road at the intersection with the quarry access, allowing for heavy vehicles turning either left or right out of the site. Right turns into the site also occurred in an efficient manner given the low through movements in this location.
2.4 Traffic Safety and Accident History	A review of the accident data provided by Transport for NSW (TfNSW), for the five year period 2019-2023 found a total of 10 accidents occurred along the main quarry route on Nimbin Road between the quarry access and Wilson Street (Attachment A). Of these accidents: • No accidents occurred at the intersection of Nimbin Road and Wilson Street. • No accidents occurred at the intersection of Nimbin Road and the Quarry Access Road. • One accident resulted in a fatality with 3 resulting in serious injuries. • 8 injury accidents resulting in 7 people injured plus one fatally • Speeding was determined as a contributing factor for 7 of the 10 accidents. Fatigue was determined as a contributing factor for 1 of the 10 accidents. • The vast majority of accidents related to vehicles going off-road accounting for 8 out of 10, with one accident being an animal being struck and one with the remaining accident being a head on collision. • One of the accidents involved a heavy vehicle running off the road with speed a contributing factor Given the spread of accident types, as well as the distribution over the length of the route studied, it is considered the road layout provides an adequate level of safety for road users. Crash patterns are similar to those for the period 2014-2017. There were no accidents recorded at the key intersections on Nimbin Road, whilst the roundabout intersection of Wilson Street and Casino Street recorded no accidents involving heavy vehicles.
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	There is no provision for vehicles to park along Nimbin Road passing the subject site, with minimal shoulder width available. Similarly, there is no provision for vehicles to park along the quarry access road.

Item	Comment
2.5.2 Off-street Parking Provision	No formal off street parking in the general locality of the subject site.
2.5.3 Parking Demand and Utilisation	No vehicles observed parked on the local streets in the vicinity of the subject site, with the local residents parked within the individual lots.
2.5.4 Set down or pick up areas	No set down or pick up areas are provided in locality.
2.6 Public Transport	
2.6.1 Rail Station Locations	The site is not serviced by a train line, with Lismore Station being located over 5.5 kilometres to the south.
2.6.2 Bus Stops and Associated Facilities	There are no formal bus stops or facilities in the locality of the subject site.
2.6.3 Transport Services	There is minimal public transport in this location reflecting the rural nature of the site. Bus route 650 operates along Nimbin Road passing the subject site, with this service provided by Waller's Bus Company. Services are provided Monday to Friday at limited times throughout the day, with services centred around school pick up and drop off periods. Bus Route 652 operates between Lismore and Tunttable Creek, passing the subject site, with limited services Monday to Friday. Tourist coaches and Community Transport buses also use the road network.
2.7 Pedestrians Network	There are no pedestrian or cyclist's facilities in the locality of the subject site. Given the relatively remote location of the area it can be seen that there is little if any demand for pedestrians or cyclists in this location. There are no pedestrian paths in the locality of the subject site, reflective of its semi-rural setting and lack of demand. No pedestrians were observed during the site work.
2.8 Other Proposed Developments	No other significant developments have been noted in the locality.
<i>The Development</i>	
3.1.1 Nature of Development	This proposal relates to the modification to the existing State Significant Development (SSD) consent for the Blakebrook Quarry, to increase capacity and operating hours for the existing the Asphalt Plant which operates in conjunction with the quarry. The current approval for the site allows for: - Quarry Operations (including loading and dispatch of trucks) between 7am-6pm Monday to Friday and 7am-3pm on Saturdays, with no operations on Sundays/Public Holidays - Asphalt Plant operations are the same as the Quarry, as per the Project Approval Sch 3, cond 1. It is these existing operating hours for the Asphalt Plant that are proposed to be modified to allow 24 hour operation over a seven day week.

Item	Comment
	This proposal seeks approval for the asphalt production to increase from 50,000 tonnes per annum to 100,000 tonnes per annum being an increase in production of 100% supported by extended operating hours. The existing approval allows a <i>maximum</i> of 150 laden truck movements per day inclusive of quarry and asphalt plant operations. This will be maintained with the mix of quarry and asphalt demands managed operationally on site.
3.1.2 Access and Circulation Requirements	There are no changes proposed to the existing access and transport routes for the development, with the internal site layout to operate as per the current situation. A Driver Code of Conduct is applicable to all heavy vehicle drivers for the site, which enforce all relevant conditions of consent for the development.
3.2 Access	Access is required for the following vehicles: - Tanker - Semi Trailer - 13m Long - 24t Capacity (For Diesel, Bitumen & Lime) - Tandem Axle Truck w Trailer - Truck & Dog - 19m Long - 32t Capacity (For Material Imports & for carting Asphalt) - Live Floor Asphalt Truck - Semi Trailer - 13m Long - 24t Capacity (For carting Asphalt) - Twin Steer Truck - Rigid Body - 9m Long - 18t Capacity (For carting Asphalt) - Tandem Axle Truck - Rigid Body - 8m Long - 13t Capacity (For carting Asphalt)
3.2.1 Driveway Location	The existing Quarry Access Road, off Nimbin Road, shall continue to provide access to the subject site allowing for the above mix of vehicles. The internal road layout for the quarry and asphalt plant is well defined, with no changes as part of this proposal.
3.2.2 Sight Distances	The existing access has been constructed taking into consideration Austroads sight distance requirements.
3.2.3 Service Vehicle Access	Occasional servicing/maintenance requirements for the plant on site however this is minimal with no significant change anticipated.
3.2.4 Queuing at entrance to site	The access road layout ensures unimpeded vehicle movement into the site with no vehicle queues extending back onto Nimbin Road.
3.2.5 Comparison with existing site access	There is no change proposed to the existing arrangement.
3.2.6 Access to Public Transport	The site is not easily accessible by public transport, and it is considered that there is no demand for public transport associated with the site.
3.3 Circulation	
3.3.1 Pattern of circulation	All vehicles can enter and exit the site in a forward direction and circulate within the site using the various internal roads as required in a manner consistent with existing operations

Item	Comment
3.3.2 Internal Road width	The existing access road to the site allows for two-way traffic movements including heavy vehicles, with a width of approximately 8.5 metres along the majority of its length including narrow sealed shoulders. The internal roads for the site provide sufficient width for heavy vehicles to circulate as required to access the Asphalt Plant. There are no changes to the existing internal circulation or road widths as part of this proposal.
3.3.3 Internal Bus Movements	No requirement for buses to access the development.
3.3.4 Service Area Layout	No changes to the existing arrangement.
3.4 Parking	There are no changes proposed to the existing supply of parking on site. The existing on-site parking provision is sufficient to meet the demands of the work force based on site. Whilst there is one additional staff to be employed in association with the extra shift the total on site will be no higher than the current arrangement. Parking for visitors and any maintenance/servicing personnel can be catered for on site as required.
3.5 Pedestrian and Bicycle Facilities	There are no demands for on-site pedestrian or cyclist movements by the general public. All staff movements on the site are controlled by existing OH&S requirements for the site. Drivers associated with transport of materials follow appropriate controls and signage within the site, in accordance with the existing Driver Code of Conduct.
<i>Traffic Assessment</i>	
4.1 Traffic Generation – operational demands	The existing approval for the site allows for up to 150 laden trucks per day in association with the Quarry and Asphalt Plant. Laden movements associated with the asphalt plant vary throughout the year. The mix of laden truck demands is managed operationally on site. The site is physically limited however to 25 laden trucks outbound per hour by the operation of the on-site weighbridge. The existing asphalt plant approval is based on an estimated 9 movements per hour (4-5 inbound and 4-5 outbound per hour) across an 11 hour day. The proposal to increase the plant capacity to 100,000 tonnes per annum will generate the following heavy vehicle traffic demands:

Item	Comment		
	Daily truck movements associated with plant		
		External	Internal (quarry movements)
	Import raw material	5	10
	Import RAP material	5	-
	Dispatch asphalt/product	50	-
		60	10
			TOTAL
			1
			5
			50
			70
Of these, 10 heavy vehicles per day are associated with internal truck movements between the quarry and the asphalt plant transporting raw product and so do not impact the external road network. The above traffic demands are based on trucks bringing raw material to site and leaving empty or arriving empty, to exit full of product. Total external truck movements associated with the proposed modification is therefore 60 laden trucks or 120 truck movements per day (60 inbound/60 outbound). This includes an allowance for the import of RAP material as well as raw product (sand etc) and not just the number of laden trucks. This represents an additional 10 laden trucks per day over those estimated for the existing approval with the potential for all movements to be spread across a 24 hour day and a seven day week. This is an average of 5 movements per hour across the 24-hour day compared with the existing arrangement which sees an average of 9 movements per hour because of the shorter working day. The average truck numbers per hour is therefore less when spread across the increased operating hours despite the doubling of capacity. The uppermost hourly numbers remain restricted by the physical capacity of weighbridge on the site which was considered in the existing approval. Therefore, the hourly impact of the asphalt plant will not change being consistent with the existing (approved) traffic demands. In considering the maximum throughput during the busiest hour of the day there would be 10 laden trucks (assumed 10 inbound unladen movements and 10 outbound laden movements). This would typically occur between 6am-7am and 6pm-7pm allowing for 24 hour operation. This is 5 more laden trucks during the absolute peak periods (one hour, twice per day under 24 hour operations). This peak demand (10 laden trucks) plus quarry demands sees the site operating within the weighbridge constraint of 25 outbound laden trucks per hour.			

Item	Comment
	The weighbridge will not be upgraded as part of this project and as such this upper limit on hourly flows will remain the same as previously assessed and approved.
4.1a Traffic Generation – ancillary staff and services	In addition to the operational demands of the asphalt plant there are [2] services/maintenance trucks per day Monday to Friday. Staff numbers are low with a minimal increase (one) anticipated. Currently Downer employee 3 staff during their daily operations becoming 2 during the day and 2 at night when they operate over a 24 hour shift. Night shift demands are dependent upon market forces and specific project requirements.
4.1.1 Daily and Seasonal Factors	The traffic generated by the subject site is dictated by the demand for materials which can vary throughout the year, with high demand seeing the site operating at full production capacity and low demand periods potentially seeing much lower movements over the course of the day. During periods of inclement weather there may be no operation at all.
4.1.2 Pedestrian Movements	There are no external pedestrian demands generated by the project.
4.2 Traffic Distribution and Assignments	
4.2.1 Origin / destinations assignment	Destination is market driven. Approximately 75% of movements head south along Nimbin Road towards Lismore, the other 25% heading north along Nimbin Road.
4.3 Impact on Road Safety	The surrounding roads and intersections have been upgraded in recent years to ensure road safety is maintained. There are no changes proposed to the current transport routes. Given that there is the potential for less hourly movements with only a minor increase in movements twice per day in the operational peak hour, it is considered there are no further safety issues generated by the proposed modification to consent for the site operations. A review of the accident data provided indicates that accident numbers along the primary transport route remains low since 2014. Drivers associated with the quarry and asphalt plant are required to always follow road rules and signage. Safety and appropriate driver behaviour is reinforced through the existing OH&S Guidelines and Drivers Codes of Conduct. During the site work trucks associated with the plant were observed driving within the applicable road rules.
4.4.1 Impact on Daily Traffic Flows	There is no proposed change to the daily operational site limit of 150 laden trucks (150 laden/150 unladen) managed on site between the quarry and the asphalt plant. The spread of these however across the 24 hour day in association with the Asphalt Plant modification sees the potential for less hourly demands than present. The impact upon the capacity of the road network is therefore acceptable with operational peak hour demands occurring 6-7am and 6-7pm, with the morning peak earlier than present given the

Item	Comment
	proposed change in hours. Both peaks will therefore be outside the local road peak periods including for school pick up and drop off and local commuter peaks resulting in a lesser impact during local road peaks Traffic demands on Nimbin Road are similar during peak periods to the 2019 survey data with no significant growth along this corridor and reduced demands on other roads. The overall impact therefore has the potential to be less than those assessed in 2019.
4.4.2 Peak Hour Impacts on Intersections	Updated traffic surveys at the intersection of Nimbin Road / Terania Street / Wilson Street in May 2025 demonstrate that traffic flows have reduced in this area since the prior approved assessment. The key intersections impacted by the project have been observed during a typical morning, afternoon and evening period to review the operations and road safety. As outlined above there is no proposed increase in the maximum number of laden trucks per day with the increase in operating hours for the asphalt plant offsetting the increase in production capacity. This could result in an overall reduction in hourly truck movements with in turn a reduced impact on the operation of intersections. During absolute peak periods there could be 10 laden trucks, a small increase of 2 trucks each way east of the site over the 6 vehicles per hour per direction originally assessed. This peak period will also occur earlier than the existing approval due to the expanded hours which will reduce the impact of these additional peak demands on the local road network. Outside these peak periods the hourly demands may be lower than existing demands given the spread of operations across a 24/7 period. All intersections along the primary transport route are operating well within their capacity, with sufficient spare capacity to accommodate the minor increase in absolute peak hour vehicles movements as a result of this proposal. The turn lanes provided at the Wilson Street intersection and the quarry access ensure that through traffic movements experience minimal delays due to right turning traffic. The operation of Nimbin Road and Wilson Street has been surveyed during the morning and afternoon peak periods with the current demands similar to those recorded in 2019. The SIDRA modelling undertaken for the earlier approval therefore remains valid. This SIDRA modelling (Attachment B and C) demonstrates observations on site which is that this intersection is working very well with Levels of Service (LoS) on each approach of A, the highest level of service with minimum delays (less than 15 seconds per vehicle) and queues. The potential for 7-8 trucks per hour to turn right here, two more than the existing operation shall have a minimal impact upon these delays and the future level of service shall remain at LoS A. Other intersections along the haul routes typically operate very well with low delays and queues. The haul route via Wilson Street and Three Chain Road to the Bruxner Highway operates very well with minimal delays during the peak periods. The roundabout controlled intersection with the

Item	Comment
	Bruxner Highway operates very well with minimal delays and congestion and is considered to have capacity for the on-going use of the project site. The additional 2 truck movements per hour inbound and outbound shall have a minimal impact at this roundabout, further assisted by the change in peak hour operation.
4.4.3 Impact of Construction Traffic	No construction work is required as part of the project. Some additional equipment may be delivered to the site.
4.4.4 Other Developments	No other developments noted in the general vicinity of the site.
4.5 Public Transport	
4.5.1 Options for improving services	None proposed or required.
4.5.2 Pedestrian Access to Bus Stops	No bus stops and no demands.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	On-site WH&S controls shall be maintained to ensure safety is maximised.
4.6.2 Improvements to External Road Network	None required. The site will not generate additional traffic demands over those previously approved which is well within the capacity of the surrounding road network. The existing Driver Code of Conduct stipulates access routes in and out of the project site to ensure that the routes nominated in this assessment are utilised by the truck drivers.
4.6.3 Improvements to Pedestrian Facilities	No pedestrian footpath upgrades required as part of this development.
4.6.4 Effect of Recommended Works on Adjacent Developments	No works proposed that will impact on adjacent developments.
4.6.5 Effect of Recommended Works on Public Transport Services	None.
4.6.6 Provision of LATM Measures	None Required
4.6.7 Funding	No external works to be funded.

Site Photos



Photo 1 – Quarry Access - Nimbin Road



Photo 2 – View to the left for drivers exiting the Quarry Access Road onto Nimbin Road including right turn lane on Nimbin Road



Photo 3 – View to right along Nimbin Road from the Quarry Access Road

Conclusion:

From the site work undertaken and the review of the development proposal against the requirements of the RTA Guide to Traffic Generating Developments, Guide to Transport Impact Assessment and Austroads Guide to Traffic Management Part 12 and the TfNSW Supplement, it is considered that the proposed modification of the SSD consent for the existing Asphalt Plant associated with Blakebrook Quarry should be approved based on traffic and access grounds.

There is minimal change to staff arrangement with an increase in the production limit for the Asphalt Plant from the current 50,000 tonnes to 100,000 tonnes. Operating hours are proposed to be modified to operate 24 hours per day 7 days per week. As such, whilst there is a small increase in daily traffic volumes associated with the asphalt plant as a result of the proposal (60 trucks per day compared with the previous 50 trucks per day), hourly truck movement shall remain similar, or less than present. During the two peak periods each day (6-7AM and 6-7PM) the number of laden trucks associated with the plant may be 10 per hour (assumed both inbound and outbound), a small increase over existing operations however still within the site limit which continues to be constrained by the weighbridge to 25 outbound trucks per hour (quarry and asphalt combined). Total daily movements for the site will continue to be limited to 150 laden trucks across both the quarry and asphalt plant with these managed operationally on site.

Road safety has been reviewed and accident data obtained, which shows that the current operation of the road network in this location is safe and acceptable. The prior modification to consent for the quarry operations included a number of road upgrades, that have since been completed, to ensure the heavy vehicle movements (up to 150 laden trucks per day maximum) could be accommodated within the road network.

The haulage route has been assessed to ensure adequate safety, with the current intersections providing sufficient capacity to cater for the turn movements associated with the heavy vehicles used for the material haulage.

Should you have any queries please feel free to contact me our office on 4032 7979,

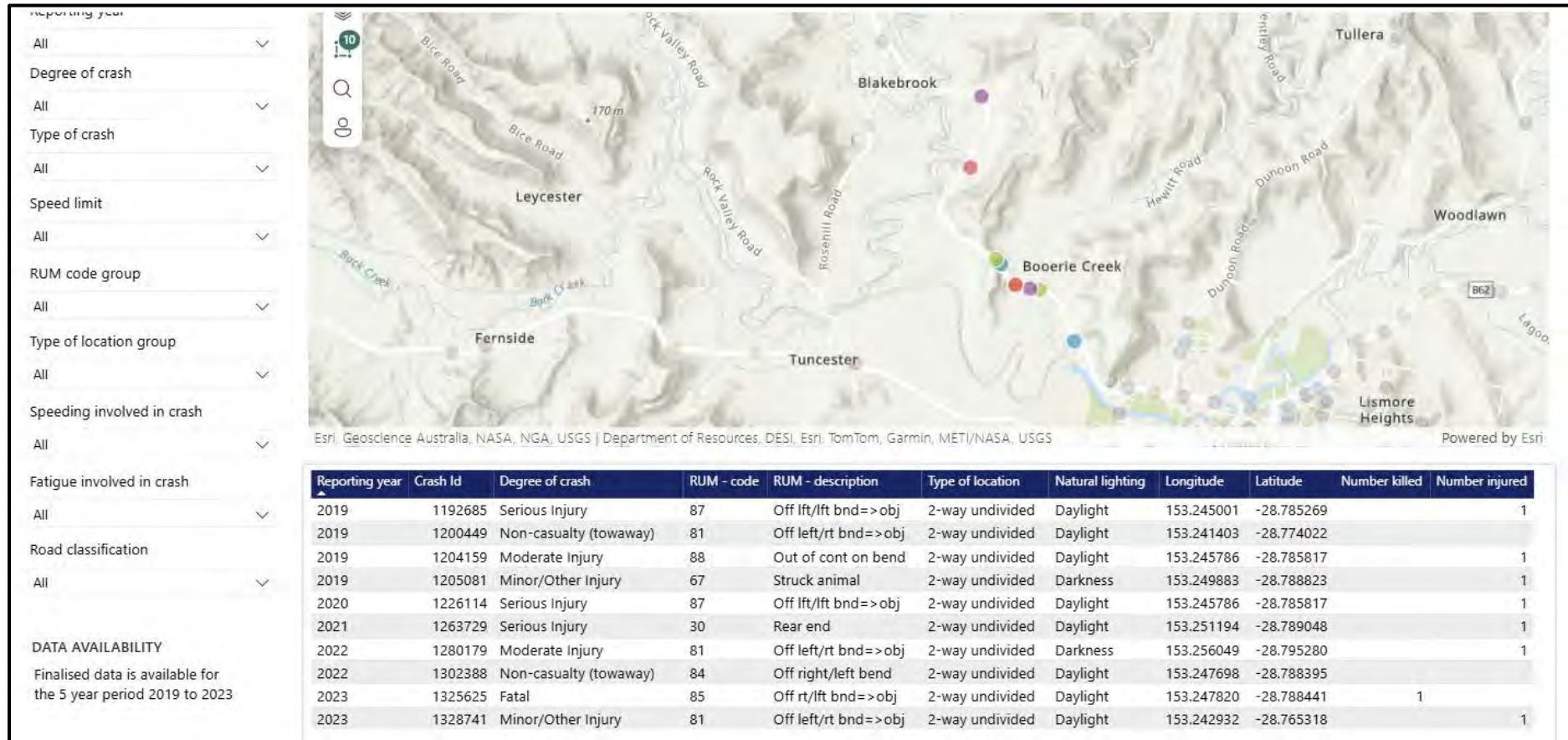
Yours sincerely,



Cathy Thomas
Director

Version	Date	Description	Prepared by	Reviewed and Approved for Issue
Ver01	18/8/25	Draft	C.Thomas	S.Morgan 
Ver02	2/10/25	Final	C.Thomas	S.Morgan 
Ver03	7/10/25	Final	C.Thomas	S.Morgan 

Attachment A: Accident Data 2019-2023



Attachment B – Criteria for interpreting results of SIDRA

1-Level of Service (LoS)

LoS	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Good	Good
B	Good, with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but requires accident study
D	Operating near capacity	Near capacity and requires accident study
E	At capacity, excessive delay: roundabout requires other control method	At capacity, requires other control mode
F	Unsatisfactory, requires other control mode or additional capacity	Unsatisfactory, requires other control mode

2-Average Vehicle Delay (AVD)

The AVD is a measure of operational performance of an intersection relating to its LoS. The average delay should be taken as a guide only for an average intersection. Longer delays may be tolerated at some intersections where delays are expected by motorists (e.g. those in inner city areas or major arterial roads).

LoS	Average Delay / Vehicle (secs)	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Less than 15	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	28 to 42	Satisfactory	Satisfactory but accident study required
D	42 to 56	Operating near capacity	Near capacity, accident study required
E	56 to 70	At capacity, excessive delays: roundabout requires other control mode	At capacity; requires other control mode
F	Exceeding 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode

3-Degree of Saturation (D/S)

The D/S of an intersection is usually taken as the highest ratio of traffic volumes on an approach to an intersection compared with the theoretical capacity, and is a measure of the utilisation of available green time. For intersections controlled by traffic signals, both queues and delays increase rapidly as DS approaches 1.0. An intersection operates satisfactorily when its D/S is kept below 0.75. When D/S exceeds 0.9, queues are expected.

Attachment C - Sidra output

The intersection of Nimbin Road / Terania Street / Wilson Street has been modelled using *Sidra Intersection 8* to determine its assess its current operation and available capacity during the morning (8:00am-9:00am) and afternoon (4pm-5pm) peak periods. The results of this assessment undertaken in 2019 are summarised below.

Road demands in 2025 are lower than surveyed at this time with the peak site demands occurring prior to the local road peak and so these results remain valid.

Table 1 - Sidra Results - 2019 Existing Situation - AM Peak (8:00am-9:00am)

Approach	Movement	Level of Service	Ave. Delay (s)	95 th Percentile Queue (m)
Wilson Street (northbound)	Left Turn	A	7.8	9.1
	Right Turn	A	11.1	
Terania Street (westbound)	Left Turn	A	7.9	4.8
	Through	A	0.3	
Nimbin Road (eastbound)	Through	A	0.0	0.0
	Right Turn	A	7.0	1.8

Table 2 - Sidra Results - 2019 Existing Situation - PM Peak (4:00pm-5:00pm)

Approach	Movement	Level of Service	Ave. Delay (s)	95 th Percentile Queue (m)
Wilson Street (northbound)	Left Turn	A	8.0	6.6
	Right Turn	A	9.4	
Terania Street (westbound)	Left Turn	A	7.6	3.7
	Through	A	0.1	
Nimbin Road (eastbound)	Through	A	0.0	0.0
	Right Turn	A	7.3	0.9

The above results indicate that the intersection Nimbin Road / Terania Street / Wilson Street is currently operating well within its capacity, with minimal delays and queuing reported for all turning movements. Both the critical right turn into and right turn out of Wilson Street provide an existing Level of Service (LoS) A with a practical spare capacity of 196% reported by Sidra.

Intersection Peak Hour

Diagram illustrating a four-way intersection with traffic flow arrows and vehicle counts:

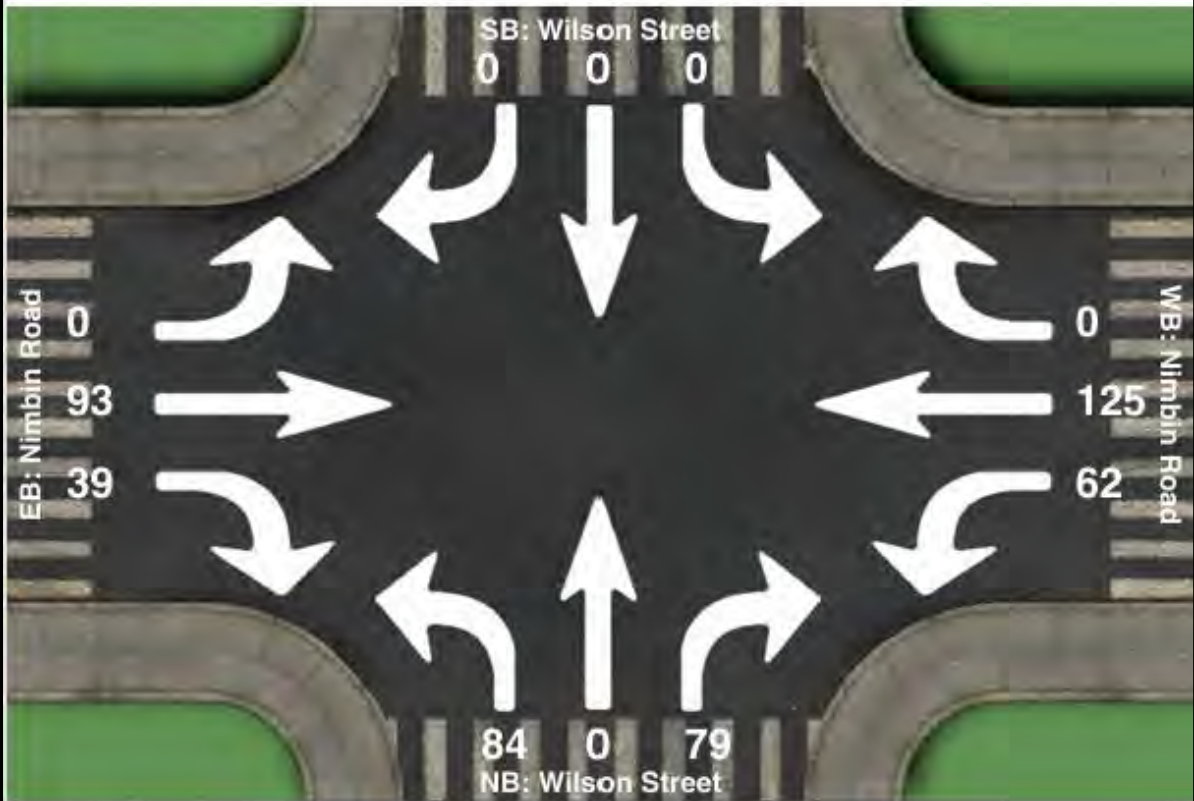
- Top Approach (SB: Wilson Street):** Three lanes with counts 0, 0, and 0. Arrows indicate left turn, through, and right turn.
- Right Approach (WB: Nimbin Road):** Three lanes with counts 0, 64, and 84. Arrows indicate left turn, through, and right turn.
- Bottom Approach (NB: Wilson Street):** Three lanes with counts 29, 0, and 85. Arrows indicate left turn, through, and right turn.
- Left Approach (EB: Nimbin Road):** Three lanes with counts 0, 155, and 102. Arrows indicate left turn, through, and right turn.

07:50 - 08:50

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	84	64	0	29	0	85	0	155	102	519
Factor	0.00	0.00	0.00	0.70	0.44	0.00	0.48	0.00	0.59	0.00	0.59	0.61	0.70
Approach Factor	0.00			0.73			0.59			0.61			

Intersection Peak Hour

Location: Wilson Street at Nimbin Road, Lismore
GPS Coordinates:
Date: 2025-05-27
Day of week: Tuesday
Weather: Cloudy
Analyst: ST



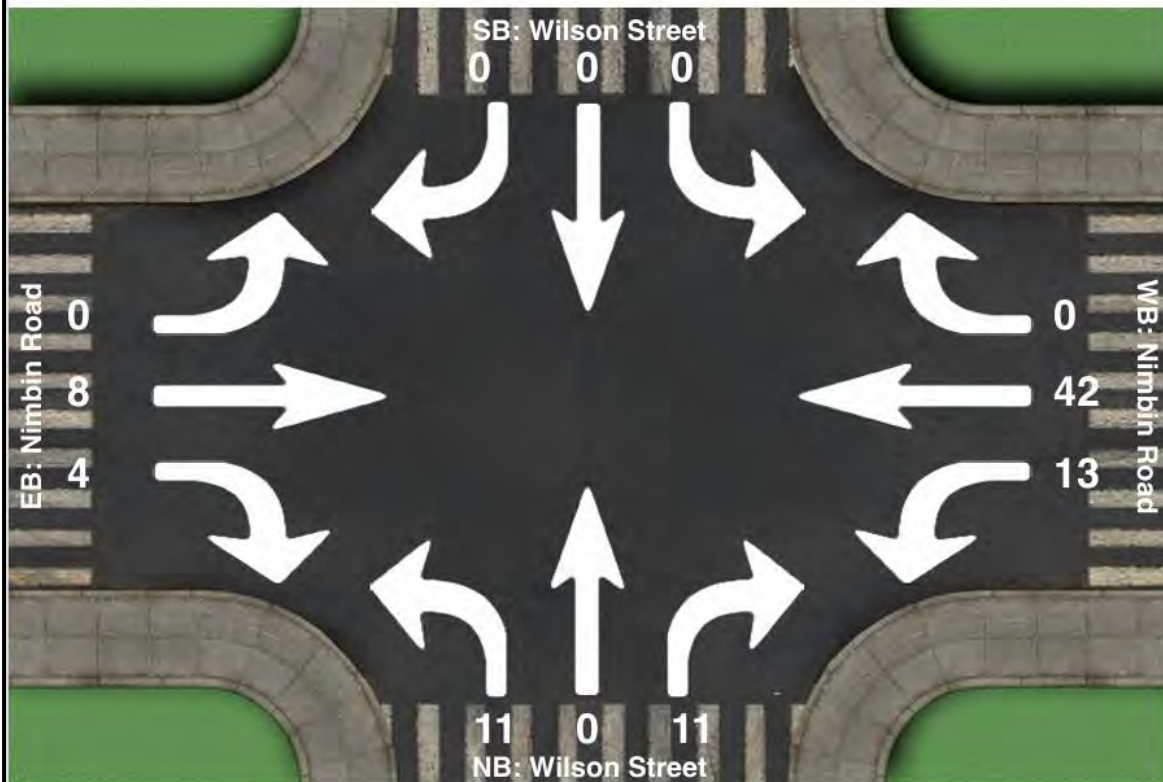
Intersection Peak Hour

15:55 - 16:55

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	62	125	0	84	0	79	0	93	39	482
Factor	0.00	0.00	0.00	0.52	0.65	0.00	0.54	0.00	0.51	0.00	0.48	0.46	0.79
Approach Factor	0.00			0.65			0.65			0.50			

Intersection Peak Hour

Location: Wilson Street at Nimbin Road, Lismore
GPS Coordinates:
Date: 2025-05-27
Day of week: Tuesday
Weather: Cloudy
Analyst: ST

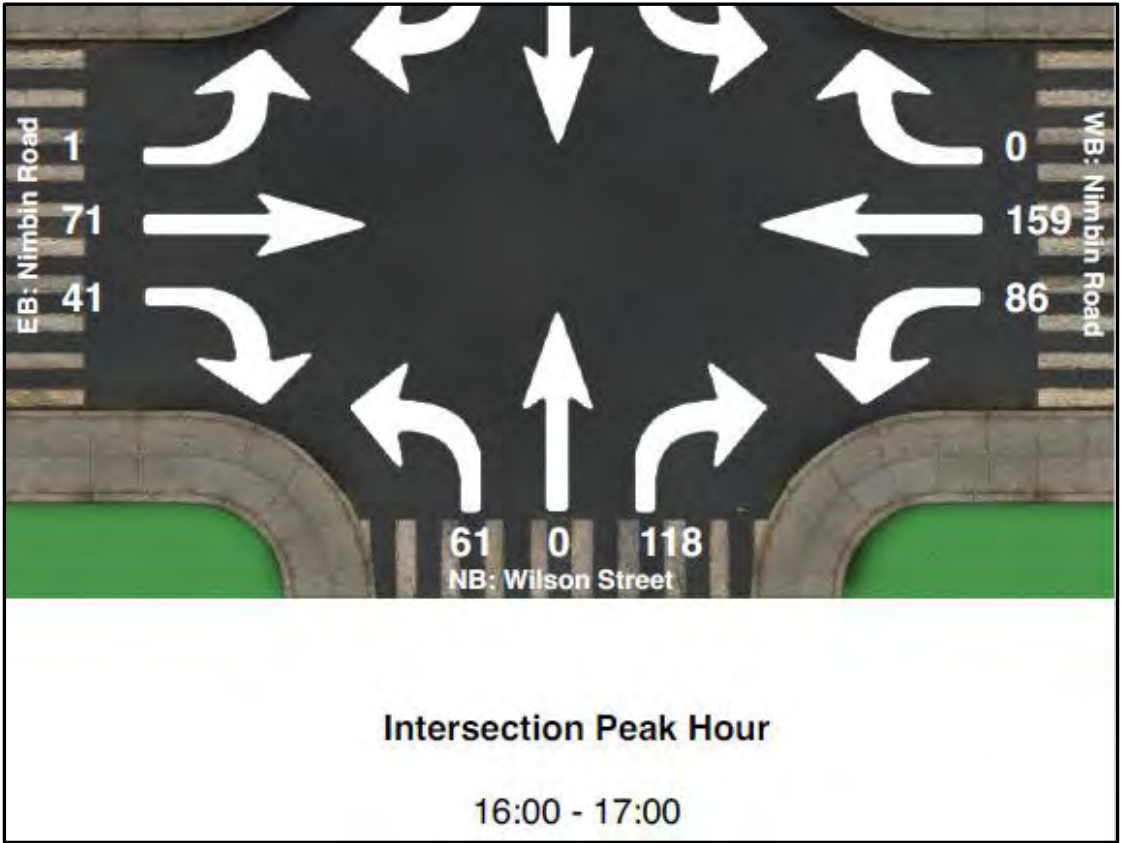


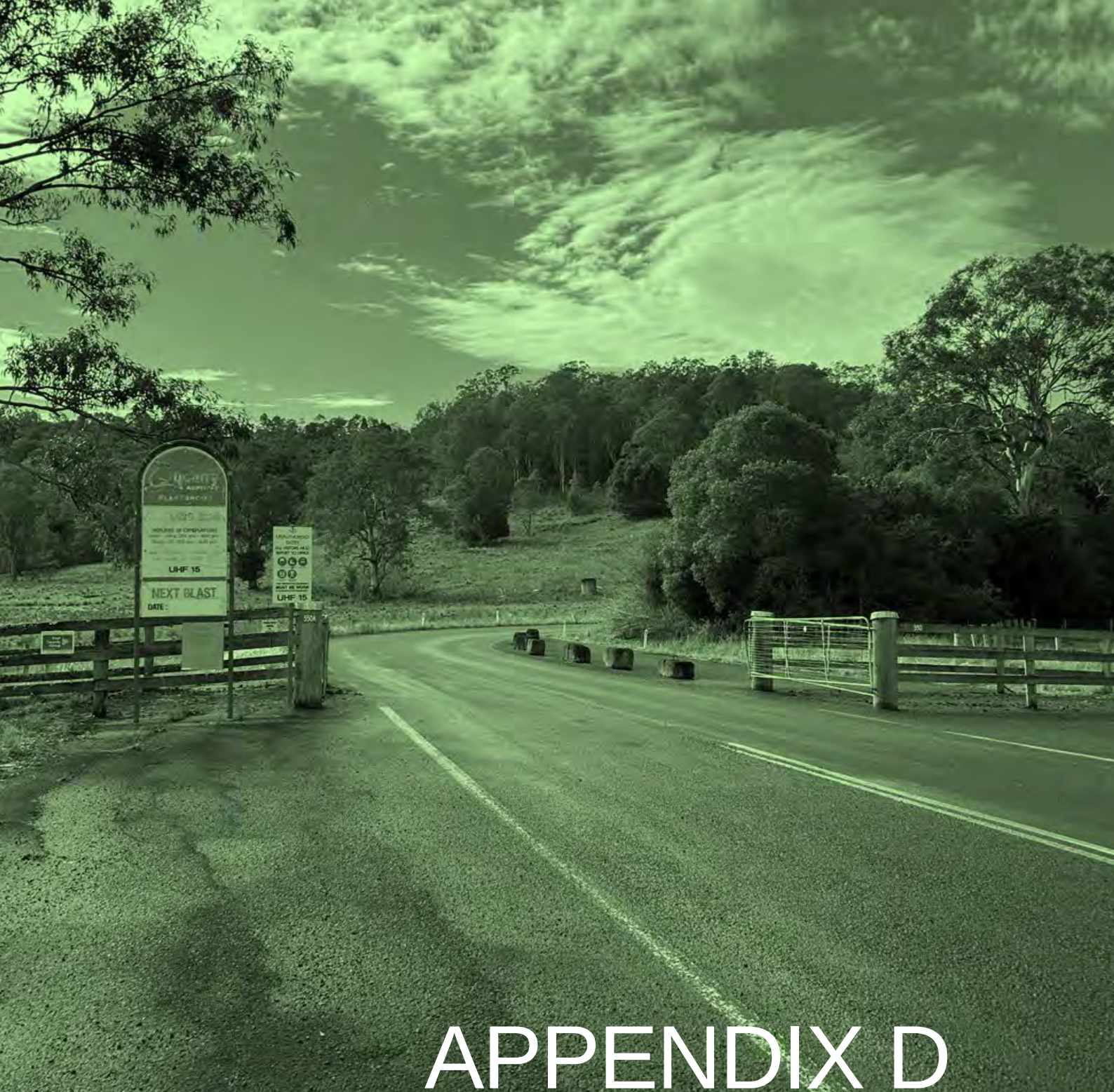
Intersection Peak Hour

18:35 - 19:35

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	13	42	0	11	0	11	0	8	4	89
Factor	0.00	0.00	0.00	0.36	0.44	0.00	0.46	0.00	0.31	0.00	0.22	0.17	0.57
Approach Factor	0.00			0.51			0.46			0.33			

Attachment E – Traffic survey data (December 2019)





APPENDIX D

NOISE IMPACT ASSESSMENT

Noise Impact Assessment

Downer Lismore Asphalt Plant

550 Nimbin Road

Blakebrook, NSW

Prepared For: Downer EDI Works Pty Ltd

C/- Element Environment Pty Ltd

October 2025

MAC252441-01RP1V2



mulleracoustic.com

Document Information

Noise Impact Assessment

Downer Lismore Asphalt Plant

550 Nimbin Road

Blakebrook, NSW

Prepared for: Downer EDI Works Pty Ltd

C/- Element Environment Pty Ltd

PO Box 1563

Warriewood NSW 2102

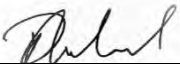
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PROJECT MANAGER	PREPARED BY	REVIEWED BY	DATE	REPORT NO
Dale Redwood	Dale Redwood	Oliver Muller	10 October 2025	MAC252441-01RP1V2
				

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by Element Environment Pty Ltd (Element), on behalf of Downer EDI Works Pty Ltd (Downer) to prepare a Noise Impact Assessment (NIA) to quantify potential noise emissions associated with the proposed extension of hours for the Downer Lismore Asphalt Plant, situated within the Blakebrook Quarry, at 550 Nimbin Road, Blakebrook, NSW (the 'project').

The NIA has quantified potential operational, sleep disturbance and road traffic noise emissions from the project and recommends reasonable and feasible noise controls where required.

This assessment has been undertaken in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI) 2017;
- NSW Department of Environment, Climate Change and Water (DECCW) – NSW Road Noise Policy (RNP), March 2011;
- NSW Environment Protection Authority (EPA), Approved methods for the measurement and analysis of environmental noise in NSW, 2022;
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures;
- International Organisation for Standardisation (ISO) 9613-1:1993 (ISO9613:1) - Acoustics - Attenuation of Sound During Propagation Outdoors - Part 1: Calculation of the Absorption of Sound by the Atmosphere;
- International Organisation for Standardisation (ISO) 9613-2:1996 (ISO9613:2) - Acoustics - Attenuation of Sound during Propagation Outdoors - Part 2: General Method of Calculation; and
- ISO/TR 17534-3 - Acoustics — Software for the calculation of sound outdoors — Part 3: Recommendations for quality assured implementation of ISO 9613-2 in software according to ISO 17534-1.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

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2 Project Description

2.1 Project Background

Downer operate an existing asphalt plant situated within the Blakebrook Quarry (the 'quarry') site at 550 Nimbin Road (Lot 54 DP1254990), Blakebrook, NSW, approximately seven (7) kilometres (km) northwest of Lismore, in the Lismore City local government area (LGA) (see **Figure 1**).

The Blakebrook Quarry is owned and operated by Lismore City Council (LCC) and Downer lease a portion of the site, on which the asphalt plant is located.

The quarry and ancillary asphalt plant currently operate under State Significant Development (SSD) consent MP07_0020.

Development consent MP07_0020 for the Blackbrook Quarry Project was originally granted on 24th November 2009 by the Minister for Planning, under the former Part 3A of the EP&A Act. The consent has since been modified on two separate occasions.

2.2 Project Description

The Blakebrook Quarry is seeking approval to modify the existing development consent. The proposed changes include:

- Allowing the Asphalt Plant operations to receive and re-use recycled materials in its asphalt production. This heavily reduces the reliance on virgin materials, as well as reducing the embodied carbon emissions associated with asphalt, making operations more environmentally friendly and sustainable. The recycled materials proposed to be used include:
 - Allowing the site to receive and process up to 15,000 tonnes (t) of Reclaimed Asphalt Pavement (RAP) each year, with a maximum of 10,000t stored on-site at any one time. RAP is a recycled road product and by utilising this, the reliance on virgin materials required to make asphalt will be reduced.
 - Receiving and processing up to 10,000t per year of recovered glass sand, with storage of up to 2,500t at any time.
 - Receiving and processing up to 1,500t per year of crumb rubber and 350t per year of TonerPlas (a recycled plastic product), with up to 45t of crumb rubber and 20t of TonerPlas stored on-site at once.
- Increasing the asphalt production and transport limit from 50,000t to 100,000t per year.

- Extending the operating hours of the asphalt plant to permit operations as needed on a 24-hour basis, while the quarry will continue to operate within its existing approved hours. This extension does not necessarily mean the plant would operate 24/7, however as required based on demand.
- Making minor administrative updates to some of the existing consent conditions.

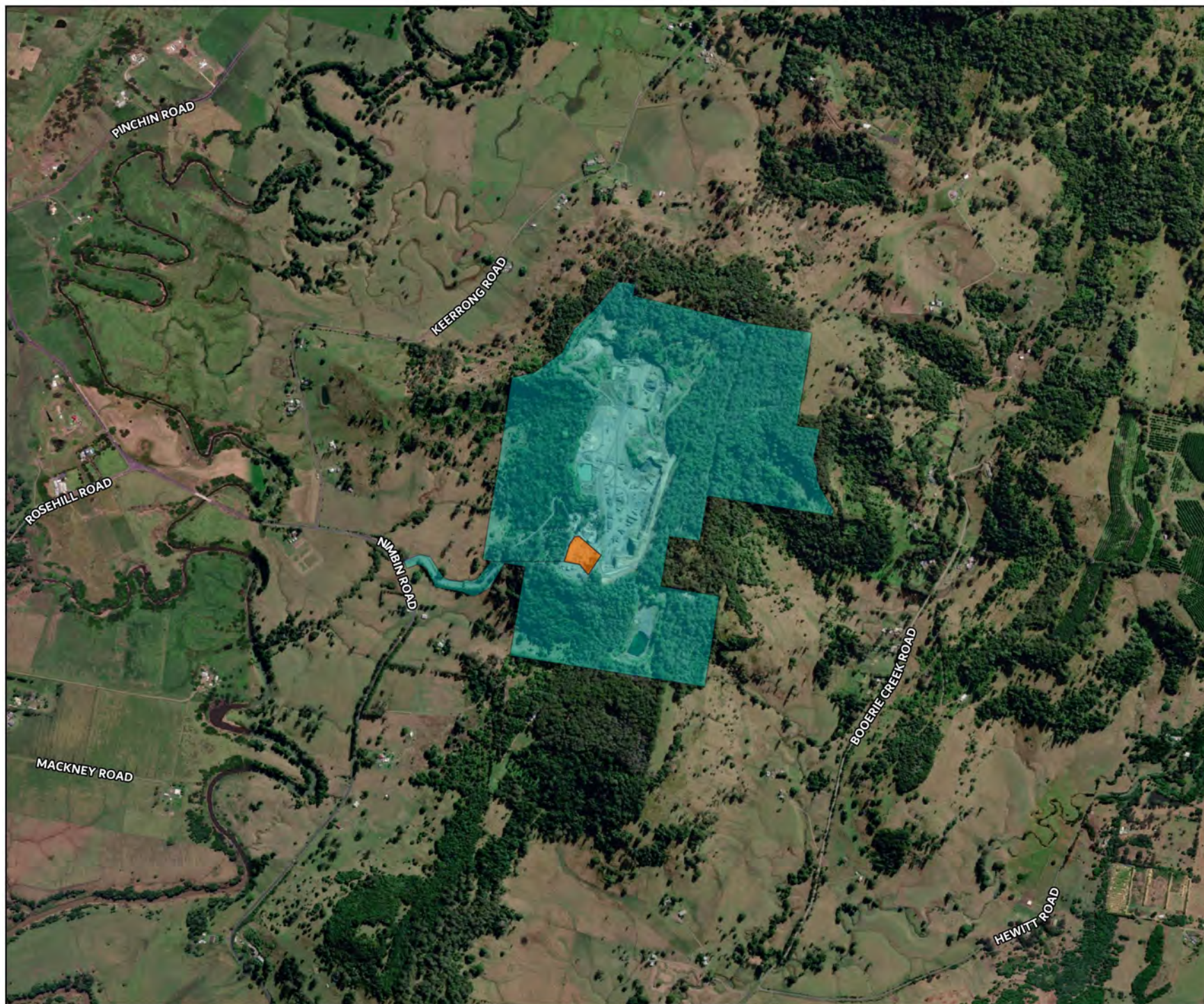


FIGURE 1
LOCATION MAP
MAC252441-01
LISMORE ASPHALT PLANT

KEY

-  Project Site (Asphalt Plant)
-  Blakebrook Quarry



2.3 Receiver Review

The site and surrounds are generally zoned RU1 – Primary Production, with small areas to the northeast and the southwest of the quarry zoned C2 – Environmental Conservation. The nearest residences are located approximately 615m from the existing asphalt plant, and approximately 150m from the site access road.

The Noise Impact Assessment for the Blakebrook Quarry Asphalt Plant (Assured Environmental Pty Ltd, 2019; Ref: 11558_R_3) (the 'historic assessment') identified seven potentially sensitive receivers (R1 – R7) surrounding the quarry. This assessment has considered the receivers identified in the historic assessment and identified a further 10 receivers located within approximately 1,250m of the asphalt plant site.

A summary of the nearby sensitive receivers is provided in **Table 1**, while **Figure 2** provides a locality plan showing the position of these receivers in relation to the project.

Table 1 Sensitive Receiver Locations				
Receiver ¹	Description	Receiver Type	Coordinates (GDA94/MGA56)	
			Easting	Northing
R1	588 Nimbin Road	Residential	523922	6817601
R2	22 Keerong Road	Residential	523504	6818263
R3	145 Pinchin Road	Residential	522889	6820373
R4	166 Keerong Road	Residential	524173	6819034
R5	365 Booerie Creek Road	Residential	525552	6818467
R6	210 Booerie Creek Road	Residential	525213	6817023
R7	484 Nimbin Road	Residential	524405	6817320
R8	533 Nimbin Road	Residential	523807	6817732
R9	577 Nimbin Road	Residential	523366	6818020
R10	28 Keerong Road	Residential	523507	6818362
R11	37 Keerong Road	Residential	523379	6818522
R12	38 Keerong Road	Residential	523409	6818594
R13	387 Booerie Creek Road	Residential	525463	6818647
R14	329A Booerie Creek Road	Residential	525692	6818058
R15	289 Booerie Creek Road	Residential	525655	6817654
R16	277 Booerie Creek Road	Residential	525635	6817583
R17	263 Booerie Creek Road	Residential	525582	6817465

Note 1: Receivers R1 to R7 represent receivers assessed in the historic assessment. Receivers R8 to R17 represent additional receivers identified within 1,250m of the asphalt plant site.

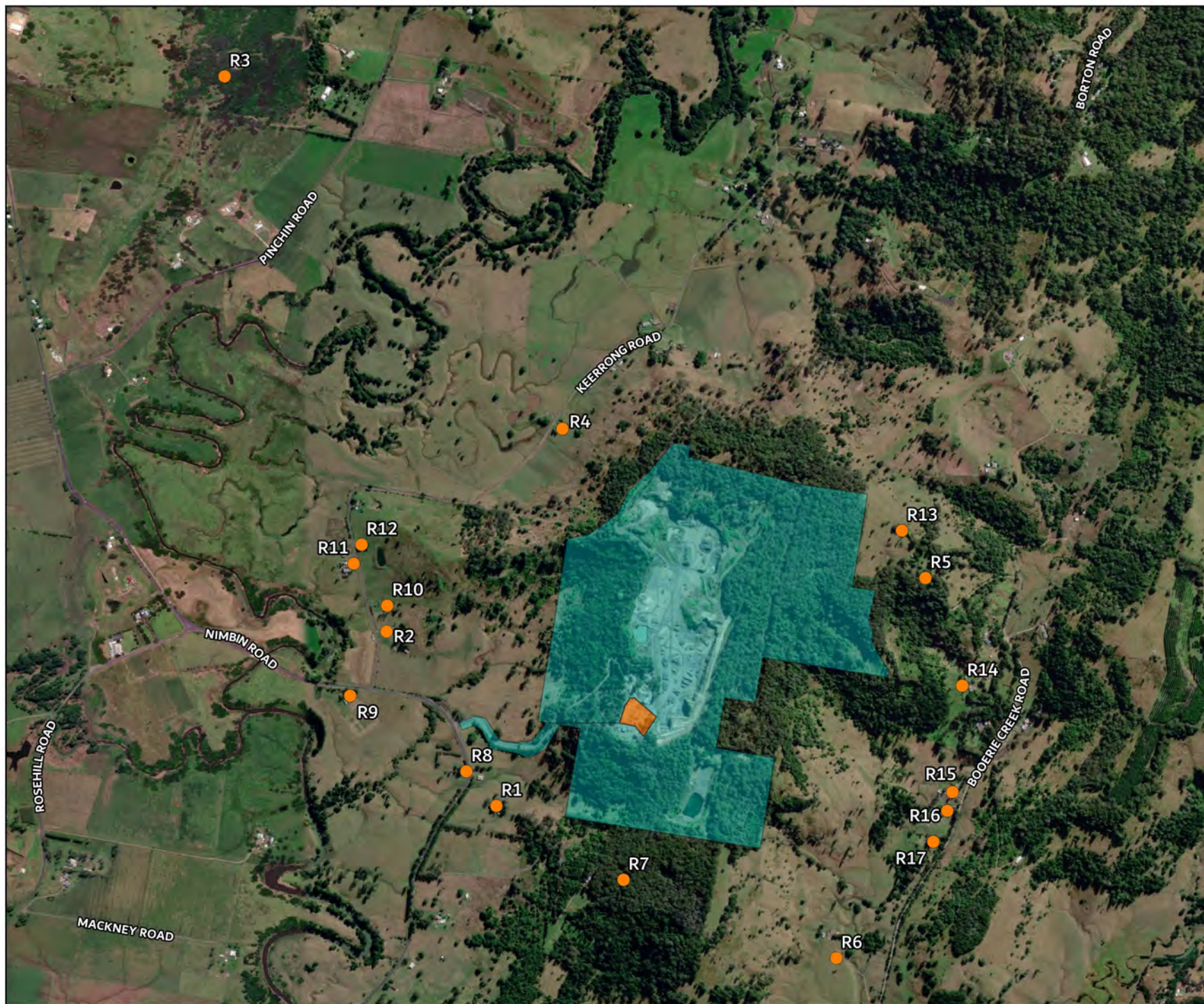
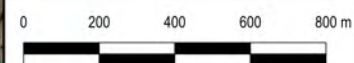


FIGURE 2
RECEIVER MAP
MAC252441-01
LISMORE ASPHALT PLANT

KEY

- Sensitive Receiver
- Project Site (Asphalt Plant)
- Blakebrook Quarry



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3 Noise Policy and Guidelines

3.1 Noise Policy for Industry

The EPA released the Noise Policy for Industry (NPI) in October 2017 which provides a process for establishing noise criteria for consents and licenses enabling the EPA to regulate noise emissions from scheduled premises under the Protection of the Environment Operations Act 1997.

The objectives of the NPI are to:

- provide noise criteria that is used to assess the change in both short term and long-term noise levels;
- provide a clear and consistent framework for assessing environmental noise impacts from industrial premises and industrial development proposals;
- promote the use of best-practice noise mitigation measures that are feasible and reasonable where potential impacts have been identified; and
- support a process to guide the determination of achievable noise limits for planning approvals and/or licences, considering the matters that must be considered under the relevant legislation (such as the economic and social benefits and impacts of industrial development).

The policy sets out a process for industrial noise management involving the following key steps:

1. Determine the Project Noise Trigger Levels (PNTLs) (ie criteria) for a development. These are the levels (criteria), above which noise management measures are required to be considered. They are derived by considering two factors: shorter-term intrusiveness due to changes in the noise environment; and maintaining the noise amenity of an area.
2. Predict or measure the noise levels produced by the development with regard to the presence of annoying noise characteristics and meteorological effects such as temperature inversions and wind.
3. Compare the predicted or measured noise level with the PNTL, assessing impacts and the need for noise mitigation and management measures.
4. Consider residual noise impacts - that is, where noise levels exceed the PNTLs after the application of feasible and reasonable noise mitigation measures. This may involve balancing economic, social and environmental costs and benefits from the proposed development against the noise impacts, including consultation with the affected community where impacts are expected to be significant.

5. Set statutory compliance levels that reflect the best achievable and agreed noise limits for the development.
6. Monitor and report environmental noise levels from the development.

3.1.1 Project Noise Trigger Levels (PNTL)

The policy sets out the procedure to determine the PNTLs relevant to an industrial development. The PNTL is the lower (ie, the more stringent) of the **Project Intrusiveness Noise Level (PINL)** and **Project Amenity Noise Level (PANL)** determined in accordance with Section 2.3 and Section 2.4 of the NPI.

3.1.2 Rating Background Level (RBL)

The Rating Background Level (RBL) is a parameter determined from noise monitoring and is used for assessment purposes. As per the NPI, the RBL is an overall single figure background level representing each assessment period (day, evening and night) over the noise monitoring period.

For low noise environments, such as rural environments, minimum assumed RBLs apply within the NPI can be adopted in lieu of completing background noise measurements. This is considered the most conservative method for establishing noise criteria for a project. The minimum assumed RBLs are as follows:

- Minimum Day RBL = 35dBA;
- Minimum Evening RBL = 30dBA; and
- Minimum Night RBL = 30dBA.

3.1.3 Project Intrusiveness Noise Level (PINL)

The PINL ($LA_{eq}(15min)$) is the RBL + 5dB and seeks to limit the degree of change a new noise source introduces to an existing environment. Hence, when assessing intrusiveness, background noise levels need to be measured.

Background noise levels need to be determined before intrusive noise can be assessed. The NPI states that background noise levels to be measured are those that are present at the time of the noise assessment and without the subject development operating. For the assessment of modifications to existing premises, the noise from the existing premises should be excluded from background noise measurements. It is note that the exception is where the premises has been operating for a significant period of time and is considered a normal part of the acoustic environment; it may be included in the background noise assessment under the following circumstances:

- the development must have been operating for a period in excess of 10 years in the assessment period/s being considered and is considered a normal part of the acoustic environment; and,
- the development must be operating in accordance with noise limits and requirements imposed in a consent or licence and/or be applying best practice.

Where a project intrusiveness noise level has been derived in this way, the derived level applies for a period of 10 years to avoid continuous incremental increases in intrusiveness noise levels. This approach is consistent with the purpose of the intrusiveness noise level to limit significant change in the acoustic environment. The purpose of the project amenity noise level is to moderate against background noise creep.

3.1.4 Project Amenity Noise Level (PANL)

The PANL is relevant to a specific land use or locality. To limit continuing increases in intrusiveness levels, the ambient noise level within an area from all combined industrial sources should remain below the recommended amenity noise levels specified in Table 2.2 (of the NPI). The NPI defines two categories of amenity noise levels:

- **Amenity Noise Levels (ANL)** – are determined considering all current and future industrial noise within a receiver area; and
- **Project Amenity Noise Level (PANL)** – is the recommended level for a receiver area, specifically focusing the project being assessed.

Additionally, Section 2.4 of the NPI states: “to ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies for each new source of industrial noise as follows”:

PANL for new industrial developments = recommended **ANL** minus 5dBA.

The following exceptions apply when deriving the PANL:

- areas with high traffic noise levels;
- proposed developments in major industrial clusters;
- existing industrial noise and cumulative industrial noise effects; and
- greenfield sites.

Where relevant this assessment has considered influences of traffic with respect to amenity noise levels (ie areas where existing traffic noise levels are 10dB greater than the recommended amenity noise level).

Furthermore, Section 2.4 of the NPI states “where the project amenity noise level applies and it can be met, no additional consideration of cumulative industrial noise is required. “

The recommended amenity noise levels as per Table 2.2 of the NPI are reproduced in **Table 2**.

Table 2 Amenity Noise Levels			
Receiver Type	Noise Amenity Area	Time of day	Recommended amenity noise level dB LAeq(period)
Residential	Rural	Day	50
		Evening	45
		Night	40
	Suburban	Day	55
		Evening	45
		Night	40
	Urban	Day	60
		Evening	50
		Night	45
Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks.	See column 4	See column 4	5dB above the recommended amenity noise level for a residence for the relevant noise amenity area and time of day
School Classroom	All	Noisiest 1-hour period when in use	35 (internal) 45 (external)
Hospital ward			
- internal	All	Noisiest 1-hour	35
- external	All	Noisiest 1-hour	50
Place of worship			
- internal	All	When in use	40
Passive Recreation	All	When in use	50
Active Recreation	All	When in use	55
Commercial premises	All	When in use	65
Industrial	All	When in use	70

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note: The recommended amenity noise levels refer only to noise from industrial noise sources. However, they refer to noise from all such sources at the receiver location, and not only noise due to a specific project under consideration. The levels represent outdoor levels except where otherwise stated.

Types of receivers are defined as rural residential; suburban residential; urban residential; industrial interface; commercial; industrial – see Table 2.3 and Section 2.7 of the NPI.

3.1.5 Maximum Noise Assessment Trigger Levels

The potential for sleep disturbance from maximum noise level events from a project during the night-time period needs to be considered. The NPI considers sleep disturbance to be both awakenings and disturbance to sleep stages.

Where night-time noise levels from a development/premises at a residential location exceed the following criteria, a detailed maximum noise level event assessment should be undertaken:

- LAeq(15min) 40dB or the prevailing RBL plus 5dBA, whichever is the greater, and/or
- LAmax 52dB or the prevailing RBL plus 15dBA, whichever is the greater.

A detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

Other factors that may be important in assessing the impacts on sleep disturbance include:

- how often the events would occur;
- the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the development;
- whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods); and
- current understanding of effects of maximum noise level events at night.

3.2 Road Noise Policy

The road traffic noise criteria are provided in the Road Noise Policy (RNP), 2011. The policy sets out noise criteria (refer **Table 3**) applicable to different road classifications for the purpose of quantifying traffic noise impacts.

Table 3 Road Traffic Noise Assessment Criteria

Road category	Type of project/development	Assessment Criteria – dBA	
		Day (7am to 10pm)	Night (10pm to 7am)
Freeways/arterial/ sub-arterial Roads	Existing residences affected by additional traffic on freeways/arterial/sub- arterial roads generated by land use developments	60dB LAeq(15hr)	55dB LAeq(9hr)
Local roads	Existing residences affected by additional traffic on local roads generated by land use developments	55dB LAeq(1hr)	50dB LAeq(1hr)
School Classrooms	Proposed road projects and traffic generating developments	40dB LAeq(1hr) (internal) when in use	N/A
Hospital Wards		35dB LAeq(1hr) (internal)	35dB LAeq(1hr) (internal)
Places of Worship		40dB LAeq(1hr) (internal)	40dB LAeq(1hr) (internal)
Open Space (active use)		60dB LAeq(1hr)	N/A
Open Space (passive use)		55dB LAeq(1hr)	N/A
Isolated residences in commercial or industrial zones		Refer to AS2107 for internal levels	
Mixed Use development		Each component to be considered separately	
Childcare Facilities		Sleeping rooms 35dB LAeq(1hr) (internal) Indoor play areas 40dB LAeq(1hr) (internal) Outdoor play areas 55dB LAeq(1hr) (external)	

Additionally, the RNP states where existing road traffic noise criteria are already exceeded, any additional increase in total traffic noise level should be limited to 2dBA, which is generally accepted as the threshold of perceptibility to a change in noise level.

4 Assessment Criteria

4.1 Historic Noise Limits

Blakebrook Quarry and Asphalt Plant currently operate in accordance with Environment Protection Licence (EPL #3384) and development consent MP 07_0020, Mod 3, which prescribes the following noise limits:

L4.1 Noise from the premises must not exceed an LAeq(15 minute) noise criterion of 36dB(A) at Location 2 and 7 and 35dB(A) at all other sensitive receivers, except expressly provided by this licence.

It is noted that the current approved hours of operation for the facility, including the asphalt plant, are 7am to 6pm Monday to Friday and 7am to 3pm on Saturday. However, L6.3 of EPL #3384 and Condition 2A, Schedule 3 of the development consent indicates that the licensee may undertake limited campaign asphalt plant operations (within the limits imposed in the EPL and Approval) outside of the operating hours.

Notwithstanding, assessment of the extended hours of operation of the asphalt plant is undertaken in accordance with the methodologies prescribed in the current NSW industrial noise guideline (NPI), including establishment of contemporary criteria.

4.2 Operational Project Noise Trigger Levels (Criteria)

This section outlines the determination of PNTLs and Maximum Noise Assessment Trigger Levels in accordance with NPI methodology.

4.2.1 Existing Noise Environment

Based on the rural locality, and low likely existing noise levels, background noise monitoring has not been conducted for this project. Hence, the minimum assumed Rating Background Level (RBL) of 30dBA has been adopted for the evening and night time periods, in accordance with NPI methodology.

It is noted the proposed increase in production would be facilitated by an extension of the hours of operation to 24 hours. It is anticipated that the day period operations would remain consistent with the existing approved activities. Hence, assessment is undertaken for the evening and night periods only. Notwithstanding, the contemporary criteria is derived for all assessment periods (day, evening and night).

4.2.2 Project Intrusiveness Noise Levels

The PINLs for the project are presented in **Table 4** and have been determined based on the RBLs +5dBA.

Table 4 Project Intrusiveness Noise Levels

Receiver	Period ¹	Adopted RBL dB LA90(period)	PINL dB LAeq(15min)
All Residential Receivers	Day	35	40
	Evening	30	35
	Night	30	35

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

4.2.3 Project Amenity Noise Levels

The relevant PANL for residential receivers potentially affected by the project are presented in **Table 5**.

Table 5 Amenity Noise Levels and Project Amenity Noise Levels

Receiver Type	Noise Amenity Area	Assessment Period ¹	Recommended ANL dB LAeq(period)	ANL dB LAeq(period) ²	PANL dB LAeq(15min) ³
Residential	Rural	Day	50	50	53
		Evening	45	45	48
		Night	40	40	43

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Project Amenity Noise Level equals the Amenity Noise Level as there is no other industry in the area.

Note 3: Includes a +3dB adjustment to the amenity period level to convert to a 15-minute assessment period as per Section 2.2 of the NPI.

4.2.4 Project Noise Trigger Levels

The PNTLs are the lower of either the PINLs or the PANLs. **Table 6** presents the derivation of the PNTLs in accordance with the methodologies outlined in the NPI. For this assessment the night time PNTL of 35dB LAeq(15min) is the limiting criteria for residential receivers.

Table 6 Project Noise Trigger Levels

Catchment	Assessment Period ¹	PINL dB LAeq(15min)	PANL dB LAeq(15min)	PNTL dB LAeq(15min)
Residential	Day	40	53	40
Receivers	Evening	35	48	35
(Rural)	Night	35	43	35

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

4.2.5 Maximum Noise Trigger Levels

The maximum noise trigger levels shown in **Table 7** are based on night time RBLs and trigger levels as per Section 2.5 of the NPI. The trigger levels will be applied to transient noise events that have the potential to cause sleep disturbance.

Table 7 Maximum Noise Trigger Levels (Night)			
Residential Receivers			
LAeq(15min)		LAmax	
40dB LAeq(15min) or RBL + 5dB		52dB LAmax or RBL + 15dB	
Trigger	40	Trigger	52
RBL +5dB	35	RBL +15dB	45
Highest	40	Highest	52

Notes: Monday to Saturday; Night 10pm to 7am. On Sundays and Public Holidays Night 10pm to 8am. Morning Shoulder 5am to 7am; Evening Shoulder 10pm to 12am.

NPI identifies that maximum of the two values is to be adopted which is shown in bold font.

4.3 Road Traffic Noise

MAC understands that access to the site would be via Nimbin Road, which is classified as a 'sub arterial road', in accordance with Section 2.2 of the RNP. The road traffic noise assessment criteria for this assessment, as per the RNP, are presented in **Table 8**.

Table 8 Road Traffic Noise Assessment Criteria			
Road category	Type of project/development	Assessment Criteria – dBA	
		Day (7am to 10pm)	Night (10pm to 7am)
	Existing residences affected by		
Freeways/arterial/ sub-arterial Roads	additional traffic on freeways/arterial/sub- arterial roads generated by land use developments	60dB LAeq(15hr)	55dB LAeq(9hr)

Additionally, the RNP states where existing road traffic noise criteria are already exceeded, any additional increase in total traffic noise level should be limited to 2dBA, which is generally accepted as the threshold of perceptibility to a change in noise level.

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5 Modelling Methodology

A computer model was developed to quantify project noise emissions to neighbouring receivers using DGMR (iNoise, Version 2024) noise modelling software. iNoise is an intuitive and quality assured software for industrial noise calculations in the environment. 3D noise modelling is considered industry best practice for assessing noise emissions from projects.

The model incorporated a three-dimensional digital terrain map giving all relevant topographic information used in the modelling process. Additionally, the model uses relevant noise source data, ground type, attenuation from barrier or buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers. Where relevant, modifying factors in accordance with Fact Sheet C of the NPI have been applied to calculations.

The model calculation method used to predict noise levels was in accordance with ISO 9613:1 and ISO 9613:2 including corrections for meteorological conditions using CONCAWE¹. The ISO 9613 standards are the most used noise prediction method worldwide. Many countries refer to ISO 9613 in their noise legislation. However, the ISO 9613 standard does not contain guidelines for quality assured software implementation, which leads to differences between applications in calculated results. In 2015 this changed with the release of ISO/TR 17534-3. This quality standard gives clear recommendations for interpreting the ISO 9613 method. iNoise fully supports these recommendations. The models and results for the 19 test cases are included in the software.

5.1 Assessment Scenarios

The modification to the operations of the asphalt plant would primarily involve an increase in the production rate to 100,000tpa and a change in operating hours to allow 24/7 operations. It is noted that there are no changes proposed to the existing operations of the quarry. Furthermore, day time operation of the asphalt plant would remain essentially the same as the existing approved operations. Hence, the assessment has considered the operation of asphalt plant during the evening and night time only.

The assessment parameters, including source sound power levels, analysis of annoying characteristics and meteorological analysis is provided in the following sections.

¹ Report no. 4/18, "the propagation of noise from petroleum and petrochemical complexes to neighbouring communities", Prepared by C.J. Manning, M.Sc., M.I.O.A. Acoustic Technology Limited (Ref.AT 931), CONCAWE, Den Haag May 1981

5.1.1 Sound Power Levels

Table 9 presents the sound power level for each noise source modelled in this assessment. Single octave sound power levels are provided in **Appendix B**.

It is noted that sound power levels for the asphalt plant were provided by the plant manufacturer (Ammann). Similarly, sound power levels for the front-end loader were sourced from manufacturers specifications (Komatsu), while sound power levels for the road trucks were sourced from the CNOSSOS-EU database.

Table 9 Acoustically Significant Sources - Sound Power Levels dBA (re 10^{-12} Watts)

Noise Source	Detail / Description	Modelled Sound Power Level dB LAeq(15min)	Source Height ¹
Operation			
Cold Feed System	Cold Feeder (x6)	76 (each)	1m
Drying / Heating System	Drum	92	2m
	Burner Device	101	2m
Dust Collection	Exhaust Fan	93	1.5m
	Stack ²	112	12m
Mixing Tower	Hot Elevator	90	10.4m
	Vibrating Screen (Casing and Drive)	95	3.5m
	Oversized Discharge Duct	104	1.5m
	Mixer	94	3.5m
	Container Compressor	75	3m
Filter Supply	Filter Elevator	85	1m
Asphalt Storage Silo	Discharge to Mixer from Silo	88	4m
RAP	Addition System	93	3m
Front End Loader	Komatsu WA480	108	2m
Road Trucks	10 / hr ³	104	1.5m
Maximum Noise Level Assessment (LAmax), Night time periods (10pm to 7am)			
	Truck (Passby) ⁴	104	1.5m
	Loading Truck (Impact)	114	3m

Note 1: Height above the relative ground level below source.

Note 2: Modelled as a point source with vertical discharge.

Note 3: Modelled as a moving source.

Note 4: Modelled as a point source at the closest point on the site access road to the nearby sensitive receivers.

5.1.2 Annoying Characteristics

Fact Sheet C of the NPI provides guidelines for applying 'modifying factors' adjustments to account for annoying noise characteristics such as low-frequency, tonality, intermittent noise, irregular or noise of short duration. A detailed assessment of annoying characteristics has been undertaken for the Project, is provided in full in **Appendix C** and summarised below. It is noted that due to the nature of the asphalt plant operations, intermittent noise is unlikely to be a feature of the site and has not been considered further.

The analysis of low-frequency noise found that modelled noise levels from all sources exceeded the screening test of C-A weighted noise levels greater or equal to 15dB (16.9dB). Further analysis was undertaken to determine whether noise levels exceeded the threshold in any octave band. The results of the assessment indicated that Z weighted noise levels remained below the relevant thresholds for all octave bands for each receiver location. Hence, no correction for low-frequency noise is applied.

An assessment of tonality was undertaken to identify dominant tones associated with the asphalt plant. The tonal noise correction applies when the level of an octave band exceeds the level of the adjacent band on either side by at least 5dB. The results of the tonality assessment demonstrates that the asphalt plant operations do not result in dominant tones. Hence, no correction for tonality is applied.

5.1.3 Meteorological Analysis

Noise emissions can be influenced by prevailing weather conditions. Light stable winds (<3m/s) and temperature inversions have the potential to increase noise at a receiver.

Fact Sheet D of the NPI provides two options when considering meteorological effects:

- adopt the noise enhancing conditions for all assessment periods without an assessment of how often the conditions occur – a conservative approach that considers a source to receiver winds for all receivers and F class temperature inversions with wind speeds up to 2m/s at night; or
- determine the significance of noise enhancing conditions. This requires assessing the significance of temperature inversions (F and G Class stability categories) for the night time period and the significance of light winds up to 3m/s for all assessment periods during stability categories other than E, F or G.

Standard meteorological conditions and noise-enhancing meteorological conditions as defined in Table D1 of the NPI are reproduced in **Table 10**.

Table 10 Standard and Noise-Enhancing Meteorological Conditions	
Meteorological Conditions	Meteorological Parameters
Standard Meteorological Conditions	Day/evening/night: stability categories A–D with wind speed up to 0.5m/s at 10m AGL.
Noise Enhancing Meteorological Conditions	Daytime/evening: stability categories A–D with light winds (up to 3 m/s at 10m AGL). Night-time: stability categories A–D with light winds (up to 3m/s at 10m AGL) and/or stability category F with winds up to 2m/s at 10 m AGL.

A detailed analysis of the significance of noise enhancing conditions has not been undertaken and hence, the NPI noise enhancing meteorological conditions have been applied to the noise modelling assessment are presented in **Table 11**.

Table 11 Modelled Meteorological Parameters				
Assessment Condition ¹	Temperature	Wind Speed ² / Direction	Relative Humidity	Stability Class ²
Evening	10°C	3m/s all directions	50%	D
Night	10°C	2m/s all directions	50%	F

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Implemented using CONCAWE meteorological corrections.

5.2 Road Traffic Noise Assessment Methodology

Due to the low traffic volume generated by the project over a typical day during the construction phase, road traffic noise calculation methods such as Calculation of Road Traffic Noise (CRTN - ISBN 0 11 550847 3) by Department of Transport (UK) 1988 or Traffic Noise Model (TNM) by the United States Department of Transport, Federal Highway Administration are not considered appropriate as they are primarily intended to calculate noise emissions from motorways and highways. Whilst each method has a low volume correction, the project traffic volume is out of the scope of these methods.

Therefore, road traffic noise has been modelled using iNoise modelling software using ISO 9613-1 and ISO 9613-2 calculation methods, representing the road traffic as “moving sources” along the transport route.

It is noted that the historic noise impact assessment (Assured Environmental, 2019) included an assessment of road traffic noise for the day period (7am to 10pm), with a worst-case scenario of 300 heavy vehicle movements per hour, or 3,300 heavy vehicle movements across the entire day. The existing limit of heavy vehicles from the site is 150 trucks per day. Hence, the historic assessment considered a heavy vehicle scenario far greater than what is practically possible from the site. Given that the historic assessment demonstrated compliance with the applicable RNP criteria based on 3,300 vehicles per day, any additional truck movements during the day period resulting from the extension of hours to 10pm, would also comply. Therefore, the road traffic noise assessment as part of this study has been undertaken for the night period (10pm to 7am) only.

The proposed heavy vehicle movements during the night period were provided by Downer. Based on a worst-case scenario of up to 1,000t of product during the night, it is anticipated that there would be up to 45 heavy vehicle movements between 10pm and 7am.

A review of aerial imagery identified that the closest residential receiver to Nimbin Road (533 Nimbin Road) is approximately 15m from the carriageway centre line. The sign-posted speed limit along Nimbin Road is typically 100km/h.

The modelled road traffic parameters are summarised in **Table 12**.

Table 12 Road Traffic Noise Modelling Parameters				
Noise Source/Item	Lw dBA re 10-12 W	Movements ¹	Speed, km/h	Source Height, m ²
Heavy vehicle (rigid, semi trailer or b-double)	104	45	100	1.5

Note 1: Number of vehicle movements during the night period (10pm to 7am).

Note 2: Height above ground level.

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6 Assessment Results

6.1 Operational Noise Assessment

Noise predictions from the operation of the asphalt plant during the evening and night (noise enhancing conditions) have been quantified at surrounding residential receivers to the project site and are presented in **Table 13**. Noise contour plots for the evening and night period operations are provided in **Figure 3** and **Figure 4**.

The results of the assessment demonstrate that operational noise emissions would achieve the PNTLs for the evening and night periods, at all assessed receiver locations. The highest noise levels are predicted to be up to 35dB LAeq(15min) at receiver R8, which is located nearest to site access road.

Table 13 Noise Predictions – All Receivers

Location	Predicted Noise Level		PNTL dB LAeq(15min)	Compliant
	dB LAeq(15min)			
	Evening	Night		
R1	32	32	35	✓
R2	32	32	35	✓
R3	<30	<30	35	✓
R4	<30	<30	35	✓
R5	<30	<30	35	✓
R6	<30	<30	35	✓
R7	32	32	35	✓
R8	35	35	35	✓
R9	31	31	35	✓
R10	<30	<30	35	✓
R11	<30	<30	35	✓
R12	<30	<30	35	✓
R13	<30	<30	35	✓
R14	<30	<30	35	✓
R15	<30	<30	35	✓
R16	<30	<30	35	✓
R17	<30	<30	35	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: PNTL is consistent for the evening and night periods.

FIGURE 3
NOISE CONTOURS
OPERATIONS - EVENING
MAC252441-01
LISMORE ASPHALT PLANT

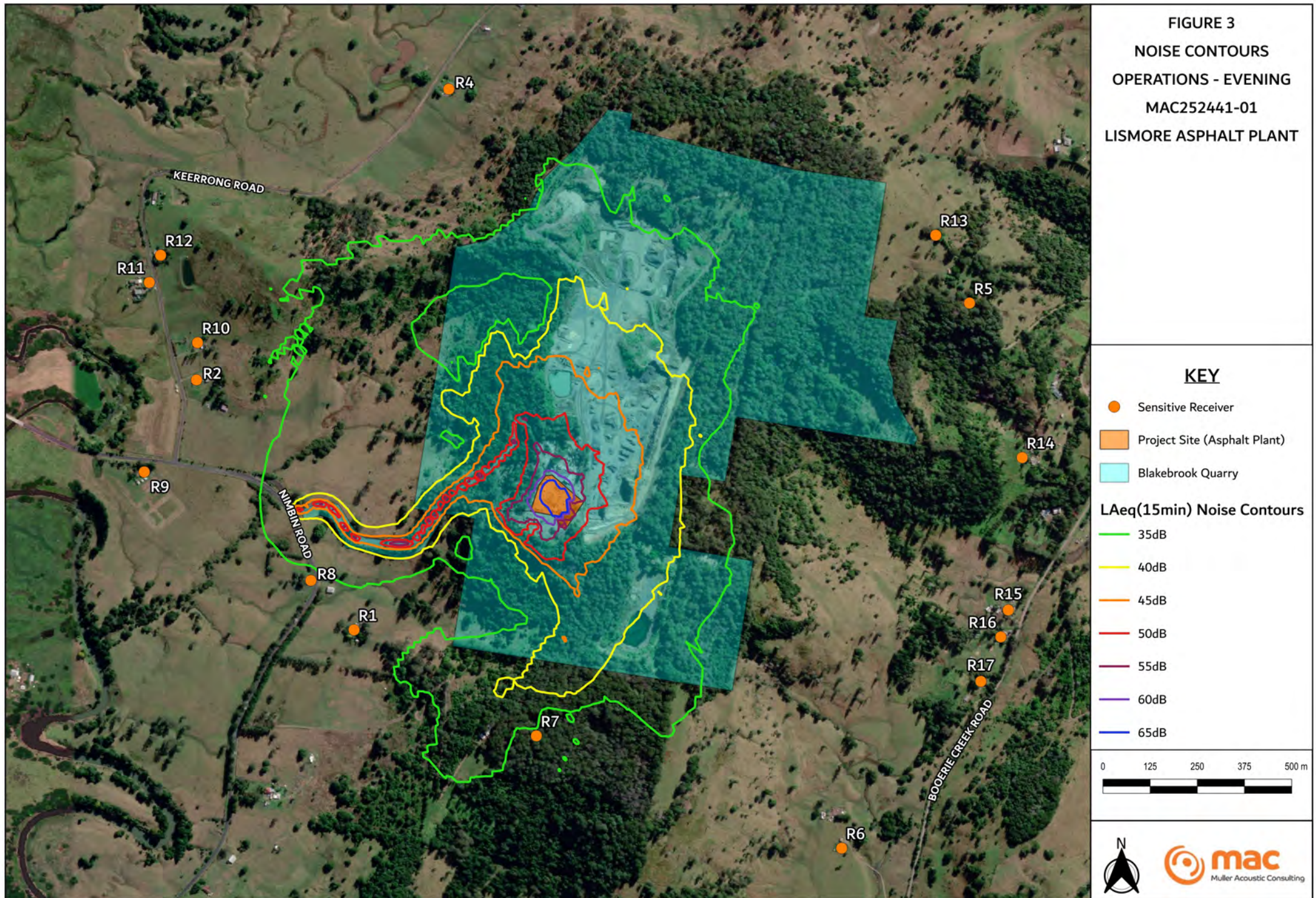
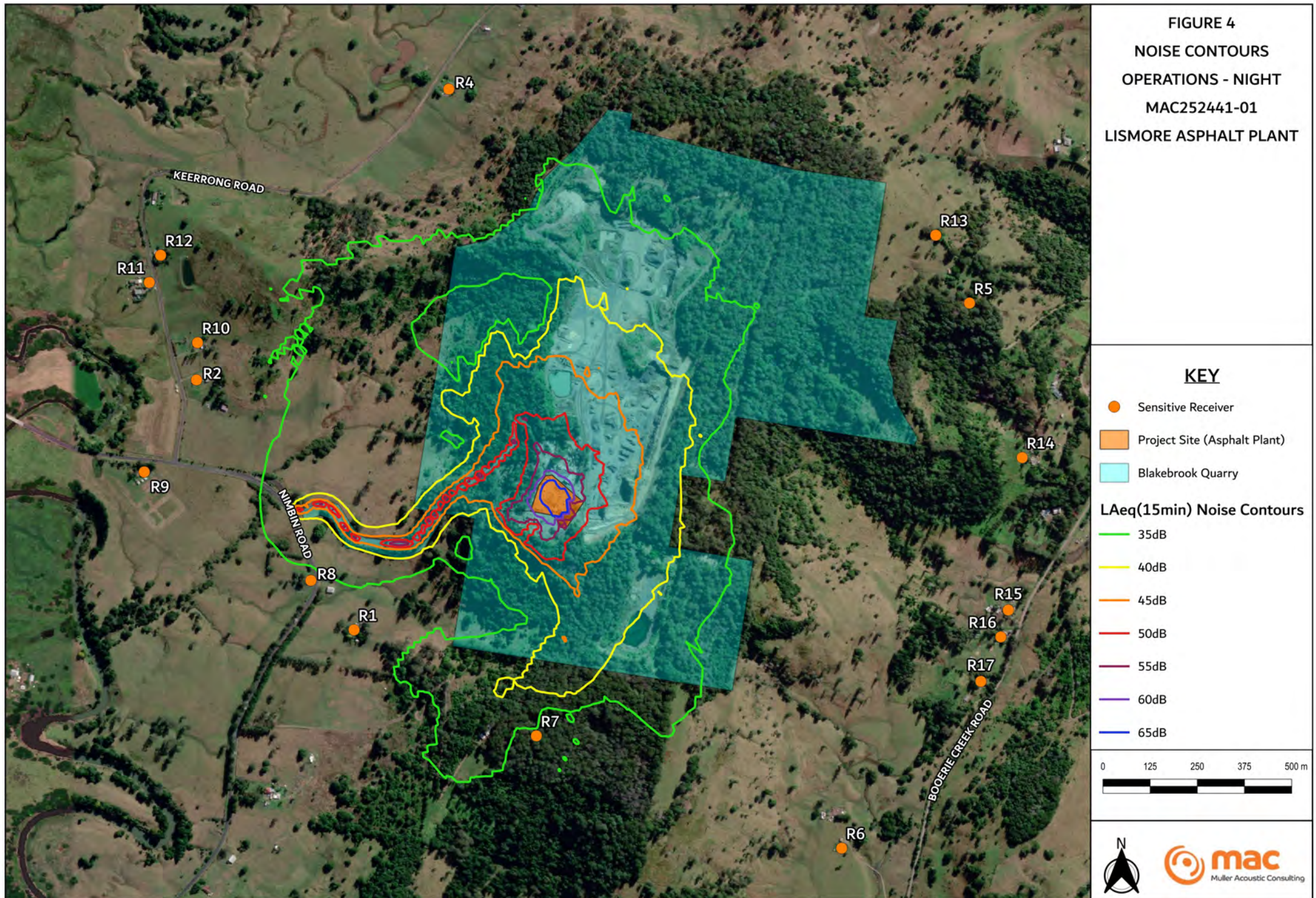


FIGURE 4
NOISE CONTOURS
OPERATIONS - NIGHT
MAC252441-01
LISMORE ASPHALT PLANT



6.1.1 Maximum Noise Level Assessment

In assessing maximum noise events, typical L_{Amax} noise levels from transient events were assessed at the nearest residential receivers. For the maximum noise level assessment, a sound power level of 104dBA for a truck passby event and 114dBA for impact noise from truck loading were adopted for maximum noise level (L_{Amax}) events during the night period.

Predicted noise levels from L_{Aeq}(15min) and L_{Amax} events for assessed receivers are presented in **Table 14**. Results identify that the maximum noise trigger levels will be satisfied for all assessed receivers.

Table 14 Maximum Noise Level Assessment (Night Morning Shoulder, Evening Shoulder)¹

Receiver	Predicted Noise Level			Maximum Trigger Levels		Compliant
	dB LAeq(15min)	dB LAmax		dB LAeq(15min)	dB LAmax	
		Truck Passby	Impact			
R1	32	43	39	40	52	✓
R2	32	35	40	40	52	✓
R3	<30	<30	<30	40	52	✓
R4	<30	<30	34	40	52	✓
R5	<30	<30	35	40	52	✓
R6	<30	<30	<30	40	52	✓
R7	32	<30	39	40	52	✓
R8	35	47	41	40	52	✓
R9	31	35	39	40	52	✓
R10	<30	<30	37	40	52	✓
R11	<30	<30	35	40	52	✓
R12	<30	<30	35	40	52	✓
R13	<30	<30	35	40	52	✓
R14	<30	<30	<30	40	52	✓
R15	<30	<30	<30	40	52	✓
R16	<30	<30	<30	40	52	✓
R17	<30	<30	<30	40	52	✓

Note 1: Monday to Saturday; Night 10pm to 7am. On Sundays and Public Holidays Night 10pm to 8am. Morning Shoulder 5am to 7am; Evening Shoulder 10pm to 12am.

6.2 Road Traffic Noise Assessment

Predicted road traffic noise levels from the project are presented in **Table 15**. The results of the assessment demonstrate that road traffic noise levels are anticipated to be below the relevant RNP criteria for the night period at the nearest residential receiver locations. Hence, it is expected that there would be no road traffic noise impacts associated with the proposed extension of hours.

Table 15 Operational Road Traffic Noise Levels

Offset from Road	Period	Assessment Criteria dB LAeq(period)	Calculated Project Traffic Noise dB LAeq(period)	Compliant
15m	Night	55 LAeq(9hr)	45	Yes

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7 Noise Monitoring and Management

The results of the assessment for the extension of hours for the operation of the asphalt plant demonstrated compliance with the nighttime criterion at all receiver locations. Notwithstanding, it is recommended that the following measures are considered:

- Separated operating hours for the Quarry and Asphalt plant based on the approval. The Quarry operating hours will remain, between 7am and 6pm Monday to Friday, and 7am and 3pm Saturday, in an endeavour to undertake as much work as possible during standard work hours, unless work is approved in accordance with the approved OHWP. Asphalt operating hours are to be updated in the NBMP to reflect the approval.
- The existing NBMP will be updated to include provisions for investigating any community responses related to the asphalt plant. Any concerns raised by community members will be reviewed, and steps will be taken to modify onsite processes to mitigate the identified noise sources, where practicable.
- In the event of consecutive noise complaints relating to the same noise source, attended noise monitoring will be undertaken.
 - The attended noise measurements and recordings would be conducted to quantify noise emissions from the asphalt plant as well as the overall level of ambient noise.
 - When required, the operator shall quantify and characterise the energy equivalent (LA_{eq}) intrusive noise level from the Project over a 15-minute measurement period.
 - The operator shall quantify and characterise the overall levels of ambient noise over the 15-minute measurement interval.
 - It is recommended that instrumentation used during the monitoring is to be equivalent to a Type 1 meter with 1/3 octave band analysis and have audio recording functionality for post processing source identification. It is noted that 1/3 octave band analysis is required to establish whether modification factors in accordance with the NPI are to be applied.
 - All acoustic instrumentation used as part of the attended monitoring program must be designed to comply with the requirements of AS IEC 61672.1-2019, Electroacoustics - Sound level meters - Specifications and shall have current calibration certificates.
 - All instrumentation shall be programmed to record statistical noise level indices in 15-minute intervals including L_{Amax} , L_{Amin} and LA_{eq} .

- Instrument calibration shall be checked before and after each measurement survey, with the variation in calibrated levels not exceeding ± 0.5 dBA.
- The measurement position(s) should be selected considering:
 - weather conditions such as rain and wind, insect noise;
 - the location and direction of any noise source/s;
 - the most sensitive position at the affected receiver; and
 - the need to avoid reflecting surfaces (where possible).

8 Discussion and Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Impact Assessment (NIA) to quantify emissions associated with the proposed extension of hours for the Downer Lismore Asphalt Plant, situated within the Blakebrook Quarry, at 550 Nimbin Road, Blakebrook, NSW.

The assessment has quantified potential noise emissions pertaining to the operation of the asphalt plant during the evening and night periods, including fixed plant, mobile equipment and heavy vehicle movements. The assessment considered the worst-case scenario of all plant and equipment operating simultaneously under noise enhancing conditions.

The results of the NIA demonstrate that noise emissions from the operation would satisfy the relevant PNTLs at all assessed receivers for all assessment periods.

Furthermore, sleep disturbance is not anticipated, as emissions from maximum noise events (ie trucks passby events on the site access road and impact noise from loading trucks) are predicted to satisfy the NPIs maximum noise trigger levels.

An assessment of road traffic noise during the night period found that road traffic noise levels are anticipated to be significantly below the relevant RNP criteria.

Accordingly, the Noise Impact Assessment supports the Modification Application for the project without specific management measures being required.

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Appendix A – Glossary of Terms

A number of technical terms have been used in this report and are explained in **Table A1**.

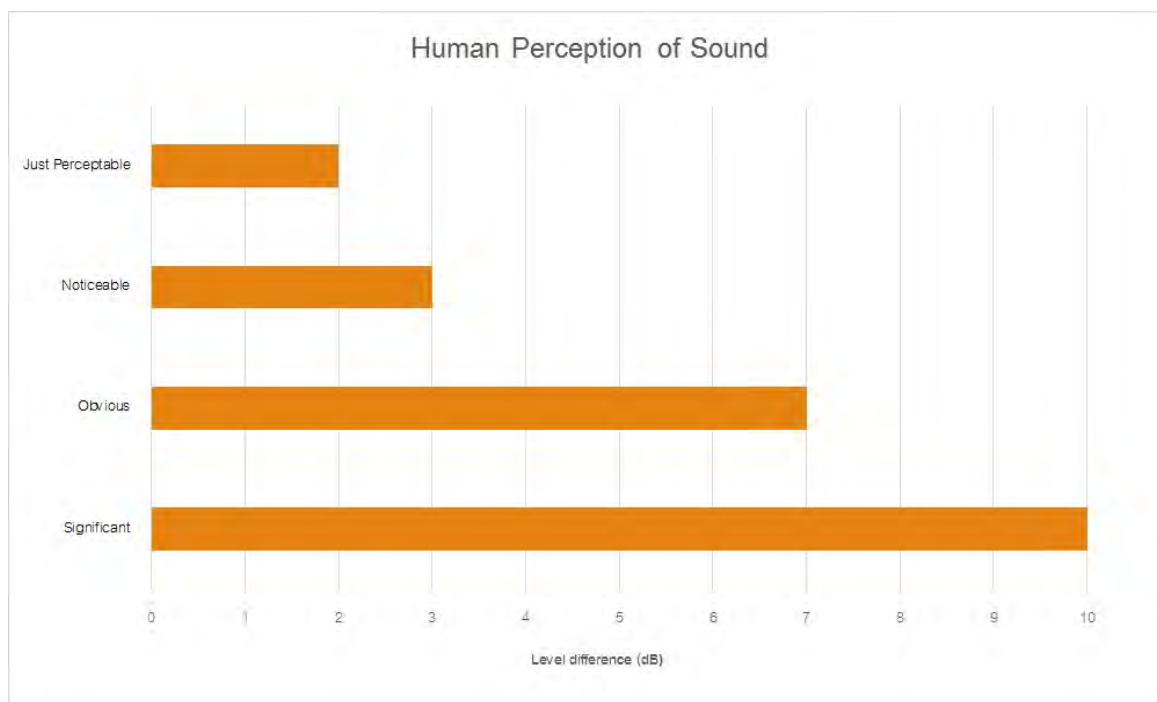
Table A1 Glossary of Acoustical Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured L90 statistical noise levels.
Ambient Noise	The total noise associated with a given environment. Typically, a composite of sounds from all sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to sound.
Background Noise	The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is usually represented by the LA90 descriptor
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Z-weighted or decibels Linear (unweighted).
Extraneous Noise	Sound resulting from activities that are not typical of the area.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A sound level which is exceeded 10% of the time.
LA90	Commonly referred to as the background noise, this is the level exceeded 90% of the time.
LAeq	Represents the average noise energy or equivalent sound pressure level over a given period.
LAmx	The maximum sound pressure level received at the microphone during a measuring interval.
Masking	The phenomenon of one sound interfering with the perception of another sound. For example, the interference of traffic noise with use of a public telephone on a busy street.
RBL	The Rating Background Level (RBL) as defined in the NPI, is an overall single figure representing the background level for each assessment period over the whole monitoring period. The RBL, as defined is the median of ABL values over the whole monitoring period.
Sound power level (Lw or SWL)	This is a measure of the total power radiated by a source in the form of sound and is given by $10 \cdot \log_{10} (W/W_0)$. Where W is the sound power in watts to the reference level of 10^{-12} watts.
Sound pressure level (Lp or SPL)	the level of sound pressure; as measured at a distance by a standard sound level meter. This differs from Lw in that it is the sound level at a receiver position as opposed to the sound 'intensity' of the source.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA

Source	Typical Sound Pressure Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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Appendix B – Sound Power Data

Table B1 Single Octave Equipment Sound Power Levels, dB LAeq(15min) (re10⁻¹²W)

Source/Item	Octave Band Centre Frequency, Hz								Total, dBA
	63	125	250	500	1000	2000	4000	8000	
Cold Feeder	34	45	60	71	73	69	--	--	76
Drying / Heating - Drum	66	73	77	83	83	89	83	68	92
Drying / Heating - Burner Device	70	90	92	93	96	85	93	91	101
Dust Collection - Exhaust Fan	80	86	84	86	85	85	82	64	93
Dust Collection - Stack	87	97	105	110	105	96	--	--	112
Mixing Tower - Hot Elevator	60	74	79	84	83	83	83	74	90
Mixing Tower - Vibrating Screen (Casing and Drive)	48	66	71	82	88	93	--	--	95
Mixing Tower - Oversized Discharge Duct	62	72	80	85	97	103	--	--	104
Mixing Tower - Mixer	73	79	81	89	88	88	85	76	94
Mixing Tower - Container Compressor	35	50	56	60	66	72	69	60	75
Filter Elevator	55	69	74	79	78	79	78	69	85
Discharge to Mixer from Asphalt Silo	41	59	64	75	81	86	--	--	88
RAP Addition System	63	77	82	87	86	86	86	77	93
Front End Loader	81	97	101	101	97	102	96	90	108
Road Trucks	78	84	92	98	101	97	92	84	104
Maximum Noise Level Assessment, LA _{max}									
Truck Passby Event	78	84	92	98	101	97	92	84	104
Loading Truck (Impact)	100	101	109	107	108	106	100	91	114

Appendix C – Annoying Characteristics Assessment

Table APP-1 Tonality & Low Frequency Noise Assessment								
	Frequency (Hz)	Values (dBZ)	A-wt Spectrum	C-wt Spectrum	1/3 Octave Tonality Test	1/1 Octave Tonality Test	LFN Present (Table C1 -NPI 2017)	NPI LFN Criteria (dBZ)
Inaudible Range	10		0	0			No	92
	12.5		0	0			No	89
	16		0	0			No	86
	20		0	0			No	77
LFN Range	25	50	5	46			No	69
	31.5	45	5	42	FALSE	FALSE	No	61
	40	40	5	38	FALSE		No	54
	50	47	17	46	FALSE		No	50
	63	43	17	43	FALSE	FALSE	No	50
	80	40	17	39	FALSE		No	48
	100	39	20	39	FALSE		No	48
	125	36	20	36	FALSE	FALSE	No	46
	160	34	20	34	FALSE		No	44
	200	30	19	30	FALSE		Fact Sheet C - Table C1 Measure/ assess source contribution C- and A-weighted Leq,T levels over same time period. Correction to be applied where the C minus A level is 15 dB or more and: • where any of the one-third octave noise levels in Table C2 are exceeded by up to and including 5 dB and cannot be mitigated, a 2dB(A) positive adjustment to measured/predicted A-weighted levels applies for the evening/night period • where any of the one-third octave noise levels in Table C2 are exceeded by more than 5 dB and cannot be mitigated, a 5dB(A) positive adjustment to measured/predicted A-weighted levels applies for the evening/night period and a 2 dB(A) positive adjustment applies for the daytime period. Where a source emits tonal and low-frequency noise, only one 5-dB correction should be applied if the tone is in the low-frequency range, that is, at or below 160 Hz.	
	250	28	19	28	FALSE	FALSE		
	315	26	19	26	FALSE			
	400	27	23	27	FALSE			
	500	26	23	26	FALSE	FALSE		
	630	25	23	25	FALSE			
	800	26	25	26	FALSE			
	1000	25	25	25	FALSE	FALSE		
	1250	25	25	25	FALSE			
	1600	21	22	21	FALSE			
	2000	21	22	21	FALSE	FALSE		
2500	21	22	21	FALSE				
3150	9	10	9	FALSE				
4000	9	10	8	FALSE	FALSE			
5000	10	10	8	FALSE				
6300	-11	0	0	FALSE				
8000	-10	0	0	FALSE	FALSE			
10000	-8	0	0					
12500		0	0					
16000		0	0					
20000		0	0					
			Total dBA	Total dBC	C-A			
Total SPL			35	52	16.9			
Assessment								
Low Frequency Noise Present					No			
Tonal Noise Present					No			

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APPENDIX E

AIR QUALITY IMPACT ASSESSMENT



AIR QUALITY IMPACT ASSESSMENT BLAKEBROOK QUARRY MODIFICATION 4

Element Environment

24 September 2025

Job Number 25041878

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Air Quality Impact Assessment

Blakebrook Quarry Modification 4

DOCUMENT CONTROL

Report Version	Prepared by	Reviewed by
FINAL - 001	PH	EA

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1 INTRODUCTION

Todoroski Air Sciences has prepared this report for Element Environment for the proposed modification to an existing asphalt plant within the Blakebrook Quarry site at Blakebrook, New South Wales (NSW) (hereafter referred to as the Project).

Key aspects of the modification sought for the Project is to allow for the an increase in the asphalt production to 100,000 tonnes per annum (tpa), the receipt and processing of up to 15,000tpa of Reclaimed Asphalt Pavement (RAP), 10,000tpa of recovered glass sand, 1,500tpa of crumb rubber and 350tpa of TonerPlas and a change in the operating hours for the asphalt plant to 24/7 operations.

The report presents an assessment of potential air quality impacts and greenhouse gas emissions associated with the Project. This air quality impact assessment has been prepared in general accordance with the New South Wales (NSW) Environment Protection Authority (EPA) document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA, 2022).

To assess the potential air quality impacts associated with the Project, this report comprises:

- ✦ A background to the Project and description of the proposed operations;
- ✦ A review of the existing meteorological and air quality environment surrounding the site;
- ✦ A description of the dispersion modelling approach and emission estimation used to assess potential air quality impacts; and,
- ✦ Presentation of the predicted results and discussion of the potential air quality impacts and associated mitigation and management measures.



2 PROJECT BACKGROUND

2.1 Local setting

The Project site is located at 550 Nimbin Road, Blakebrook, approximately 6.3 kilometres (km) northwest of Lismore. The area surrounding the Project site is predominantly comprised of rural agricultural land with scattered dwellings. The Project is located within the Blakebrook Quarry, which is owned and operated by Lismore City Council (LCC). The nearest residential dwelling is approximately 0.6km to the southwest of the Project site.

Figure 2-1 presents the location of the Project with reference to the assessment locations considered in this assessment. **Table 2-1** identifies each of the assessment locations.

Table 2-1: Assessment locations

Assessment location ID	Address	Description	Approximate distance to Project (km)
R1	538 Nimbin Road	Residential	0.6
R2	22 Keerong Road	Residential	0.9
R3	145 Pinchin Road	Residential	2.9
R4	166 Keerong Road	Residential	1.1
R5	365 Booerie Creek Road	Residential	1.2
R6	210 Booerie Creek Road	Residential	1.1
R7	484 Nimbin Road	Residential	0.6
R8	533 Nimbin Road	Residential	0.7
R9	577 Nimbin Road	Residential	1.1
R10	28 Keerong Road	Residential	1.0
R11	37 Keerong Road	Residential	1.2
R12	38 Keerong Road	Residential	1.2
R13	387 Booerie Creek Road	Residential	1.3
R14	329A Booerie Creek Road	Residential	1.3
R15	289 Booerie Creek Road	Residential	1.3
R16	277 Booerie Creek Road	Residential	1.3
R17	263 Booerie Creek Road	Residential	1.2

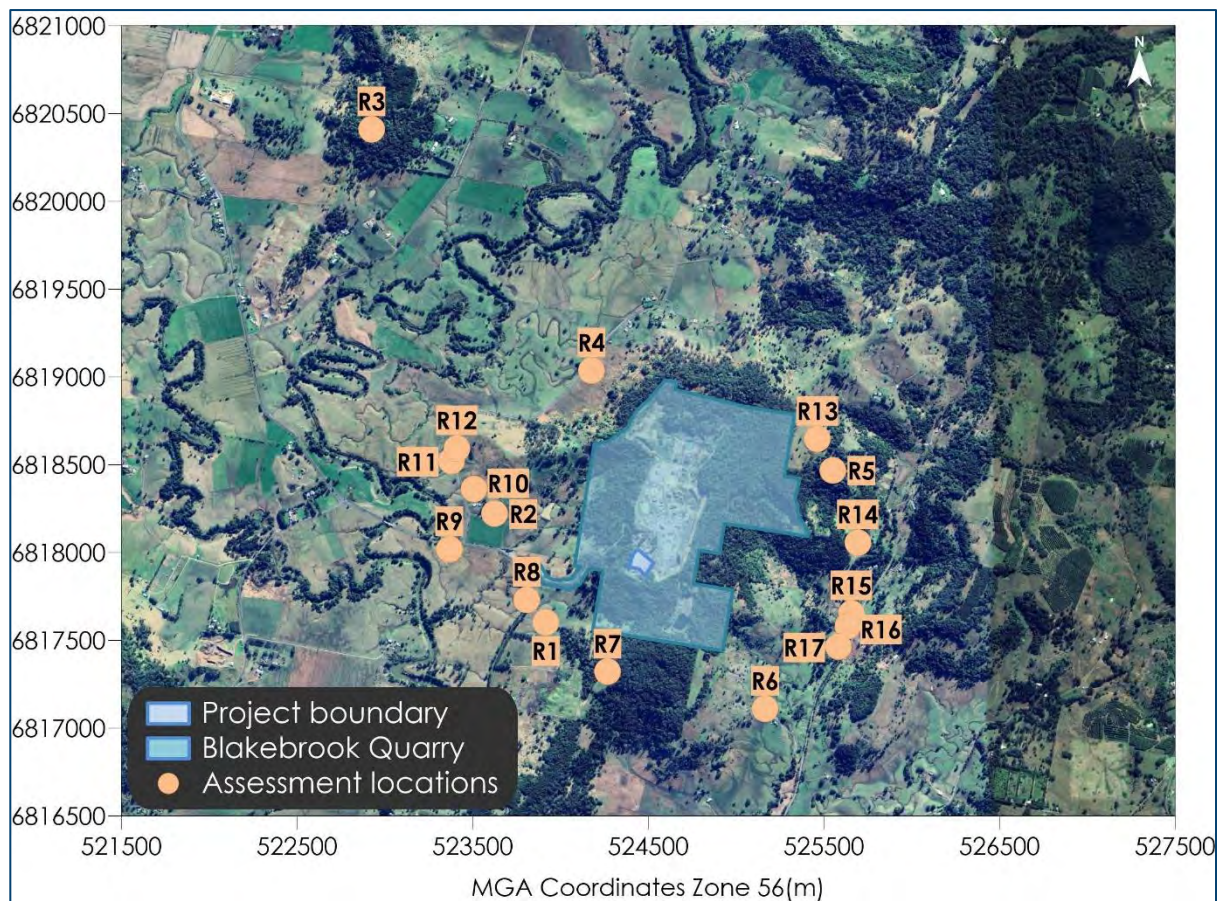


Figure 2-1: Project setting

Figure 2-2 presents a pseudo three-dimensional visualisation of the topography in the general vicinity of the Project. The Project site is situated on top of a ridge with elevation decreasing west of the site and mountainous terrain located to the east. There are several drainage areas in the region that may result in channels for air movement.

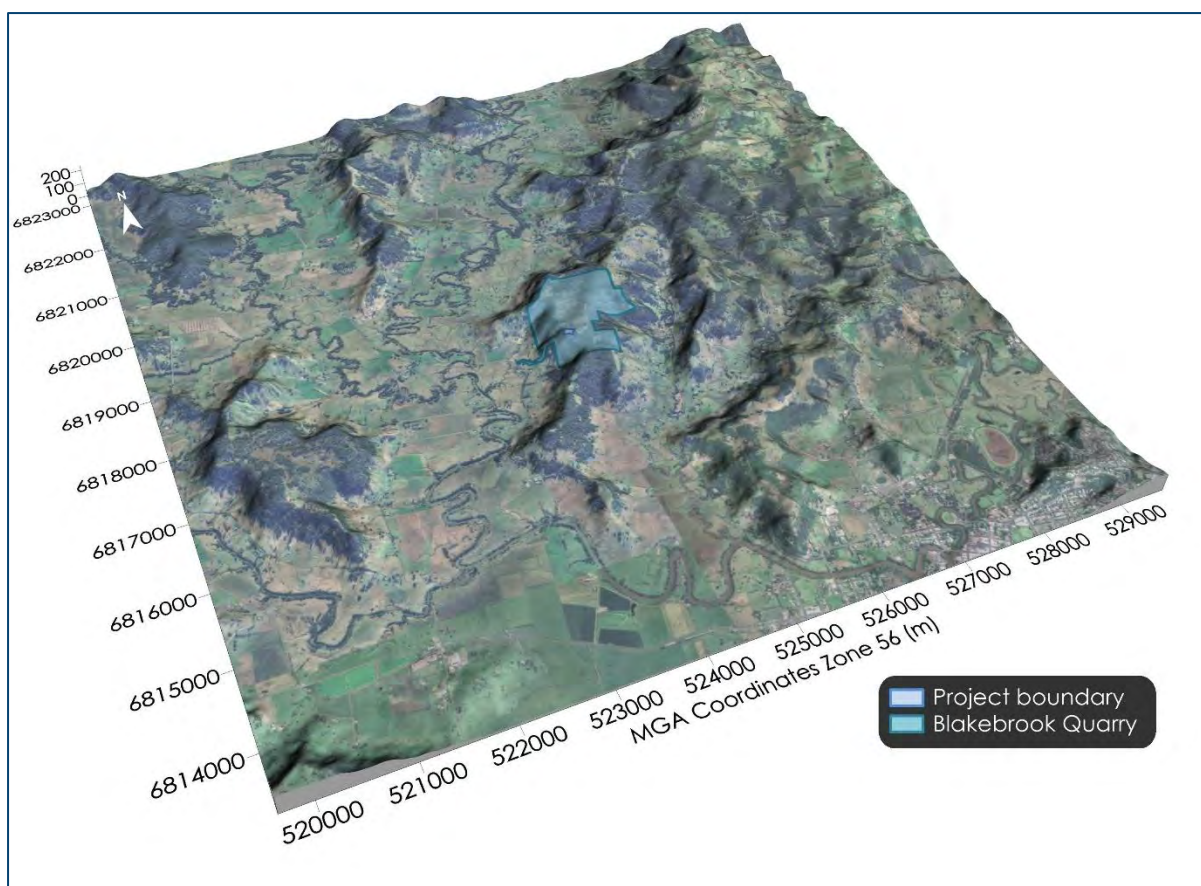


Figure 2-2: Representative visualisation of topography in the area surrounding the Project

2.2 Project description

The existing asphalt plant is operated by Downer EDI Works Pty Ltd (Downer). The quarry and ancillary asphalt plant at the site currently operate under State Significant Development (SSD) consent MP07_0020 which allows for the following:

- ✦ operation on the site until 31 December 2039;
- ✦ transport up to 600,000 tonnes of quarry products from the site per calendar year; and,
- ✦ transport up to 50,000 tonnes of asphalt from the site per calendar year.

Downer is now seeking approval to further modify development consent MP07_0020, under Section 4.55(2) of the EP&A Act, to allow:

- ✦ the receipt and processing of up to 15,000tpa of RAP and any-one-time storage of up to 10,000 tonnes (t) of RAP (unprocessed and processed combined) on the site;
- ✦ the receipt and processing of up to 10,000tpa of recovered glass sand and any-one-time storage of up to 2,500t of recovered glass sand on the site;
- ✦ the receipt and processing of up to 1,500tpa of crumb rubber and 350tpa of TonerPlas and any-one-time storage of up to 45t of crumb rubber and 20t of TonerPlas on the site;

- ✦ an increase in asphalt production and transportation limits from 50,000tpa to 100,000tpa;
- ✦ a change in operating hours of the asphalt plant (not the quarry) to allow 24/7 operations; and,
- ✦ minor administrative changes to a number of the existing consent conditions.

No changes are proposed to the existing operations of the quarry.

An indicative site layout is presented in **Figure 2-3**.

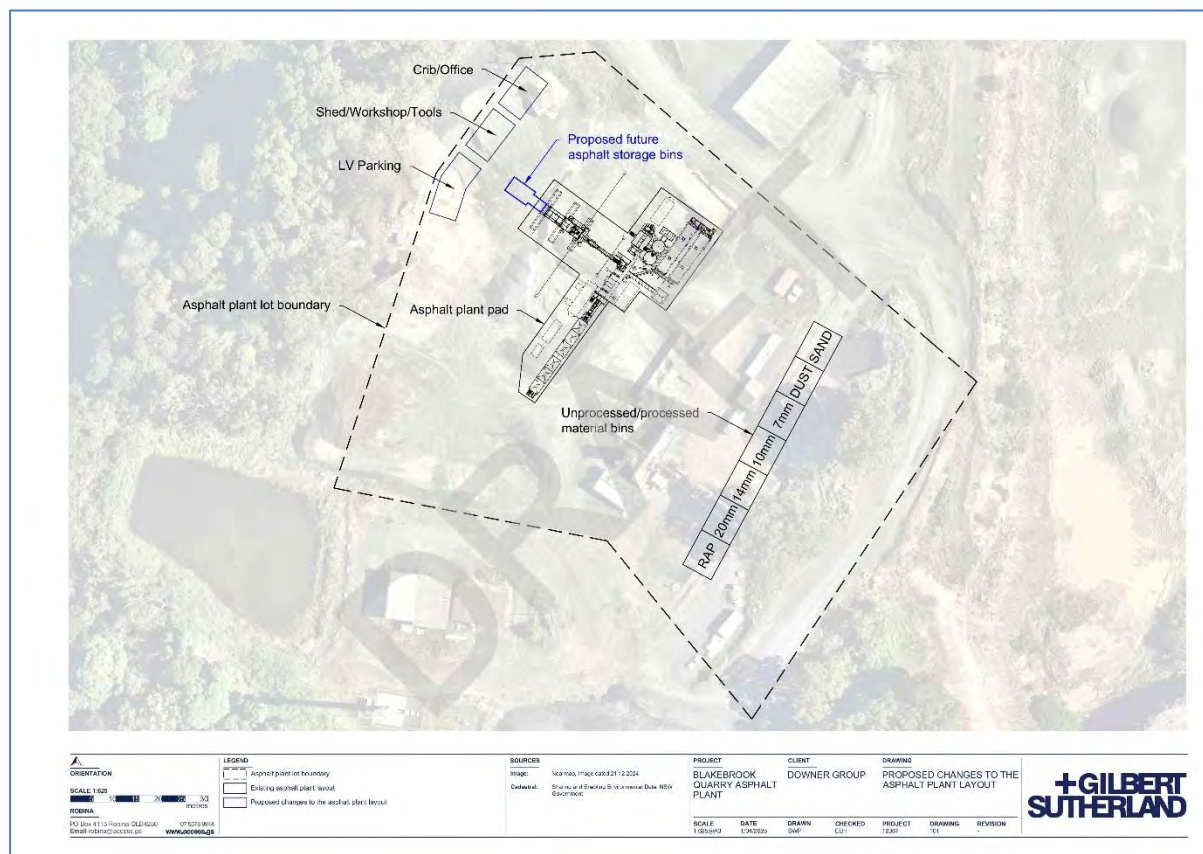


Figure 2-3: Indicative site layout

3 AIR QUALITY CRITERIA

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The sections below identify the potential air emissions generated by the Project and the applicable air quality criteria.

3.1 Air pollutants

Table 3-1 summarises the air quality goals that are relevant to this assessment as outlined in the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA, 2022).

The air quality goals for key pollutants relate to the total pollutant burden in the air and not just the contribution from the Project. Consideration of background pollutant levels needs to be made when using these goals to assess potential impacts.

Table 3-1: NSW EPA air quality impact assessment criteria

Pollutant	Averaging Period	Criterion	Assessment location
TSP	Annual	90 µg/m ³	Receptor
PM ₁₀	Annual	25 µg/m ³	Receptor
	24 hour	50 µg/m ³	Receptor
PM _{2.5}	Annual	8 µg/m ³	Receptor
	24 hour	25 µg/m ³	Receptor
Deposited dust	Annual	2 g/m ² /month	Receptor
		4 g/m ² /month	Receptor
SO ₂	1 hour	215 µg/m ³	Receptor
	24 hour	57 µg/m ³	Receptor
NO ₂	1 hour	164 µg/m ³	Receptor
	Annual	31 µg/m ³	Receptor
CO	15 minute	100,000 µg/m ³	Receptor
	1 hour	30,000 µg/m ³	Receptor
	8 hour	10,000 µg/m ³	Receptor
Arsenic	1 hour	0.09 µg/m ³	Boundary
Beryllium	1 hour	0.004 µg/m ³	Boundary
Cadmium	1 hour	0.018 µg/m ³	Boundary
Chromium (VI)	1 hour	0.09 µg/m ³	Boundary
Copper	1 hour	3.7 µg/m ³	Boundary
Lead	Annual	0.5 µg/m ³	Receptor
Manganese	1 hour	18 µg/m ³	Boundary
Mercury	1 hour	0.18 µg/m ³	Boundary
Nickel	1 hour	0.18 µg/m ³	Boundary
Zinc	1 hour	90 µg/m ³	Boundary
Acetone	1 hour	22,000 µg/m ³	Boundary
Acetaldehyde	1 hour	42 µg/m ³	Boundary
Benzene	1 hour	29 µg/m ³	Boundary
Formaldehyde	1 hour	20 µg/m ³	Boundary
Toluene	1 hour	360 µg/m ³	Boundary
Xylene	1 hour	190 µg/m ³	Boundary
PAH (total)	1 hour	0.4 µg/m ³	Boundary

Source: **NSW EPA, 2022**

µg/m³ = micrograms per cubic metre

g/m²/month = grams per square metre per month



3.2 Odour

3.2.1 Introduction

Odour in a regulatory context needs to be considered in two similar, but different ways depending on the situation.

NSW legislation prohibits emissions that cause odour, including offensive odour, to occur at any off-site receptor. Offensive odour is evaluated in the field by authorised officers, who are obliged to consider the odour in the context of its receiving environment, frequency, duration, character etc. and to determine whether the odour would interfere with the comfort and repose of the normal person unreasonably. The POEO Act defines the term *offensive odour* to mean an odour—

"(a) that, by reason of its strength, nature, duration, character or quality, or the time at which it is emitted, or any other circumstances—

(i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or

(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or

(b) that is of a strength, nature, duration, character or quality prescribed by the regulations or that is emitted at a time, or in other circumstances, prescribed by the regulations."

In this context, the concept of offensive odour is applied to operational facilities and relates to actual emissions in the air.

However, in the approval and planning process for proposed new operations or modifications to existing projects, no actual odour exists, and it is necessary to consider hypothetical odour. In this context, odour concentrations are used and are defined in odour units. The number of odour units represents the number of times that the odour would need to be diluted to reach a level that is just detectable to the human nose. Thus, by definition, odour less than an odour unit (1 OU), would not be detectable to most people.

The range of a person's ability to detect odour varies greatly in the population, as does their sensitivity to the type of odour. The wide-ranging response in how any particular odour is perceived by any individual poses specific challenges in the assessment of odour impacts and the application of specific air quality goals related to odour. The *Technical Framework* (**NSW DEC, 2006**) sets out a framework specifically to deal with such issues.

It needs to be noted that the term "odour" refers to complex mixtures of odours, and not "pure" odour arising from a single chemical. Odour from a single, known chemical rarely occurs (when it does, it is best to consider that specific chemical in terms of its concentration in the air). In most situations odour will be comprised of a cocktail of many substances that is referred to as a complex mixture of odour, or more simply odour.

For activities with potential to release significant odour it may be necessary to predict the likely odour impact that may arise. This is done by using air dispersion modelling which can calculate the level of



dilution of odours emitted from the source at the point that such odour reaches surrounding receptors. This approach allows the air dispersion model to produce results in terms of odour units.

The NSW criteria for acceptable levels of odour range from 2 to 7OU, with the more stringent 2OU criteria applicable to densely populated urban areas and the 7OU criteria applicable to sparsely populated rural areas, as outlined below.

3.2.2 Complex Mixtures of Odorous Air Pollutants

Table 3-2 presents the assessment criteria as outlined in the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022)*. This criterion has been refined to take into account the population densities of specific areas and is based on a 99th percentile of dispersion model predictions calculated as 1-second averages (nose-response time).

Table 3-2: Impact assessment criteria for complex mixtures of odorous air pollutants
(nose-response-time average, 99th percentile)

Population of affected community	Impact assessment criteria for complex mixtures of odorous air pollutants (OU)
Urban (≥ 2000) and/or schools and hospitals	2.0
~500	3.0
~125	4.0
~30	5.0
~10	6.0
Single rural residence (≤ 2)	7.0

Source: **NSW EPA, 2022**

The NSW odour goals are based on the risk of odour impact within the general population of a given area. In sparsely populated areas, the criteria assume there is a lower risk that some individuals within the community would find the odour unacceptable, hence higher criteria apply.

Peak-to-mean factors are applied to account for any odour fluctuation above and below the mean odour level of the 1-hour averaging time. The criteria in **Table 3-2** are compared with modelled results which include peaking factors to account for the time-averaging limitations of air dispersion models. The peak-to-mean factors developed by **Katestone Scientific Pty Ltd (1995, 1998)** for the NSW EPA are applied to convert the modelled (1-hour) averaging time to 1-second peak concentrations.

A summary of the peak-to-mean values is provided in **Table 3-3**.

Table 3-3: Peak-to-mean values

Source Type	Pasquill-Gifford stability class	Near field P/M 60*	Far field P/M 60*
Area	A, B, C, D	2.5	2.5
	E, F	2.3	1.9
Line	A-F	6	6
Surface point	A, B, C	12	4
	D, E, F	25	7
Tall wake-free point	A, B, C	17	3
	D, E, F	35	6
Wake-affected point	A-F	2.3	2.3
Volume	A-F	2.3	2.3

*Ratio of peak 1-second average concentrations



4 EXISTING ENVIRONMENT

This section describes the existing environment including the climate and ambient air quality in the area surrounding the Project.

4.1 Local climatic conditions

Long-term climatic data from the closest Bureau of Meteorology (BoM) weather station with available data at Casino Airport AWS (Site No. 058208) were analysed to characterise the local climate in the proximity of the Project. Casino Airport AWS is located approximately 23.0km southwest of the Project.

Table 4-1 and **Figure 4-1** present a summary of data from the Casino Airport AWS collected over a 15 to 30 year period for the various meteorological parameters.

The data indicate that January is the hottest month with a mean maximum temperature of 30.6 degrees Celsius (°C) and July is the coldest month with a mean minimum temperature of 6.6°C.

Rainfall decreases during the cooler months, with an annual average rainfall of 1078.4 millimetres (mm) over 92.4 days. The data indicate that February and March is the wettest month with an average rainfall of 153.7mm over 9.8 and 11.6 days, respectively, and July is the driest month with an average rainfall of 32.5mm over 5.0 days.

Relative humidity levels exhibit variability over the day and seasonal fluctuations. Mean 9am relative humidity ranges from 61% in September and October to 81% in March. Mean 3pm relative humidity levels range from 41% in August and September to 58% in February.

Wind speeds exhibit seasonal variations with a greater spread of wind speed records between 9am and 3pm conditions during the warmer months compared to the cooler months. Mean 9am wind speeds range from 9.9 kilometres per hour (km/h) in March to 12.6km/h in September. Mean 3pm wind speeds range from 12.7km/h in May to 19.5km/h in October.

Table 4-1: Monthly climate statistics summary – Casino Airport AWS

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann.
Temperature													
Mean max. temp. (°C)	30.6	29.9	28.4	26.1	23.1	20.8	20.8	22.8	25.8	27.6	29.0	30.2	26.3
Mean min. temp. (°C)	19.1	18.9	17.8	14.2	10.7	8.2	6.6	7.2	10.3	13.5	15.9	17.9	13.4
Rainfall													
Rainfall (mm)	127.7	153.7	153.7	73.3	81.1	68.3	32.5	42.7	35.4	70.7	106.0	130.9	1078.4
No. of rain days (≥1mm)	9.2	9.8	11.6	8.4	7.8	6.0	5.0	4.3	4.7	7.2	8.7	9.7	92.4
9am conditions													
Mean temp. (°C)	23.6	22.8	21.3	19.9	16.7	13.9	13.1	15.0	19.1	21.3	21.8	23.4	19.3
Mean R.H. (%)	75.0	79.0	81.0	73.0	77.0	77.0	73.0	67.0	61.0	61.0	68.0	69.0	72.0
Mean W.S. (km/h)	10.4	10.1	9.9	10.4	10.7	10.8	11.2	11.7	12.6	12.5	11.9	11.3	11.1
3pm conditions													
Mean temp. (°C)	28.7	28.0	26.8	24.6	21.9	19.6	19.6	21.2	24.3	25.7	26.8	28.5	24.6
Mean R.H. (%)	54.0	58.0	57.0	53.0	54.0	53.0	46.0	41.0	41.0	44.0	50.0	50.0	50.0
Mean W.S. (km/h)	17.6	16.4	15.7	14.5	12.7	13.2	14.1	16.0	18.5	19.5	18.4	18.4	16.2

Source: **Bureau of Meteorology, 2025**

R.H. – Relative Humidity, W.S. – wind speed



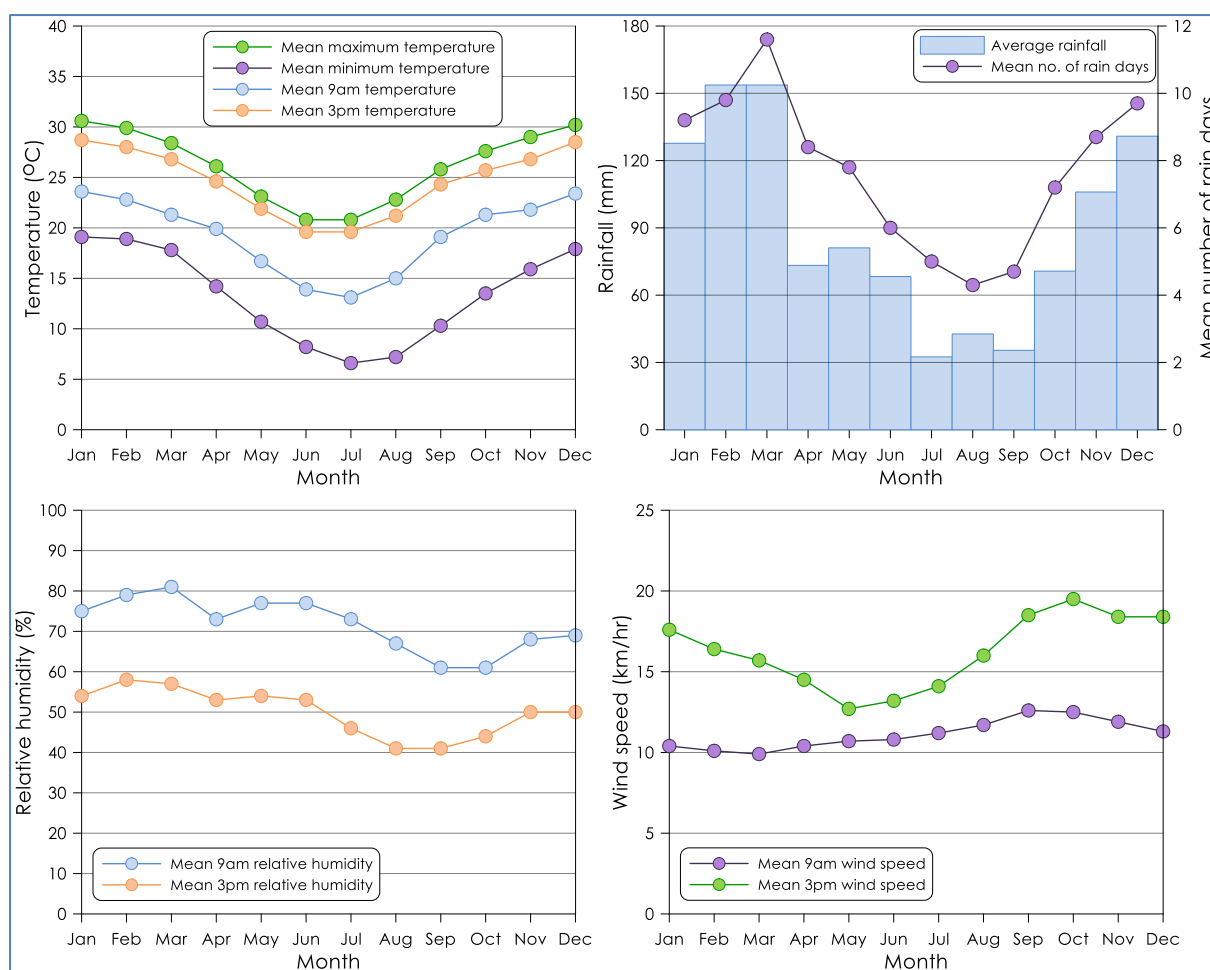


Figure 4-1: Monthly climate statistics summary – Casino Airport AWS

4.2 Local meteorological conditions

Annual and seasonal windroses for the Casino Airport AWS during the 2021 calendar period are presented in **Figure 4-2**. The 2021 calendar year was selected as the meteorological year for the dispersion modelling based on an analysis of data trends in meteorological data recorded and appropriate monitoring data for the area as outlined in **Appendix A**.

Analysis of the windroses shows that the wind directions predominately follow along a southeast to northwest axis with the greatest proportion of winds from the southeast. In summer, winds primarily occur from the east-southeast to south-southeast. In autumn, winds are greatest from the southeast with varied winds from the northwest quadrant. The winter windrose shows an opposite distribution as the summer, with winds occurring from the west-northwest to northwest. In spring the windrose shows a similar distribution pattern as the annual windrose with winds following along a southeast to northwest axis.

Annual and seasonal windroses for the Blakebrook Quarry weather station data for July 2022 to July 2025 is presented in **Figure 4-3**. The wind distribution patterns reflect the influence of the weather station's location in relation to the local terrain and site features.

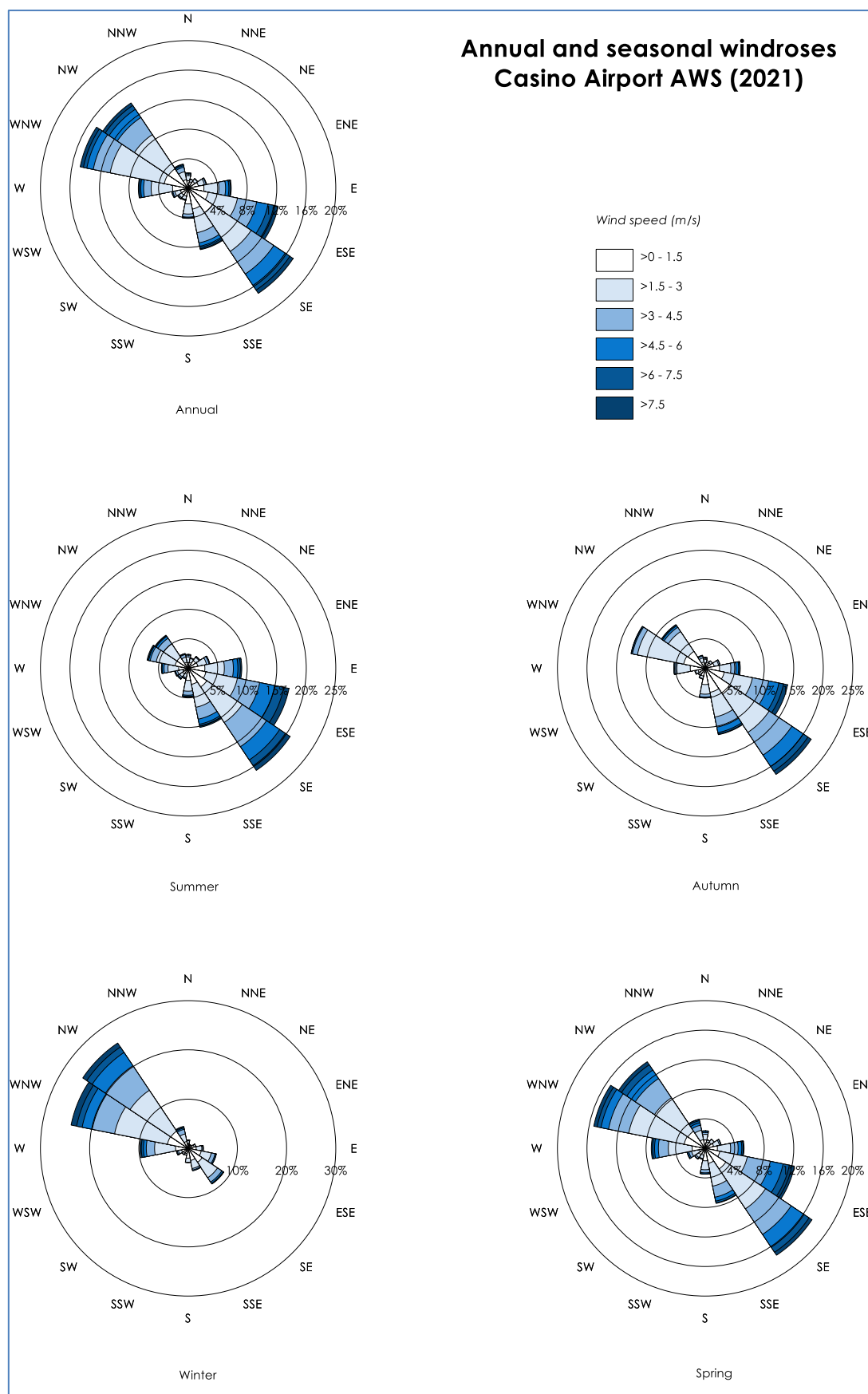


Figure 4-2 : Annual and seasonal windroses – Casino Airport AWS (2021)

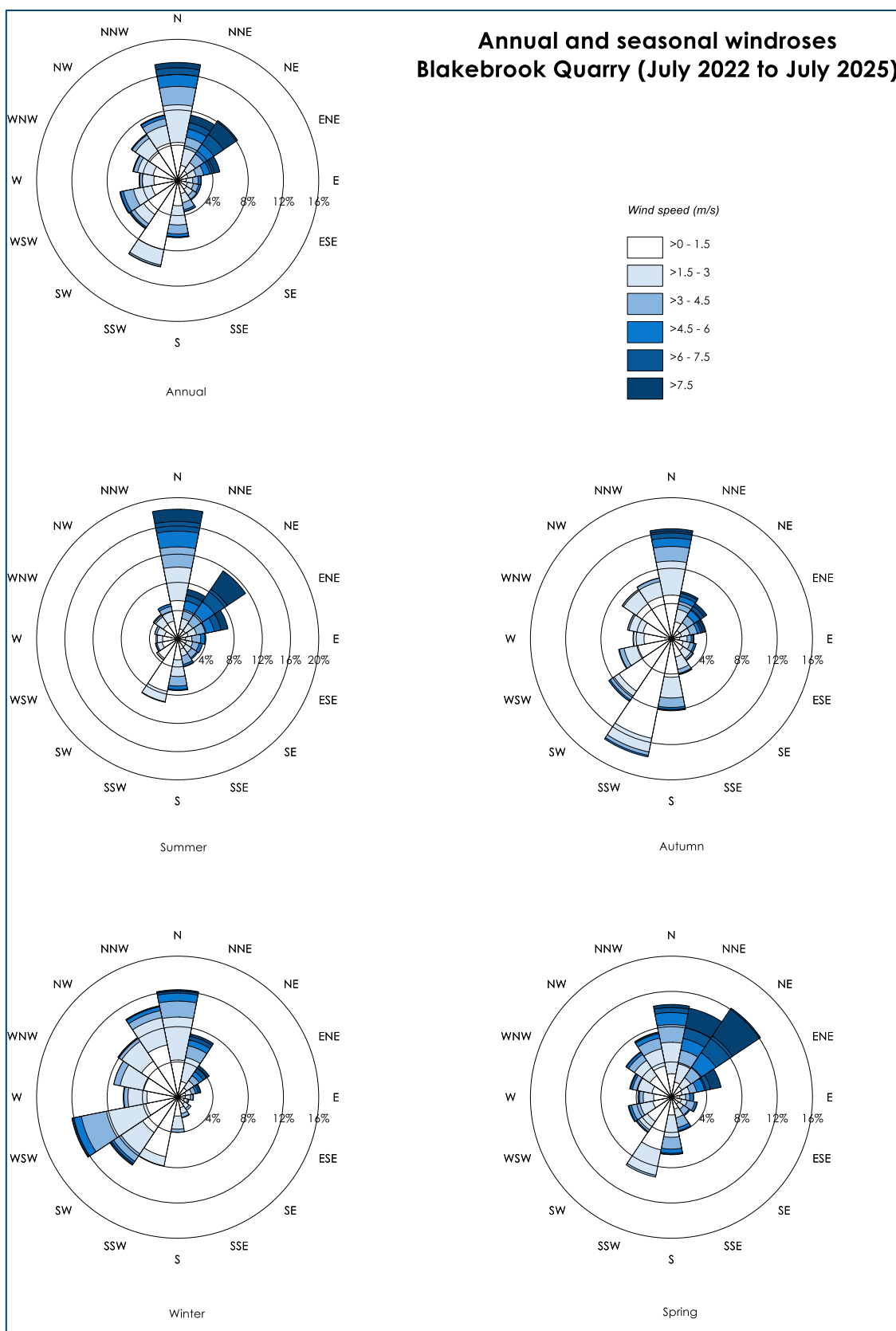


Figure 4-3: Annual and seasonal windroses – Blakebrook Quarry Weather Station (July 2022 to July 2025)

4.3 Local air quality monitoring

The main sources of air pollutants in the area surrounding the site would include emissions from agricultural activities, extractive industries such as the nearby Blakebrook Quarry, and other anthropogenic activities such as domestic wood heaters and motor vehicle exhaust.

Ambient air quality monitoring data from the Project site are not available. Therefore, the available data from the nearest air quality monitors operated by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) were used to quantify the existing background level for assessed pollutants at the Project site.

These include the Coffs Harbour, Armidale and Port Macquarie monitors. The Coffs Harbour, Armidale and Port Macquarie monitors are located approximately 170.4km south, 247km southwest and 300km south of the Project, respectively.

The Coffs Harbour, Armidale and Port Macquarie monitors are positioned in more urban areas and would be subject to greater anthropogenic sources resulting in higher particulate levels compared to the Project site. Thus, it has been conservatively assumed that the background levels at these sites are to be used to quantify the existing ambient levels of air pollutants at the Project site.

4.3.1 PM₁₀ monitoring

A summary of the available PM₁₀ monitoring data from 2020 to 2024 for the monitoring stations is presented in **Table 4-2**. Recorded 24-hour average PM₁₀ concentrations are presented in **Figure 4-4**.

A review of **Table 4-2** indicates that the annual average PM₁₀ concentrations for the monitoring stations were below the relevant criterion of 25µg/m³ for all years.

The maximum 24-hour average PM₁₀ concentrations were found to exceed the relevant criterion of 50µg/m³ on occasion during the review period. Anomalously high PM₁₀ concentrations recorded at the monitors during January 2020 is attributed to wildfires and the drought period.

Table 4-2: Summary of PM₁₀ levels from monitoring stations (µg/m³)

Year	Coffs Harbour	Armidale	Port Macquarie	Criterion
	Annual average			
2020	11.9	13.7	14.4	25
2021	10.0	10.4	10.8	25
2022	9.3	9.7	9.1	25
2023	10.5	11.9	11.9	25
2024	10.5	9.1	11.2	25
Year	Maximum 24-hour average			Criterion
2020	65.2	112.5	249.9	50
2021	26.0	41.0	31.9	50
2022	32.1	50.6	31.5	50
2023	34.5	37.7	36.2	50
2024	25.4	39.1	57.9	50
2020	65.2	112.5	249.9	50



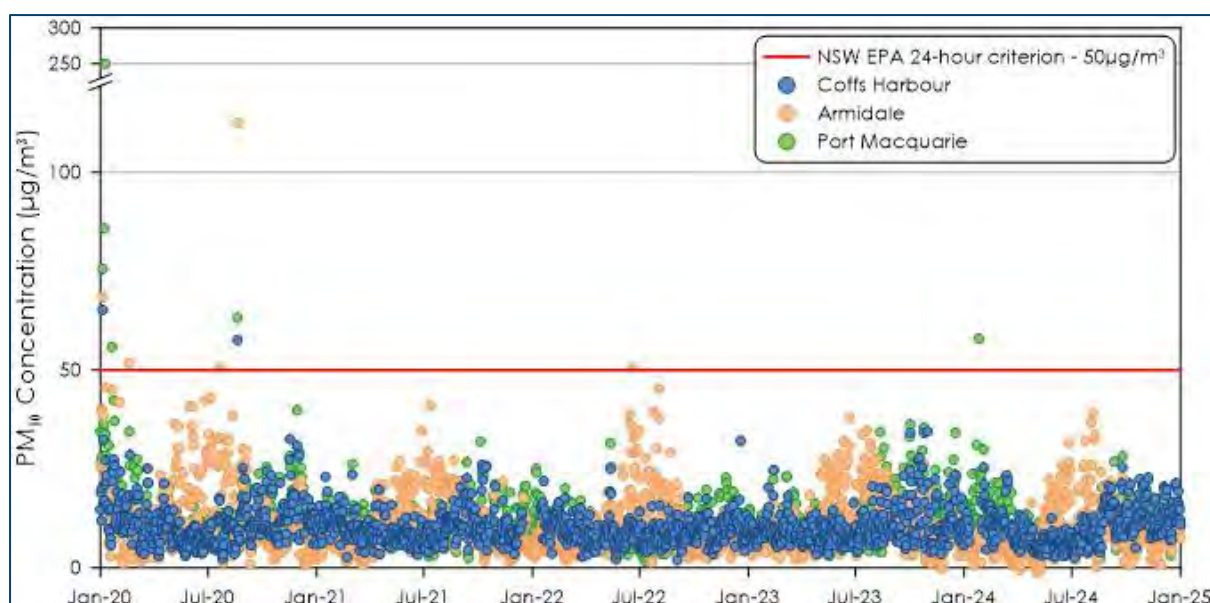


Figure 4-4: 24-hour average PM₁₀ concentrations

4.3.2 PM_{2.5} monitoring

A summary of the available PM_{2.5} monitoring data from 2020 to 2024 for the monitoring stations is presented in **Table 4-3**. Recorded 24-hour average PM_{2.5} concentrations are presented in **Figure 4-5**.

Table 4-3 indicates that the annual average PM_{2.5} concentrations for the Armidale monitoring station were above the relevant criterion of 8 µg/m³ in 2020 and 2023.

The maximum 24-hour average PM_{2.5} concentrations were found to exceed the relevant criterion of 25 µg/m³ for all years of the review period at Armidale and on occasion at Coffs Harbour and Port Macquarie. Similar to the PM₁₀ monitoring data, the mass bushfires affecting NSW in 2020 are seen in the PM_{2.5} monitoring data.

Table 4-3: Summary of PM_{2.5} levels from monitoring stations (µg/m³)

Year	Coffs Harbour	Armidale	Port Macquarie	Criterion
	Annual average			
2020	5.3	9.2	6.5	8
2021	3.9	7.2	4.6	8
2022	3.2	7.1	3.3	8
2023	4.3	8.6	5.1	8
2024	4.5	6.7	4.6	8
Year	Maximum 24-hour average			Criterion
2020	44.9	53.7	220.5	25
2021	12.6	35.0	14.7	25
2022	9.7	44.8	9.4	25
2023	17.7	31.8	30.5	25
2024	15.2	34.8	38.7	25

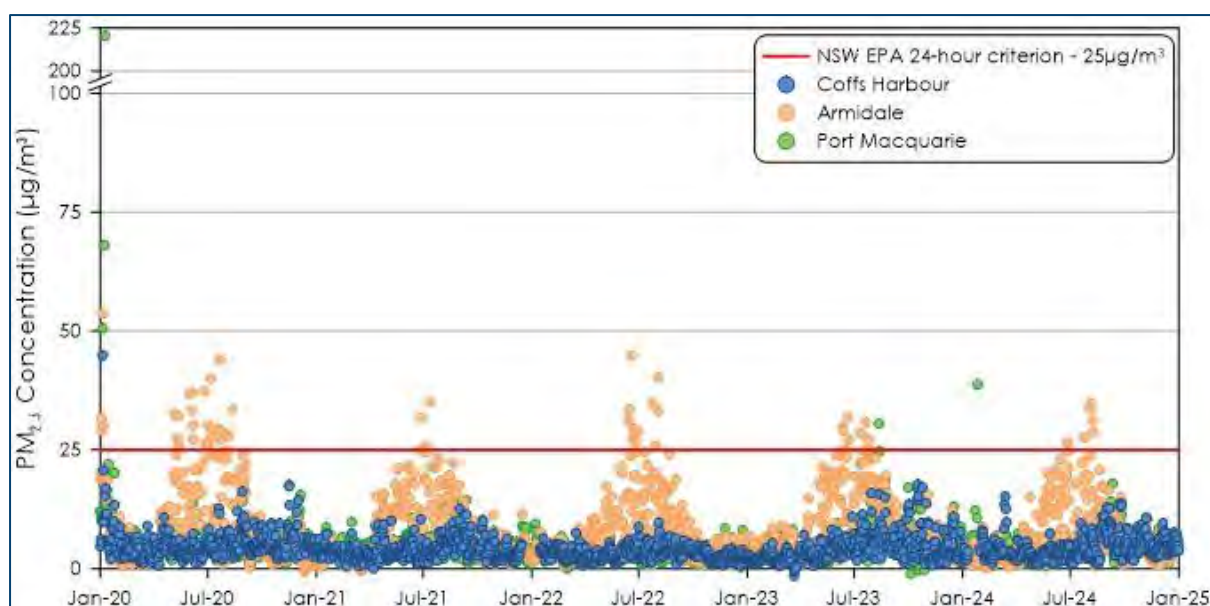


Figure 4-5: 24-hour average PM_{2.5} concentrations

4.3.3 SO₂ monitoring

Figure 4-6 and **Figure 4-7** present the daily maximum 1-hour average and daily 24-hour average SO₂ monitoring data, respectively, from the nearest NSW DCCEE monitoring site with available data. The data show that the levels were well below the 1-hour average and 24-hour average SO₂ criteria of 215 µg/m³ and 57 µg/m³, respectively.

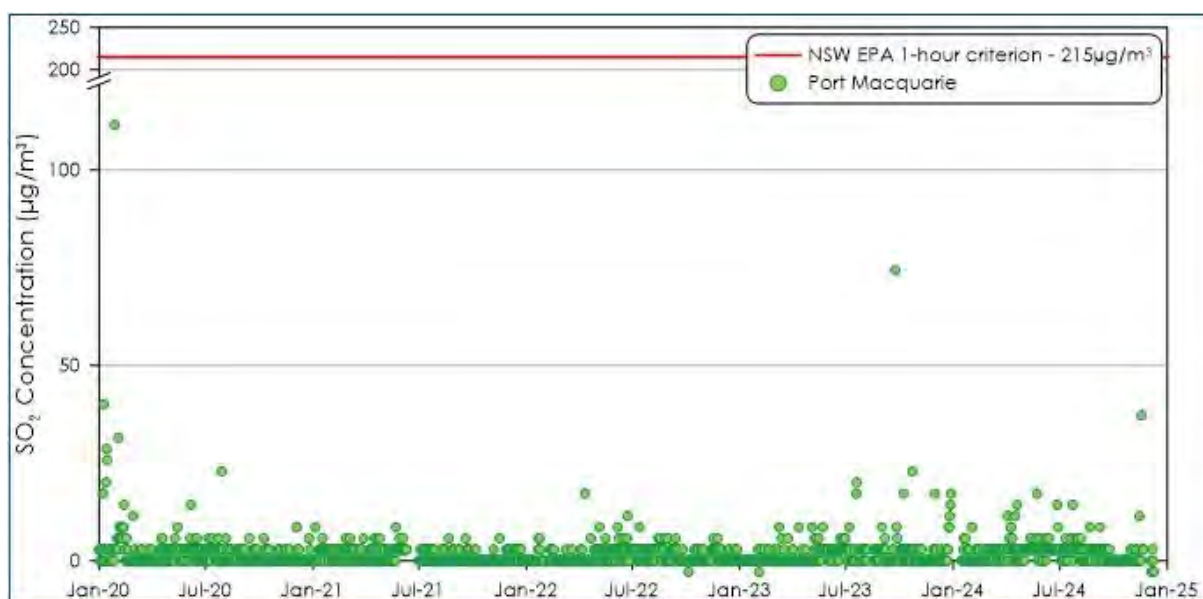


Figure 4-6: 1-hour average SO₂ concentrations

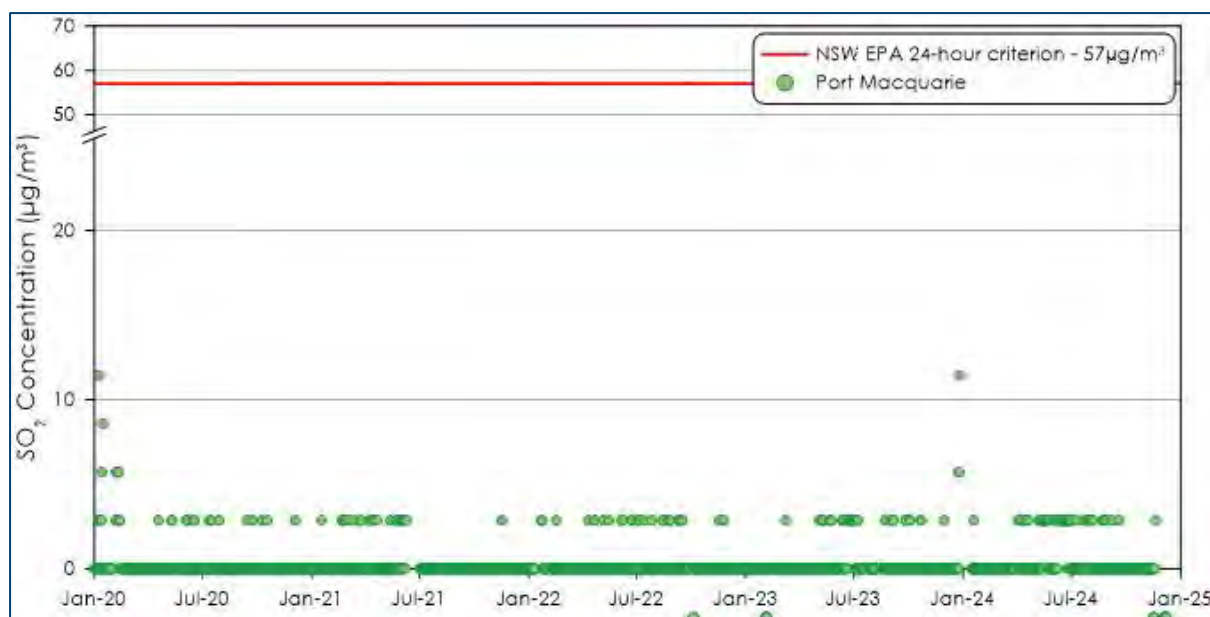


Figure 4-7: 24-hour average SO₂ concentrations

4.3.4 NO₂ monitoring

Figure 4-8 presents the daily maximum 1-hour average NO₂ monitoring data from the nearest NSW DCCEEW monitoring sites with available data. The data show that the levels were well below the relevant criterion of 164 µg/m³ for all years of the review period. A seasonal trend can be seen in the NO₂ monitoring data at both stations with elevated levels occurring in the cooler months.

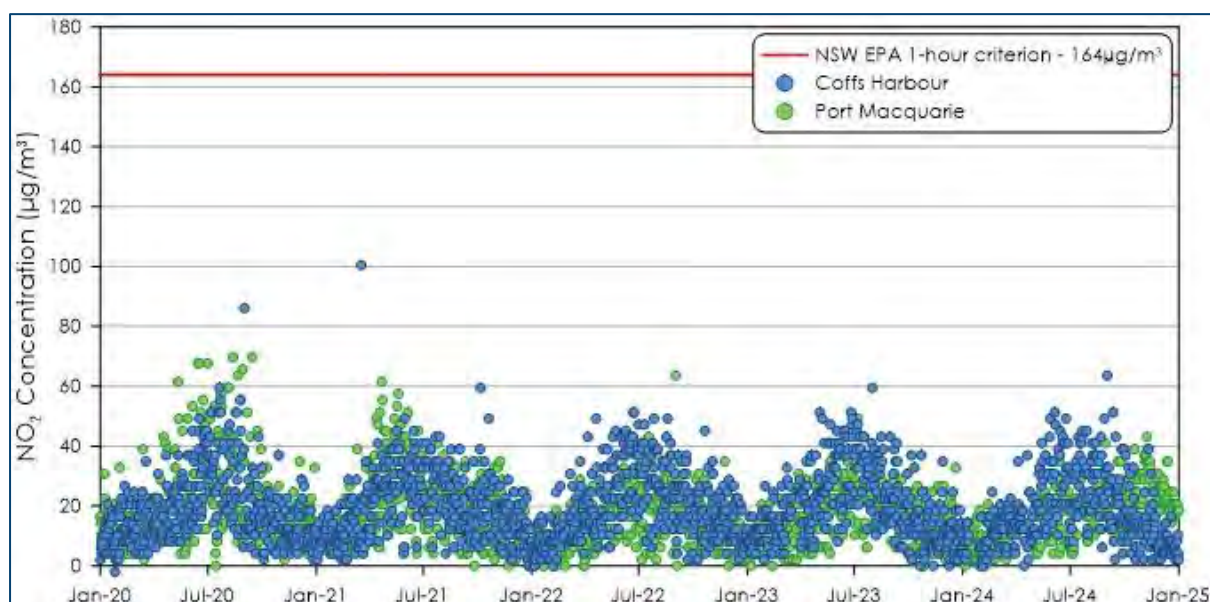


Figure 4-8: 1-hour average NO₂ concentrations

4.3.5 CO monitoring

Figure 4-8 presents the daily maximum rolling 8-hour average CO monitoring data from the nearest NSW DCCEEW monitoring sites with available data. The data show that the levels were well below the relevant criterion of 10 mg/m³ for all years of the review period.

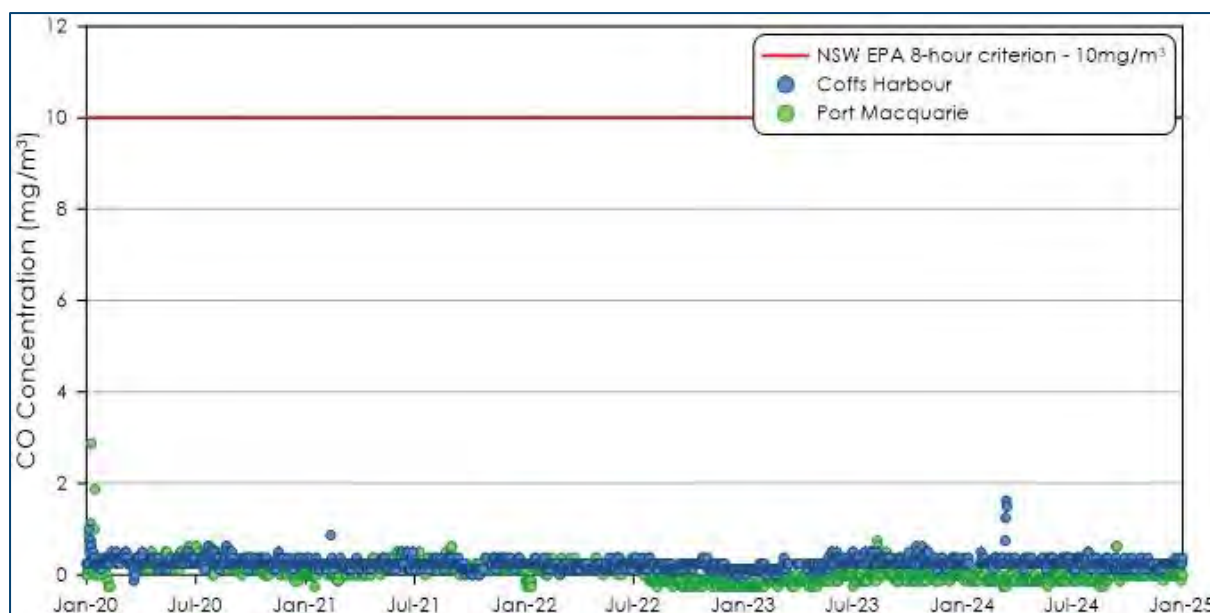


Figure 4-9: Rolling 8-hour average CO concentrations

4.3.6 Estimated background levels

The background air quality levels from the DCCEE monitor at Coffs Harbour for the 2021 calendar year were used to represent the PM₁₀, PM_{2.5}, NO₂, and CO background levels for the Project and Port Macquarie has been used to represent SO₂ background levels.

In the absence of available data, estimates of the annual average background TSP and deposited dust concentrations can be determined from a relationship between PM₁₀, TSP and deposited dust concentrations and the measured PM₁₀ levels.

This relationship assumes that an annual average PM₁₀ concentration of 25µg/m³ corresponds to a TSP concentration of 90µg/m³ and a dust deposition value of 4g/m²/month. This assumption is based on the NSW EPA air quality impact criteria. Applying this relationship with the measured annual average PM₁₀ concentration of 10.0µg/m³ indicates an approximate annual average TSP concentration and deposition value of 36.0µg/m³ and 1.6g/m²/month, respectively.

The background air quality levels applied in this assessment are summarised in **Table 4-4**.

Table 4-4: Summary of background levels

Pollutant	Background level	Units
Annual average TSP	36.0	µg/m ³
24-hour average PM ₁₀	Daily varying	µg/m ³
Annual average PM ₁₀	10.0	µg/m ³
24-hour average PM _{2.5}	Daily varying	µg/m ³
Annual average PM _{2.5}	3.9	µg/m ³
Annual average deposited dust	1.6	g/m ² /month
1-hour average NO ₂	100.5	µg/m ³
Annual average NO ₂	6.2	µg/m ³
1-hour average SO ₂	8.6	µg/m ³
24-hour average SO ₂	2.9	µg/m ³
8-hour average CO	875.0	µg/m ³

5 DISPERSION MODELLING APPROACH

5.1 Introduction

The following sections are included to provide the reader with an understanding of the model and modelling approach applied for the assessment. The CALPUFF is an advanced air dispersion model which can deal with the effects of complex local terrain on the dispersion meteorology over the modelling domain in a three-dimensional, hourly varying time step.

The model was set up in general accord with the methods provided in the NSW EPA document *Generic Guidance and Optimum Model Setting for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia'* (TRC, 2011).

5.2 Modelling methodology

Modelling was undertaken using a combination of the CALPUFF Modelling System and the Weather Research and Forecasting model (WRF). The CALPUFF Modelling System includes three main components: CALMET, CALPUFF and CALPOST and a large set of pre-processing programs designed to interface the model to standard, routinely available meteorological and geophysical datasets.

5.2.1 Meteorological modelling

The WRF model was applied to the available data to generate a three-dimensional upper air data file for use in CALMET. The centre of analysis for the WRF modelling used is 524600mE and 6818280mN which is centrally located within the Blakebrook Quarry boundary. The simulation involved an outer grid of 30km with 15km grid spacing, with two nested grids with 3km and 1km grid spacing.

The CALMET domain was run on a domain of 10 x 10km with a 0.1km grid resolution. The available meteorological data the year 2021 from the surrounding BoM Casino Airport AWS and Lismore Airport AWS were included in the simulation.

5.2.2 Meteorological modelling evaluation

The outputs of the CALMET modelling are evaluated using visual analysis of the wind fields and extract data.

Local land use and detailed topographical information was included to produce realistic fine scale flow fields (such as terrain forced flows) in surrounding areas, as shown in **Figure 5-1**.

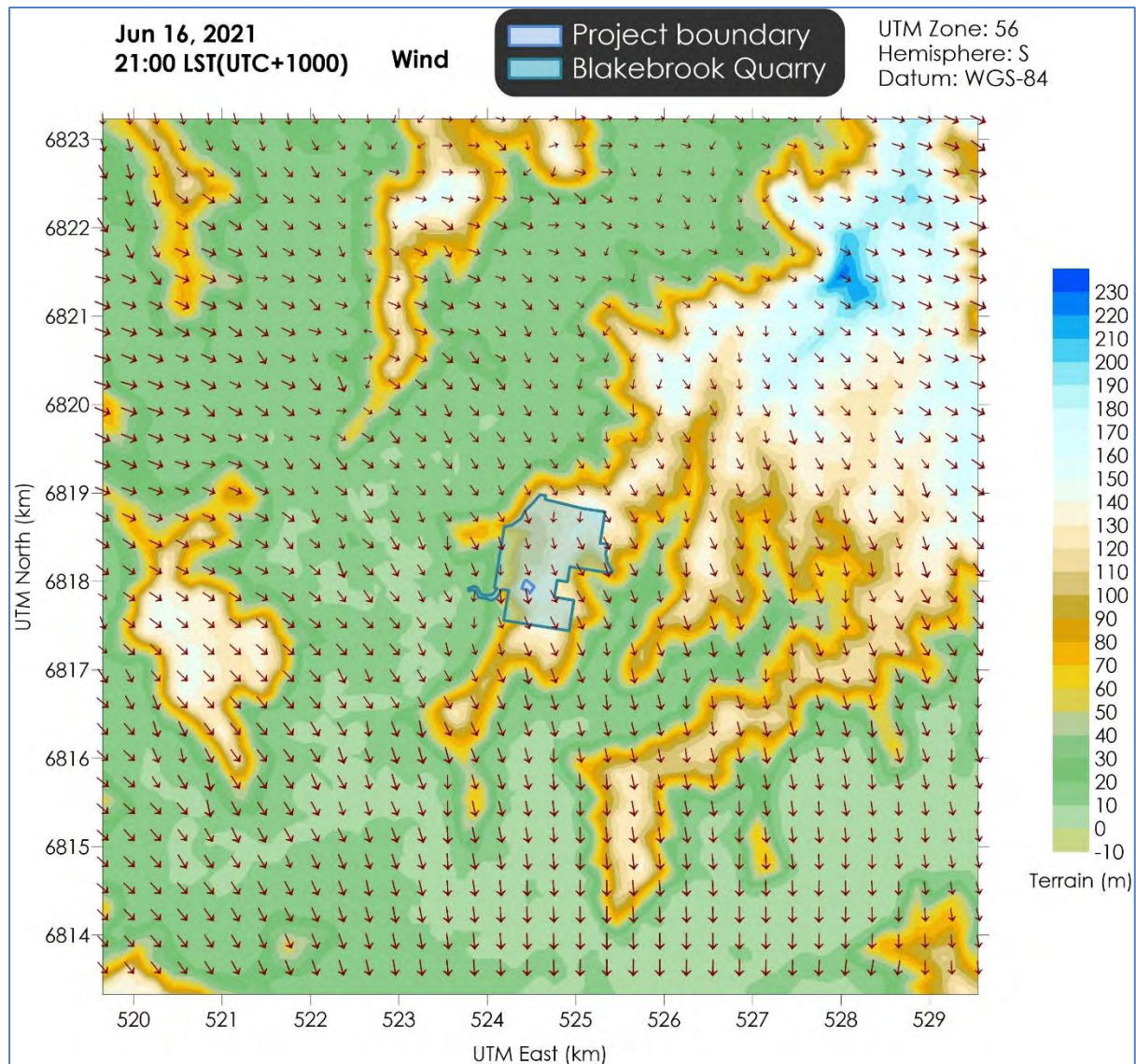


Figure 5-1: Representative 1-hour average snapshot of wind field for the Project

CALMET generated meteorological data were extracted from a point within the CALMET domain and are graphically represented in **Figure 5-2** and **Figure 5-3**.

Figure 5-2 presents the annual and seasonal windroses from the CALMET data. Overall, the windroses generated in the CALMET modelling reflect the expected wind distribution patterns of the area as determined based on the available measured data and the expected terrain effects on the prevailing winds.

Figure 5-3 includes graphs of the temperature, wind speed, mixing height and stability classification over the modelling period and shows sensible trends considered to be representative of the area.

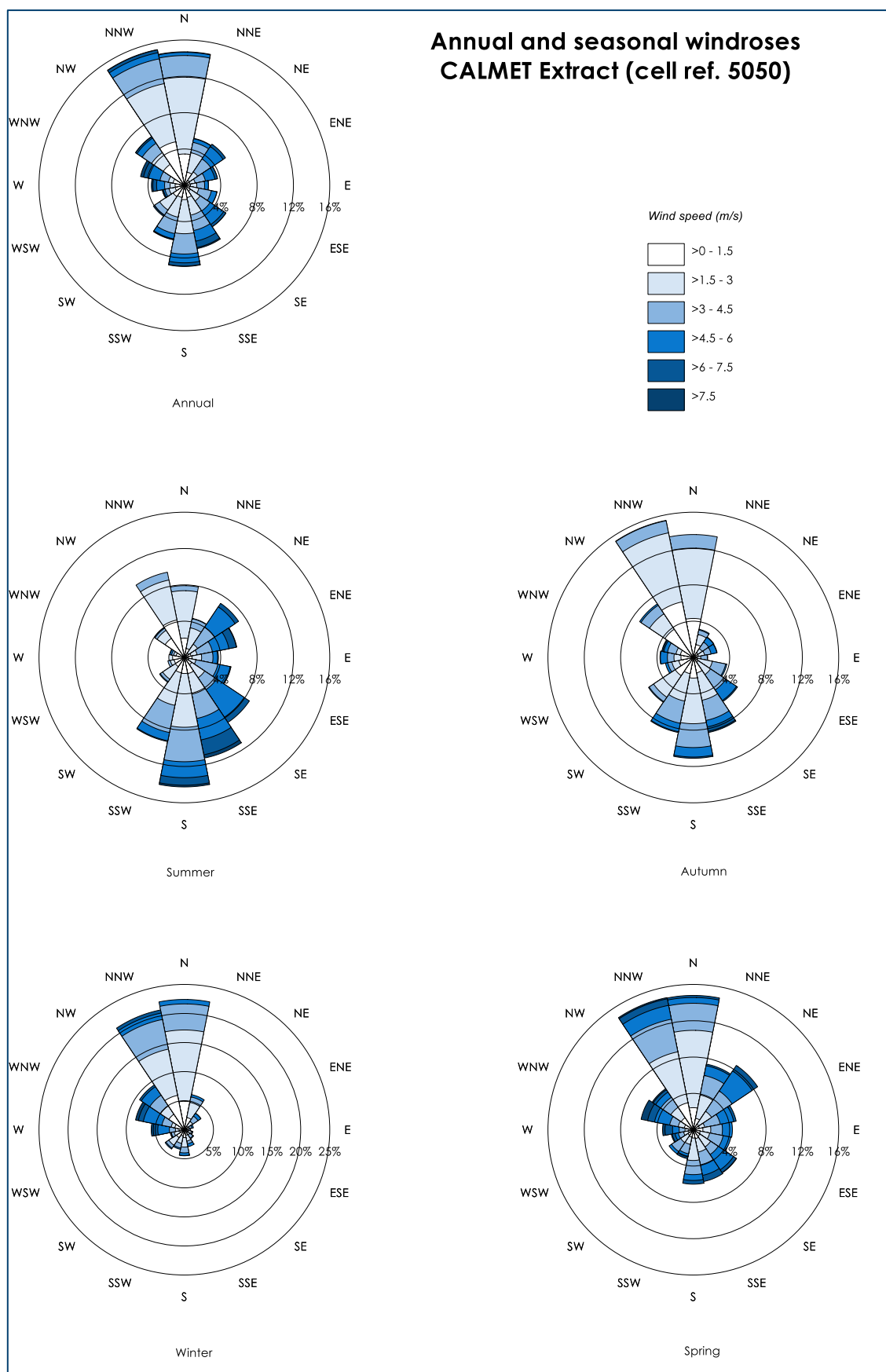


Figure 5-2: Annual and seasonal windroses from CALMET

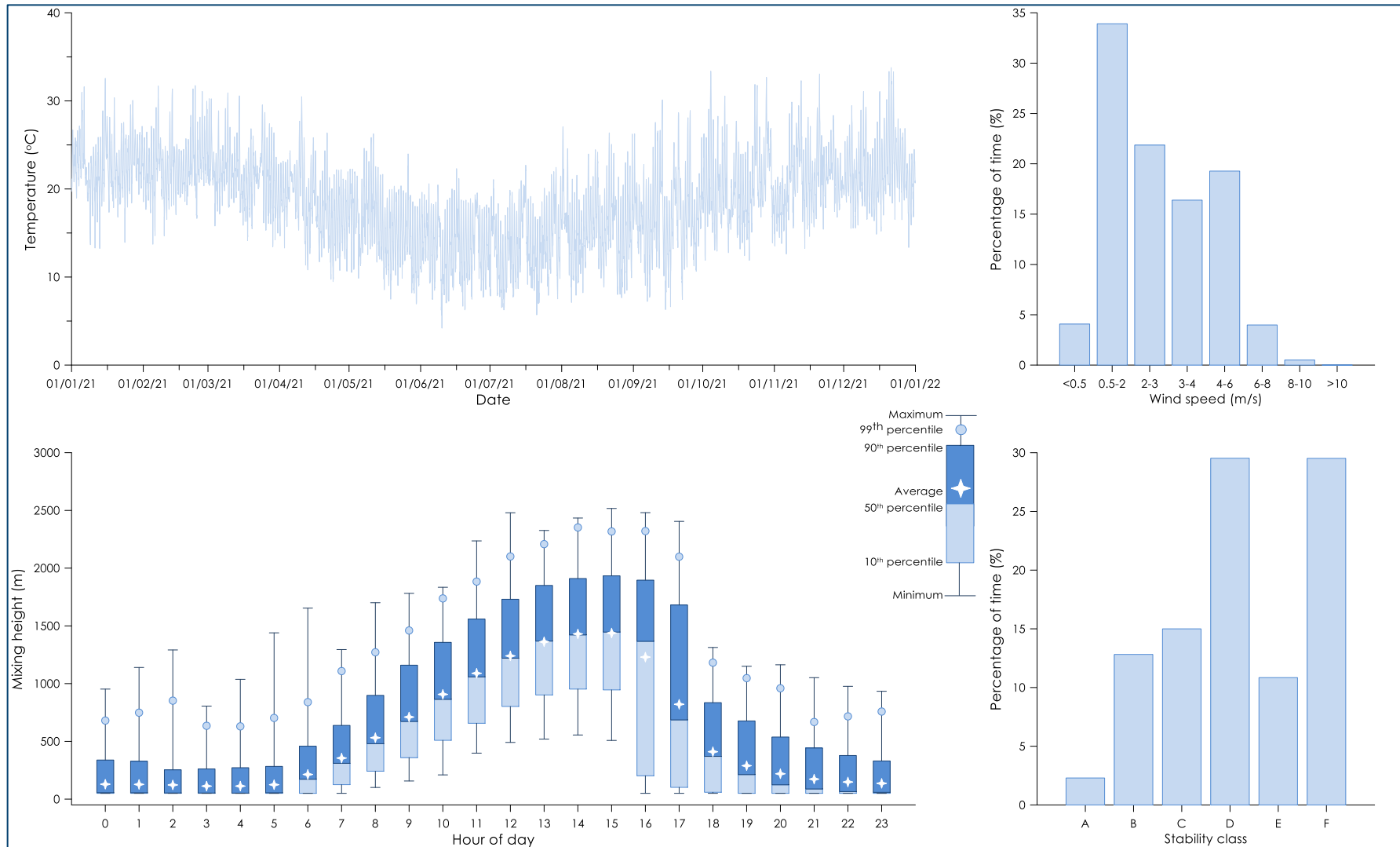


Figure 5-3: Meteorological analysis of CALMET



5.3 Dispersion modelling

The CALPUFF dispersion model, in conjunction with a CALMET generated meteorological data file, was applied to provide predictions of the ground level concentrations of potential pollutant concentrations associated with the operation of the Project.

Dust emissions from each operational activity of the Project were represented by a series of volume sources and were included in the CALPUFF model via an hourly varying emission file. Meteorological conditions associated with dust generation (such as wind speed) and levels of dust generating activity were considered in calculating the hourly varying emission rate for each source. It should be noted that as a conservative measure, the effect of the precipitation rate (rainfall) in reducing dust emissions has not been considered in this assessment.

Emissions from the asphalt plant stack exhaust have been modelled as a point source with parameters outlined in the following section.

Odour sources at the asphalt plant have been modelled as a volume source representing the truck waiting to be tarped and as a pseudo-stack source representing loading the truck with asphalt with a low efflux velocity.

Modelled source locations are shown in **Figure 5-4**.

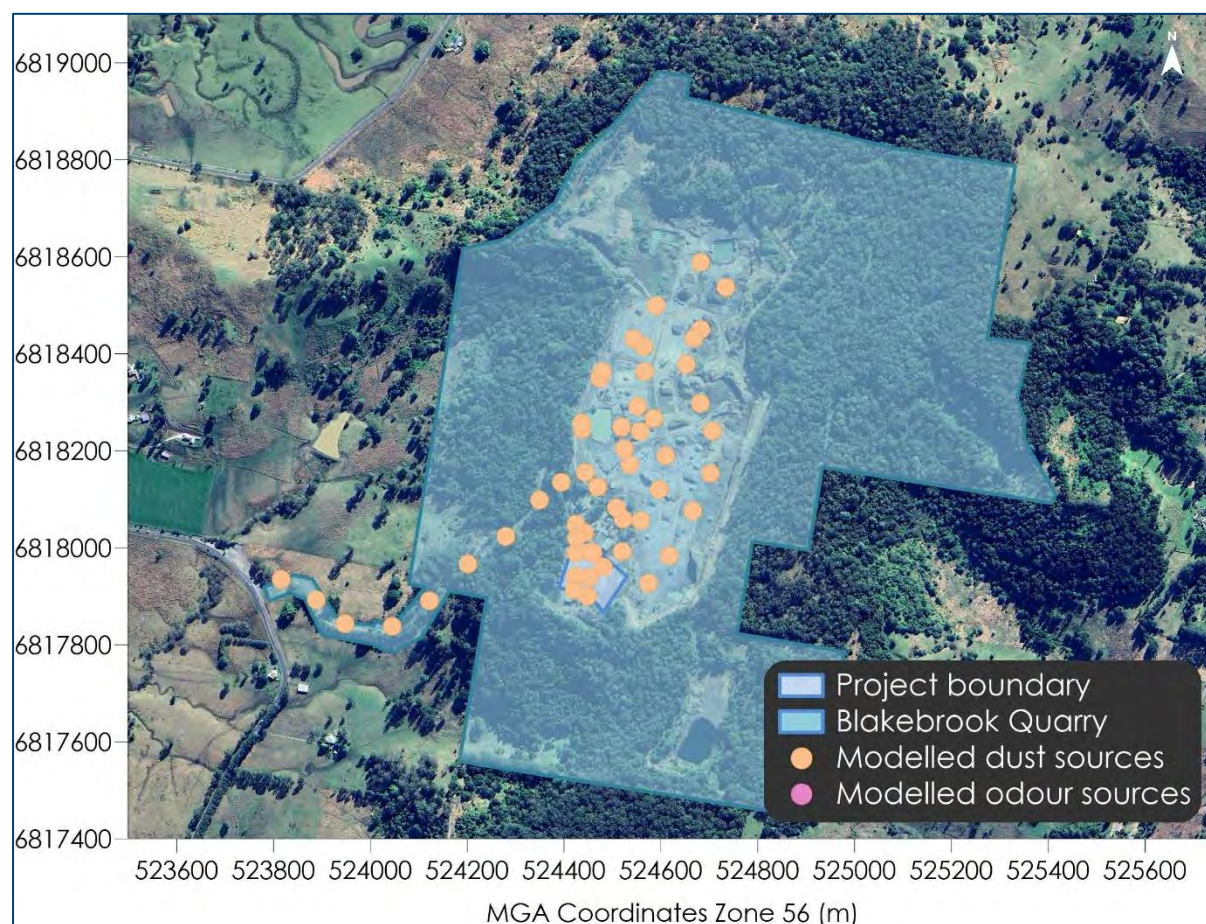


Figure 5-4: Modelled source locations

5.4 Emission estimation

5.4.1 Dust emission estimation

The main dust generating activities associated with operation of the Project are identified as the loading/unloading of material, vehicles travelling on-site and off-site, crushing and screening processes, and windblown dust from stockpiles. The on-site plant equipment also have the potential to generate particulate emissions from the diesel exhaust.

The modelled activities were chosen to represent potential worst-case dust impacts (i.e. highest dust generating activities and locations) in regard to the quantity of material handled and processed at the site.

Asphalt production is assumed to occur at the maximum rate of 100,000tpa with the Blakebrook Quarry extracting at a rate of 600,000tpa for the “average” scenario. A “peak” scenario, used to assess 24-hour average impacts, has been developed assuming a maximum of 55 daily truck trips for the asphalt plant, which equates to production rate of approximately 1,312 tonnes per day (tpd) based on an average 23.8t payload. Similarly, for the Blakebrook Quarry a maximum of 150 truck movements is assumed which results in approximately 4,950tpd based on a 33t payload. This is assumed to occur every day of the modelling period and represents a conservative approach and would result in annual tonnages exceeding the currently approved limits for the site.

Dust emission estimates have been calculated by analysing the various types of dust generating activities taking place and utilising suitable emissions sourced from both locally developed and United States Environmental Protection Agency (US EPA) developed documentation. A summary of the estimated annual TSP emissions is presented in **Table 5-1**. Detailed calculations of the dust emission estimates are provided in **Appendix B**.

Table 5-1: Summary of estimated dust emissions for the Project (kg/year)

Operation	Average scenario	Peak scenario
Project	16,729	41,147
Blakebrook Quarry	51,581	131,646
Total emissions (kg/yr.)	68,309	172,793

Note: values are rounded

Additionally, there would be numerous smaller or very distant sources that contribute to the total background dust level. Modelling these sources explicitly is impractical, however the residual level of dust due to all other such non-modelled sources, as estimated in **Section 4.3.6**, is included in the background dust levels.

5.4.2 Other pollutant emission estimation

Other pollutant emissions from the asphalt plant stack exhaust were modelled based on stack emission testing for similar asphalt operations and emission factors from the NPI emission estimation manual with the annual production rate of the asphalt plant.

The modelled emissions rates for each pollutant are summarised in **Table 5-2**. As a conservative approach, the emission rates for the plant stack exhaust are constant throughout the entire modelling period.



Table 5-2: Modelled emission rates for the Project (g/s)

Pollutant	Emission rate
PM ₁₀	0.33
CO	1.79
NO _x	0.37
SO ₂	0.01
Arsenic	1.74E-06
Beryllium	3.49E-07
Cadmium	6.98E-07
Chromium (VI)	1.55E-08
Copper	9.83E-06
Lead	5.39E-06
Manganese	1.74E-05
Mercury	1.17E-08
Nickel	2.38E-05
Zinc	6.66E-05
Acetone	1.01E-02
Acetaldehyde	1.01E-03
Benzene	1.90E-03
Formaldehyde	5.71E-03
Toluene	3.17E-04
Xylene	6.34E-04
Polycyclic Aromatic Hydrocarbons (PAH) (total)	2.38E-04

Modelled stack parameters for the Project are outlined in **Table 5-3**.

Table 5-3: Modelled stack parameters

Parameter	Variable	Unit
Stack height	4	m
Stack diameter	0.56	m
Exit velocity	16.6	m/s
Exit temperature	378	K

5.4.3 Odour emission estimation

During operations of the asphalt plant odour emissions would arise from loading asphalt to the truck, the truck waiting to be tarped once it has been loaded with asphalt and from the asphalt plant stack exhaust. Odour emissions were estimated based on available site specific odour sampling for the site (**Assured Environmental, 2021**) and a review of studies on similar types of asphalt batching operations, *Cameron Park Asphalt Remodelling* (**PAEHolmes, 2011**).

A summary of the odour emission rates for these sources applied is outlined in **Table 5-4**.

Table 5-4: Summary of odour emission rates for the Project

Source	Odour emission rate (ou.m ³ /s)
Loading asphalt to the truck	6,297
Truck waiting to be tarped	1,080
Plant stack exhaust	3,056

6 DISPERSION MODELLING RESULTS

This section presents the predicted air quality levels which may arise from air emissions generated by the Project.

6.1 Dust concentrations

The dispersion model predictions presented in this section include those for the operation of the Project in isolation (incremental impact) and the operation of the Project with consideration of other sources (total impact). The results show the predicted:

- ✦ Maximum 24-hour average PM_{2.5} and PM₁₀ concentrations;
- ✦ Annual average PM_{2.5}, PM₁₀ and TSP concentrations; and,
- ✦ Annual average dust (insoluble solids) deposition rates.

It is important to note that when assessing impacts per the maximum 24-hour average levels, these predictions are based on the highest predicted 24-hour average concentrations which were modelled at each point within the modelling domain for the worst day (i.e. a 24-hour period) during the one year long modelling period.

Associated isopleth diagrams of the dispersion modelling results are presented in **Appendix C**.

The total (cumulative) impact is defined as the operation of the Project combined with the estimated ambient background levels in **Section 4.3.6**.

Table 6-1 present the predicted incremental and cumulative particulate dispersion modelling results at each of the assessed receptor locations.

The predicted incremental results show that minimal incremental effects would arise at the residential receptor locations due to the Project. The predicted cumulative results indicate that the residential receptor locations are predicted to experience levels below the relevant criteria for each of the assessed dust metrics.

Table 6-1: Dust dispersion modelling results for assessment locations

Receptor ID	PM _{2.5} (µg/m³)		PM ₁₀ (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	PM _{2.5} (µg/m³)	PM ₁₀ (µg/m³)	TSP (µg/m³)	DD* (g/m²/mth)
	Incremental						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	-	2	8	25	90
R1	1.7	0.2	7.3	0.6	2.1	0.1	4.1	10.6	38.1	1.7
R2	1.2	0.1	4.0	0.2	0.7	<0.1	4.0	10.2	36.7	1.6
R3	0.5	<0.1	1.0	0.1	0.1	<0.1	3.9	10.1	36.1	1.6
R4	0.8	0.1	3.5	0.3	0.7	0.1	4.0	10.3	36.7	1.7
R5	0.9	<0.1	5.6	0.1	0.3	<0.1	3.9	10.1	36.3	1.6
R6	0.4	0.1	2.1	0.2	0.5	<0.1	4.0	10.2	36.5	1.6
R7	1.7	0.2	10.5	0.6	1.4	0.1	4.1	10.6	37.4	1.7
R8	2.4	0.2	9.7	0.6	2.2	0.1	4.1	10.6	38.2	1.7

Receptor ID	PM _{2.5} (µg/m³)		PM ₁₀ (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	PM _{2.5} (µg/m³)	PM ₁₀ (µg/m³)	TSP (µg/m³)	DD* (g/m²/mth)
	Incremental						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	-	2	8	25	90
R9	0.7	<0.1	2.9	0.1	0.4	<0.1	3.9	10.1	36.4	1.6
R10	0.9	0.1	3.1	0.2	0.5	<0.1	4.0	10.2	36.5	1.6
R11	0.7	<0.1	2.5	0.1	0.3	<0.1	3.9	10.1	36.3	1.6
R12	0.7	<0.1	2.5	0.1	0.3	<0.1	3.9	10.1	36.3	1.6
R13	0.9	0.1	5.9	0.2	0.3	<0.1	4.0	10.2	36.3	1.6
R14	0.4	<0.1	1.7	0.1	0.2	<0.1	3.9	10.1	36.2	1.6
R15	0.4	<0.1	1.8	0.1	0.2	<0.1	3.9	10.1	36.2	1.6
R16	0.5	<0.1	1.8	0.1	0.2	<0.1	3.9	10.1	36.2	1.6
R17	0.5	<0.1	1.8	0.1	0.3	<0.1	3.9	10.1	36.3	1.6

*Deposited dust

6.2 Assessment of Cumulative 24-hour average PM_{2.5} and PM₁₀ Concentrations

The results for incremental 24-hour average PM_{2.5} and PM₁₀ concentrations indicate there are some predicted exceedances of the relevant criteria at the receptors for the assessed scenarios.

When assessing the cumulative 24-hour average impacts based on model predictions an assessment of cumulative 24-hour average PM_{2.5} and PM₁₀ impacts was undertaken in accordance with Section 11.2 of the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022)*.

As shown in **Section 6.3**, maximum background levels in the past have reached the 24-hour average criteria levels. Due to this, the "Level 1 assessment – Maximum impact" would not be appropriate for assessing the potential cumulative 24-hour average impacts. In such situations, the "Level 2 assessment - Contemporaneous impact and background approach" was applied to assess potential impacts for PM_{2.5} and PM₁₀.

In simple terms, the Level 2 assessment involves matching one year of ambient air quality monitoring data with the corresponding Project only level predicted using the same day's weather data to account for the spatial and temporal variation in background levels on a given day.

Table 6-2 provides a summary of the findings from the Level 2 assessments for the nearest residential receptors in each direction for both PM_{2.5} and PM₁₀.

The results in **Table 6-2** indicate that the Project does not increase the number of days above the 24-hour average criterion at the assessed receptors for PM_{2.5} and PM₁₀. Based on this result it can be inferred that the Project does not increase the number of days above the 24-hour average PM_{2.5} and PM₁₀ criterion at any of the residential receptor locations surrounding the Project.

Detailed tables of the contemporaneous assessment results are provided in **Appendix D**.

Table 6-2: NSW EPA contemporaneous assessment - maximum number of additional days above 24-hour average criterion

Receptor ID	PM _{2.5}	PM ₁₀
R1	0	0
R7	0	0

Time series plots of the predicted cumulative 24-hour average PM₁₀ concentrations for the most impacted residential receptor (R1) are presented in **Figure 6-1**.

The orange bars in the figures represent the contribution from the Project and the blue bars represent the applied background levels. It is clear from the figures that the Project has a small influence at the assessed receptor locations and in most cases would be difficult to discern beyond the existing background level.

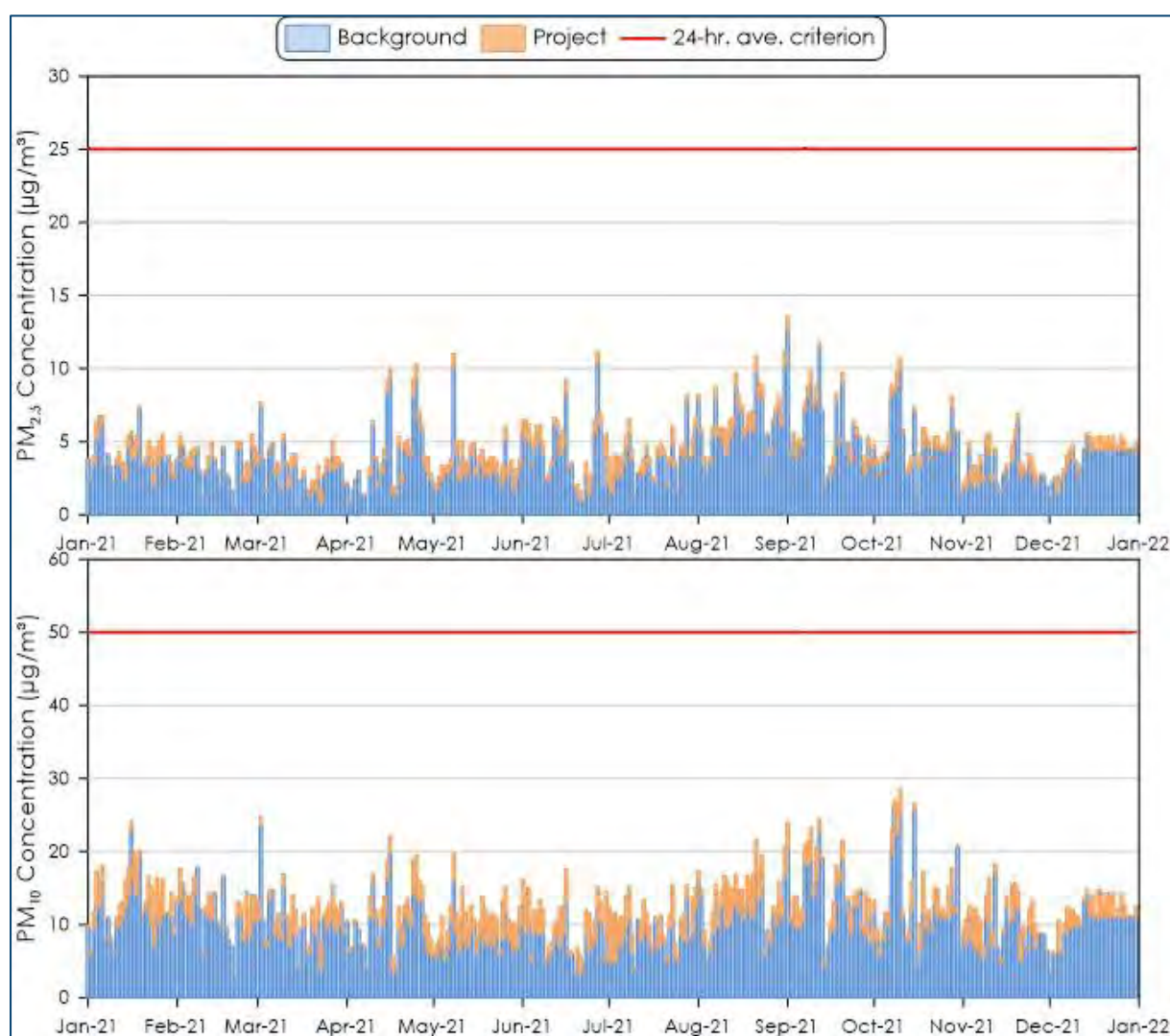


Figure 6-1: Time series plots of predicted cumulative 24-hour average PM₁₀ concentrations for R1

6.3 Other pollutants

The impact assessment criteria apply at the most impacted receptor or at any location off-site depending on the pollutant assessed.

Table 6-3 presents the predicted maximum impact at the worst affected assessment location or location beyond the site boundary receptor from asphalt plant exhaust stack emissions. Isopleth diagrams of the predicted impact for selected pollutants are presented in **Appendix D**.

The results indicate the maximum contribution from the Project at the receptor locations would be below the relevant criteria for each of the assessed pollutants.

Table 6-3: Predicted maximum impact at the worst affected receptor($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging period	Incremental impact	Receptor ID	Background	Total impact	Criteria
NO ₂	1 hour	7.9	R7	100.5	108.4	164
	Annual	0.1	R7	6.2	6.3	31
SO ₂	1 hour	0.2	R7	8.6	8.8	215
	24 hour	0.03	R7	2.9	2.9	57
CO	15 minute	50.7	R7	-	50.7	100,000
	1 hour	38.4	R7	-	38.4	30,000
	8 hour	0.3	R7	875	875.3	10,000
Arsenic	1 hour	7.2E-05	Boundary	-	7.2E-05	0.09
Beryllium	1 hour	1.4E-05	Boundary	-	1.4E-05	0.004
Cadmium	1 hour	2.9E-05	Boundary	-	2.9E-05	0.018
Chromium (VI)	1 hour	7.9E-04	Boundary	-	7.9E-04	0.09
Copper	1 hour	4.1E-04	Boundary	-	4.1E-04	3.7
Lead	Annual	2.1E-06	R7	-	2.1E-06	0.5
Manganese	1 hour	7.2E-04	Boundary	-	7.2E-04	18
Mercury	1 hour	4.8E-07	Boundary	-	4.8E-07	0.18
Nickel	1 hour	9.8E-04	Boundary	-	9.8E-04	0.18
Zinc	1 hour	2.8E-03	Boundary	-	2.8E-03	90
Acetone	1 hour	0.42	Boundary	-	0.42	22,000
Acetaldehyde	1 hour	0.04	Boundary	-	0.04	42
Benzene	1 hour	0.08	Boundary	-	0.08	29
Formaldehyde	1 hour	0.24	Boundary	-	0.24	20
Toluene	1 hour	1.3E-02	Boundary	-	1.3E-02	360
Xylene	1 hour	0.03	Boundary	-	0.03	190
PAH (total)	1 hour	9.8E-03	Boundary	-	9.8E-03	0.4

6.4 Odour

The spatial distribution of the dispersion modelling predictions for the Project is presented as an isopleth diagram showing the 99th percentile nose-response ground level odour concentrations in **Figure C-14**.

Table 6-4 presents the discrete dispersion modelling results at each of the assessment locations. The results indicate that odour levels due to the Project will be below the applicable criteria at all assessment locations.

Table 6-4: 99th percentile nose-response average ground level odour concentrations – Incremental impact

Assessment location ID	Predicted level (OU)	Odour assessment criterion (OU)
R1	<1	7
R2	<1	7
R3	<1	7
R4	<1	7
R5	<1	7
R6	<1	7
R7	<1	7
R8	<1	7
R9	<1	7
R10	<1	7
R11	<1	7
R12	<1	7
R13	<1	7
R14	<1	7
R15	<1	7
R16	<1	7
R17	<1	7

7 MITIGATION AND MANAGEMENT

The operations of the Project have the potential to generate dust and odour emissions. To ensure that activities associated with the Project have a minimal effect on the surrounding environment, it is recommended that all reasonable and practicable dust mitigation measures be utilised.

Blakebrook Quarry site currently employ a number of air quality control measures that are included within the site's Air Quality Management Plan (**LCC, 2023**). It is recommended that existing air quality control measures continue to be applied.

The modelling predictions for the Project do not indicate any exceedance of the relevant dust impact assessment criteria at the residential receptors. Given this situation, there are no specific ambient air quality monitoring recommendations for the Project at the receptors. It is anticipated that the site's existing air quality monitoring network be maintained for the Project.



8 SUMMARY AND CONCLUSIONS

This report has assessed the potential air quality impacts associated with the proposed modification of the Downer Asphalt Plant at Lismore, NSW.

Air dispersion modelling was used to predict the potential for off-site dust, odour and air pollutant impacts in the surrounding area due to the proposed modification for the Project. The estimated air emissions applied in the modelling are likely to be conservative and would overestimate the actual impacts in reality.

The predicted ground level concentrations at the residential receptor locations would be below the relevant aimpoint assessment criteria for each of the assessed dust metrics. It is predicted that all the assessed air pollutants generated by the operation of the Project would comply with the relevant assessment criteria at the applicable receptor locations and therefore would not lead to any unacceptable level of environmental harm or impact in the surrounding area.

The odour impact assessment indicates odour impacts due to the Project are below the applicable criterion at the assessment locations and would not lead to any unacceptable level of odour in the surrounding environment.

Nevertheless, the site would apply appropriate dust and odour management measures to minimise air emissions from the site.

Overall, the assessment demonstrates that the Project can operate without causing any significant air quality impact at residential receptor locations in the surrounding environment.



9 REFERENCES

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Appendix A

Selection of Meteorological Year



Selection of meteorological year

A statistical analysis of the latest five contiguous years of meteorological data from the nearest BoM weather station with suitable available data, Casino Airport AWS weather station, is presented in **Table A-1**.

The standard deviation of the latest five years of meteorological data spanning 2020 to 2024 was analysed against the available measured wind speed, temperature and relative humidity. The analysis indicates that all dataset years are close to the mean for wind speed, and 2021 is closest for wind temperature and relative humidity. On the basis of a score weighting analysis, 2021 was found to be most representative.

Table A-1: Statistical analysis results for Casino Airport AWS

Year	Wind speed	Temperature	Relative humidity	Score
2020	0.3	0.8	3.9	5.0
2021	0.3	0.5	2.8	3.6
2022	0.3	0.7	6.0	6.9
2023	0.3	1.1	3.8	5.2
2024	0.3	0.7	4.4	5.4

Figure A-1 shows the frequency distributions for wind speed, wind direction, temperature and relative humidity for the 2021 year compared with the mean of the 2020 to 2024 data set. The 2021 year data appear to be reasonably well aligned with the mean data.

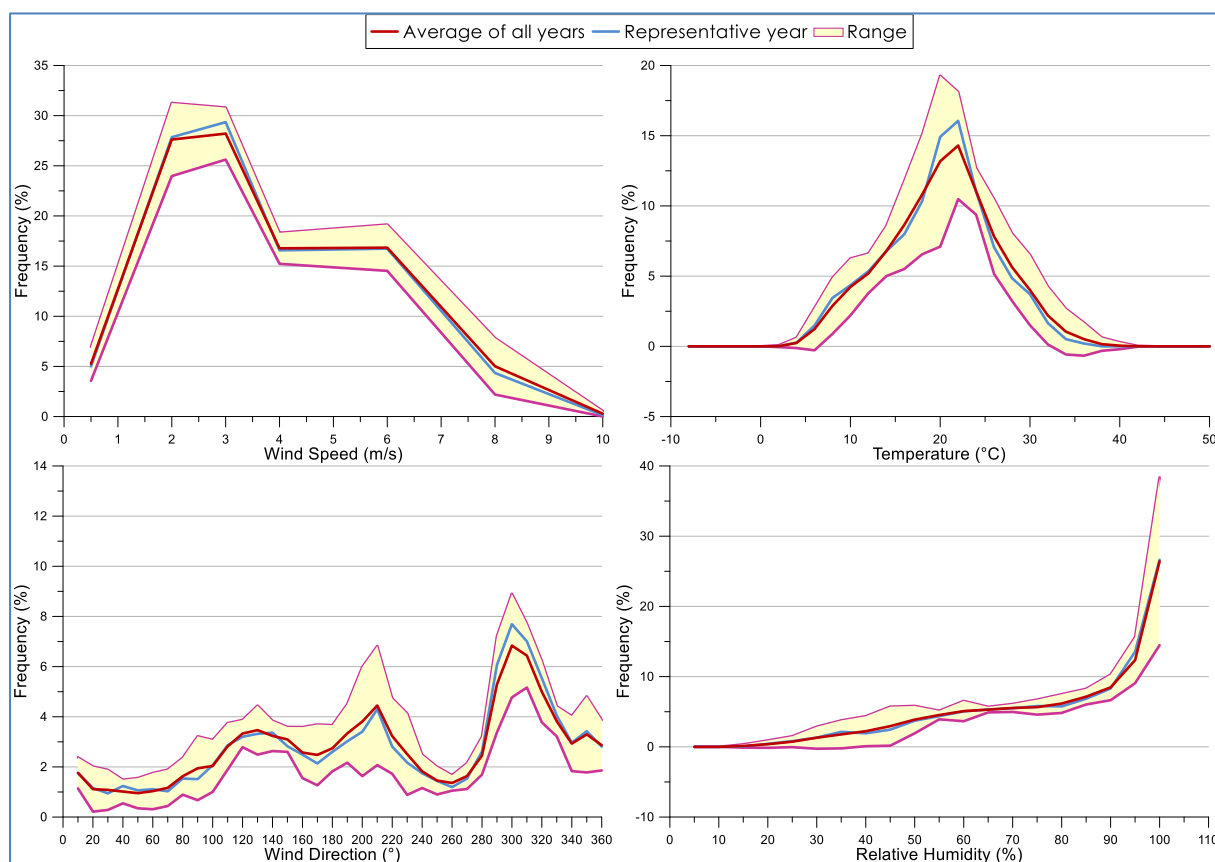


Figure A-1: Frequency distributions for wind speed, wind direction, temperature and relative humidity

Appendix B

Emission Calculations



Emission Calculation

The dust emissions from the Project have been estimated from the operational description of the proposed activities provided by the Proponent and have been combined with emissions factor equations and utilising suitable emission and load factors that relate to the quantity of dust emitted from particular activities based on intensity, the prevailing meteorological conditions and composition of the material being handled. Site specific variables including vehicle kilometres travelled (VKT) and stockpile areas are based on the indicative site layout plans provided.

Emission factors and associated controls have been sourced from:

- ✦ United States (US) EPA AP42 Emission Factors (**US EPA, 1985 and Updates**);
- ✦ Office of Environment and Heritage document, "NSW Coal Mining Benchmarking Study: Best Practise Measures for Reducing Non-Road Diesel Exhaust Emissions, Final Report" (**NSW EPA, 2015**).

The emission factor equations used for each dust generating activity are outlined in **Table B-1** below. A detailed dust emission inventory for the Project is presented in **Table B-2** and **Table B-3**.

Specific control factors applied for dust emissions estimates include the following:

- ✦ RAP processing activities occurring within a purpose-built enclosure – 70% control for enclosure; and,
- ✦ Wind erosion from stockpiles – 50% control for watering.



Table B-1: Emission factor equations

Activity	Emission factor equation		
	TSP	PM ₁₀	PM _{2.5}
Loading / emplacing material	$EF = 0.74 \times 0.0016 \times \left(\frac{U^{1.3}}{2.2} / \frac{M^{1.4}}{2} \right) kg/tonne$	$EF = 0.35 \times 0.0016 \times \left(\frac{U^{1.3}}{2.2} / \frac{M^{1.4}}{2} \right) kg/tonne$	$EF = 0.053 \times 0.0016 \times \left(\frac{U^{1.3}}{2.2} / \frac{M^{1.4}}{2} \right) kg/tonne$
Hauling on unsealed surfaces	$EF = \left(\frac{0.4536}{1.6093} \right) \times 4.9 \times (s/12)^{0.7} \times (1.1023 \times M/3)^{0.45} kg/VKT$	$EF = \left(\frac{0.4536}{1.6093} \right) \times 1.5 \times (s/12)^{0.9} \times (1.1023 \times M/3)^{0.45} kg/VKT$	$EF = \left(\frac{0.4536}{1.6093} \right) \times 0.15 \times (s/12)^{0.9} \times (1.1023 \times M/3)^{0.45} kg/VKT$
Hauling on sealed surfaces	$EF = 3.23 \times s.L^{0.91} \times (1.1023 \times W)^{1.02} kg/VKT$	$EF = 0.62 \times s.L^{0.91} \times (1.1023 \times W)^{1.02} kg/VKT$	$EF = 0.15 \times s.L^{0.91} \times (1.1023 \times W)^{1.02} kg/VKT$
Crushing	$EF = 0.0006 kg/tonne$	$EF = 0.00027 kg/tonne$	$EF = 0.00005 kg/tonne$
Screening	$EF = 0.0011 kg/tonne$	$EF = 0.00037 kg/tonne$	$EF = 0.000025 kg/tonne$
Conveying	$EF = 850 kg/ha/year$	$0.5 \times TSP$	$0.075 \times TSP$
Dozer	$(2.6 \times (s^{1.2}))/M^{1.3}$	$0.45 \times (s^{1.5})/M^{1.4} \times 0.75$	$(2.6 \times (s^{1.2}))/M^{1.3} \times 0.105$
Grader	$0.0034 \times S^{2.5} kg/h$	$0.6 \times (0.0056 \times S^{2.5}) kg/h$	$0.031 \times (0.0034 \times S^{2.5}) kg/h$
Wind erosion on stockpiles	$EF = 850 kg/ha/year$	$0.5 \times TSP$	$0.075 \times TSP$

EF = emission factor, U = wind speed (m/s), M = moisture content (%), s = silt content (%), s.L. = silt loading (g/m²), W = average weight of vehicle (tonne), VKT = vehicle kilometres travelled (km), S = vehicle speed (km/hr)



Table B-2: Dust Emissions Inventory - Average

Activity - Average	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var 1	Units	Var 2	Units	Var 3 - TSP / PM10 / PM25	Units	Var 4	Units	Var 5	Units	Var 6	Units
Hauling RAP material on-site - paved	237	46	11	15,000	t/yr	0.0158	0.00304	0.000735	kg/t	32	t/l	1.9	km/rt	0.27 / 0.05 / 0.01	kg/VKT	2	S.L. g/m2	38	Ave weight (t)		
Hauling RAP material on-site - unpaved	444	113	11	15,000	t/yr	0.119	0.030	0.003	kg/t	32	t/l	1.6	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight (t)	75	C. %
Unloading material to RAP stockpiles	26	12	2	15,000	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Rehandle at stockpile	3	1	0	1,500	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Loading material to crusher	26	12	2	15,000	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Crushing	254	115	21	15,000	t/yr	0.00060	0.00027	0.00005	kg/t												
Screening	17	6	0	15,000	t/yr	0.0011	0.00037	0.000025	kg/t												
Unload to stockpile	26	12	2	15,000	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Rehandle at stockpile	3	1	0	1,500	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Hauling RAP material to plant - unpaved	444	113	11	15,000	t/yr	0.119	0.030	0.003	kg/t	32	t/l	1.6	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight (t)	75	C. %
Hauling bitumen material on-site - paved	107	21	5	5,500	t/yr	0.0195	0.00375	0.000907	kg/t	22	t/l	1.9	km/rt	0.23 / 0.04 / 0.01	kg/VKT	2	S.L. g/m2	32	Ave weight (t)		
Hauling bitumen material on-site - unpaved	61	16	2	5,500	t/yr	0.045	0.011	0.001	kg/t	22	t/l	0.4	km/rt	2.2 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	32	Ave weight (t)	75	C. %
Hauling aggregate on-site - paved	1,028	197	48	65,000	t/yr	0.0158	0.00304	0.000735	kg/t	32	t/l	1.9	km/rt	0.27 / 0.05 / 0.01	kg/VKT	2	S.L. g/m2	38	Ave weight (t)		
Hauling aggregate on-site - unpaved	537	137	14	65,000	t/yr	0.033	0.008	0.001	kg/t	32	t/l	0.4	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight (t)	75	C. %
Hauling sand on-site - paved	190	36	9	12,000	t/yr	0.0158	0.00304	0.000735	kg/t	32	t/l	1.9	km/rt	0.27 / 0.05 / 0.01	kg/VKT	2	S.L. g/m2	38	Ave weight (t)		
Hauling sand on-site - unpaved	99	25	3	12,000	t/yr	0.033	0.008	0.001	kg/t	32	t/l	0.4	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight (t)	75	C. %
Hauling filler on-site - paved	56	11	3	2,850	t/yr	0.0195	0.00375	0.000907	kg/t	22	t/l	1.9	km/rt	0.23 / 0.04 / 0.01	kg/VKT	2	S.L. g/m2	32	Ave weight (t)		
Hauling filler on-site - unpaved	32	8	1	2,850	t/yr	0.045	0.011	0.001	kg/t	22	t/l	0.4	km/rt	2.2 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	32	Ave weight (t)	75	C. %
Unloading material to hopper	174	82	12	100,000	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Unloading processed asphalt to dispatch truck	174	82	12	100,000	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Hauling processed asphalt off-site - paved	1,615	310	75	100,000	t/yr	0.0162	0.00310	0.000750	kg/t	17	t/l	1.9	km/rt	0.14 / 0.03 / 0.01	kg/VKT	2	S.L. g/m2	20	Ave weight (t)		
Hauling processed asphalt off-site - unpaved	1,207	308	31	100,000	t/yr	0.048	0.012	0.001	kg/t	17	t/l	0.4	km/rt	1.8 / 0.5 / 0.05	kg/VKT	4.8	S.C. %	20	Ave weight (t)	75	C. %
Wind erosion from exposed stockpiles	9,234	4,617	693	21.7	ha	850	425	64	kg/ha/year											50	C. %
Exhaust emissions	733	733	711																		
Total emissions (kg/yr.)	16,729	7,015	1,678																		



Table B-3: Dust Emissions Inventory - Peak

Activity - Peak	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var 1	Units	Var 2	Units	Var 3 - TSP / PM10 / PM25	Units	Var 4	Units	Var 5	Units	Var 6	Units
Hauling RAP material on-site - paved	1,132	217	53	71,558	t/yr	0.0158	0.00304	0.000735	kg/t	32	t/l	1.9	km/rt	0.27 / 0.05 / 0.01	kg/VKT	2	S.L. g/m2	38	Ave weight (t)		
Hauling RAP material on-site - unpaved	2,120	540	54	71,558	t/yr	0.119	0.030	0.003	kg/t	32	t/l	1.6	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight	75	C. %
Unloading material to RAP stockpiles	124	59	9	71,558	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Rehandle at stockpile	12	6	1	7,156	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Loading material to crusher	124	59	9	71,558	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Crushing	254	115	21	71,558	t/yr	0.00060	0.00027	0.00005	kg/t												
Screening	79	26	2	71,558	t/yr	0.0011	0.00037	0.000025	kg/t												
Unload to stockpile	124	59	9	71,558	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Rehandle at stockpile	12	6	1	7,156	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Hauling RAP material to plant - unpaved	2,120	540	54	71,558	t/yr	0.119	0.030	0.003	kg/t	32	t/l	1.6	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight	75	C. %
Hauling bitumen material on-site - paved	512	98	24	26,238	t/yr	0.0195	0.00375	0.000907	kg/t	22	t/l	1.9	km/rt	0.23 / 0.04 / 0.01	kg/VKT	2	S.L. g/m2	32	Ave weight (t)		
Hauling bitumen material on-site - unpaved	293	75	7	26,238	t/yr	0.045	0.011	0.001	kg/t	22	t/l	0.4	km/rt	2.2 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	32	Ave weight	75	C. %
Hauling aggregate on-site - paved	4,905	942	228	310,085	t/yr	0.0158	0.00304	0.000735	kg/t	32	t/l	1.9	km/rt	0.27 / 0.05 / 0.01	kg/VKT	2	S.L. g/m2	38	Ave weight (t)		
Hauling aggregate on-site - unpaved	2,561	653	65	310,085	t/yr	0.033	0.008	0.001	kg/t	32	t/l	0.4	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight	75	C. %
Hauling sand on-site - paved	906	174	42	57,247	t/yr	0.0158	0.00304	0.000735	kg/t	32	t/l	1.9	km/rt	0.27 / 0.05 / 0.01	kg/VKT	2	S.L. g/m2	38	Ave weight (t)		
Hauling sand on-site - unpaved	473	121	12	57,247	t/yr	0.033	0.008	0.001	kg/t	32	t/l	0.4	km/rt	2.4 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	38	Ave weight	75	C. %
Hauling filler on-site - paved	93	18	4	4,771	t/yr	0.0195	0.00375	0.000907	kg/t	22	t/l	1.9	km/rt	0.23 / 0.04 / 0.01	kg/VKT	2	S.L. g/m2	32	Ave weight (t)		
Hauling filler on-site - unpaved	53	14	1	4,771	t/yr	0.045	0.011	0.001	kg/t	22	t/l	0.4	km/rt	2.2 / 0.6 / 0.1	kg/VKT	4.8	S.C. %	32	Ave weight	75	C. %
Unloading material to hopper	833	394	60	478,724	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Unloading processed asphalt to dispatch truck	833	394	60	478,724	t/yr	0.00174	0.00082	0.00012	kg/t	1.47	ave. ws	2	M.C. %								
Hauling processed asphalt off-site - paved	7,733	1,484	359	478,724	t/yr	0.0162	0.00310	0.000750	kg/t	17	t/l	1.9	km/rt	0.14 / 0.03 / 0.01	kg/VKT	2	S.L. g/m2	20	Ave weight (t)		
Hauling processed asphalt off-site - unpaved	5,778	1,473	147	478,724	t/yr	0.048	0.012	0.001	kg/t	17	t/l	0.4	km/rt	1.8 / 0.5 / 0.05	kg/VKT	4.8	S.C. %	20	Ave weight	75	C. %
Wind erosion from exposed stockpiles	9,234	4,617	693	21.7	ha	850	425	64	kg/ha/year											50	C. %
Exhaust emissions	835	835	810																		
Total emissions (kg/yr.)	41,147	12,918	2,725																		



Appendix C

Isopleth Diagrams



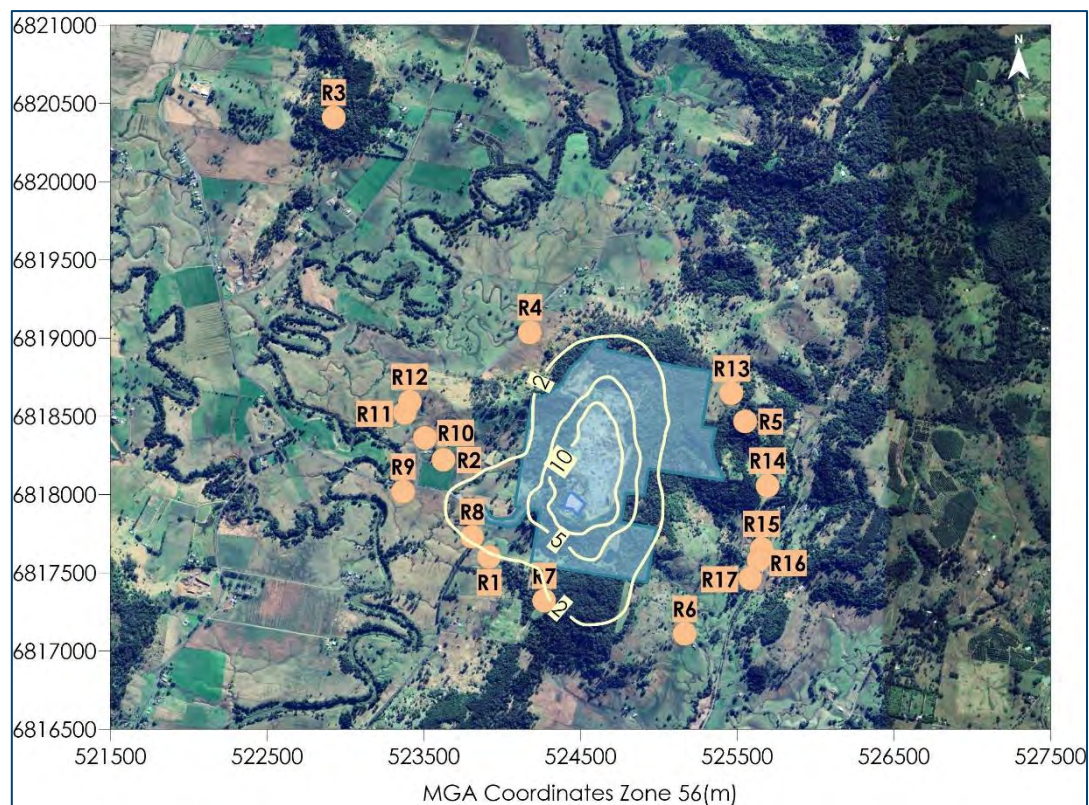


Figure C-1: Predicted incremental maximum 24-hour average PM_{2.5} concentrations (µg/m³)

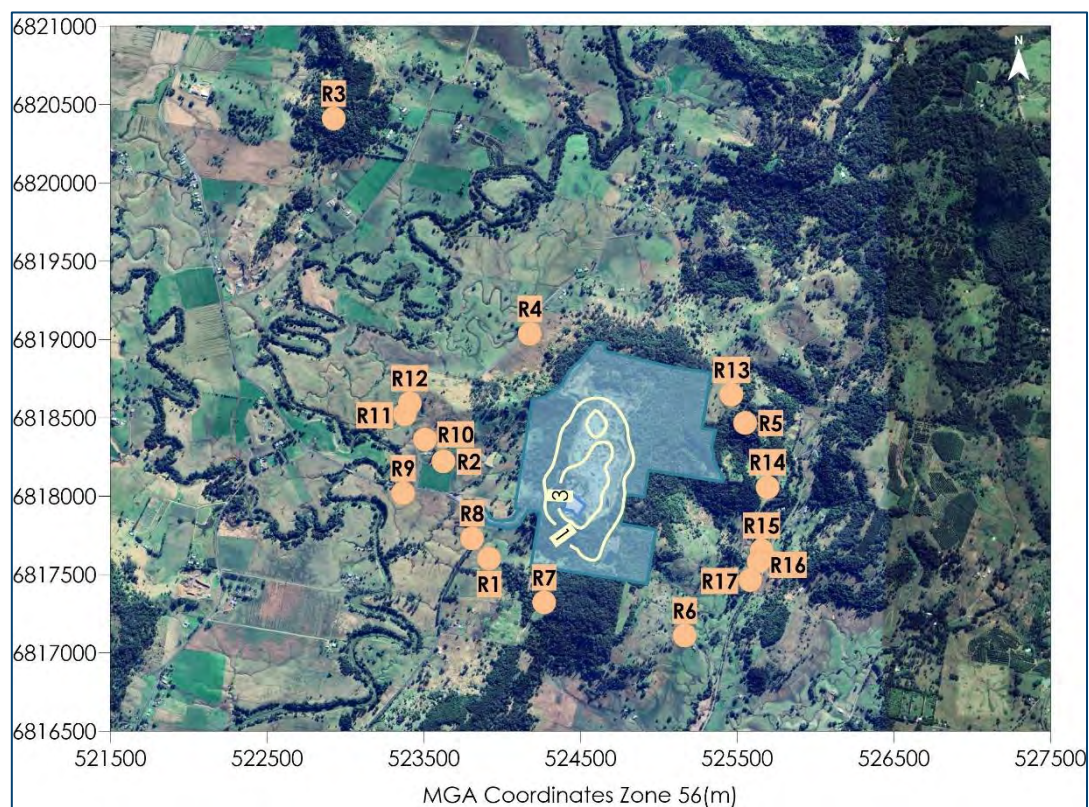


Figure C-2: Predicted incremental annual average PM_{2.5} concentrations (µg/m³)

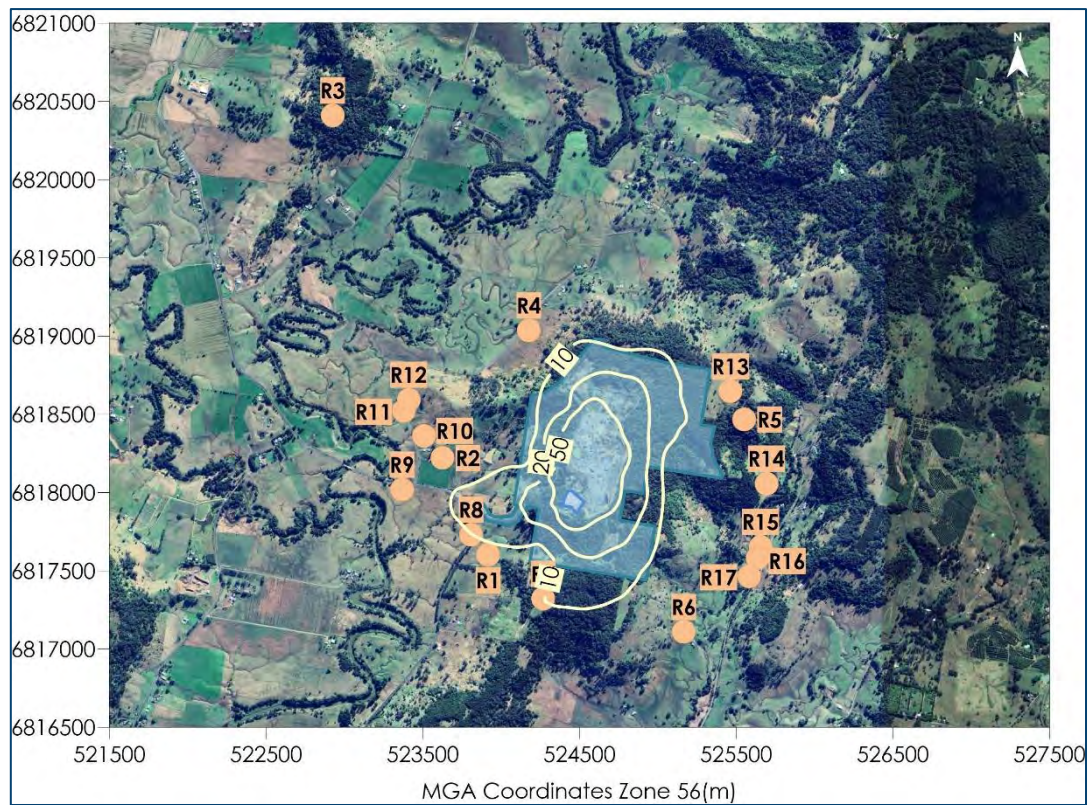


Figure C-3: Predicted incremental maximum 24-hour average PM₁₀ concentrations (µg/m³)

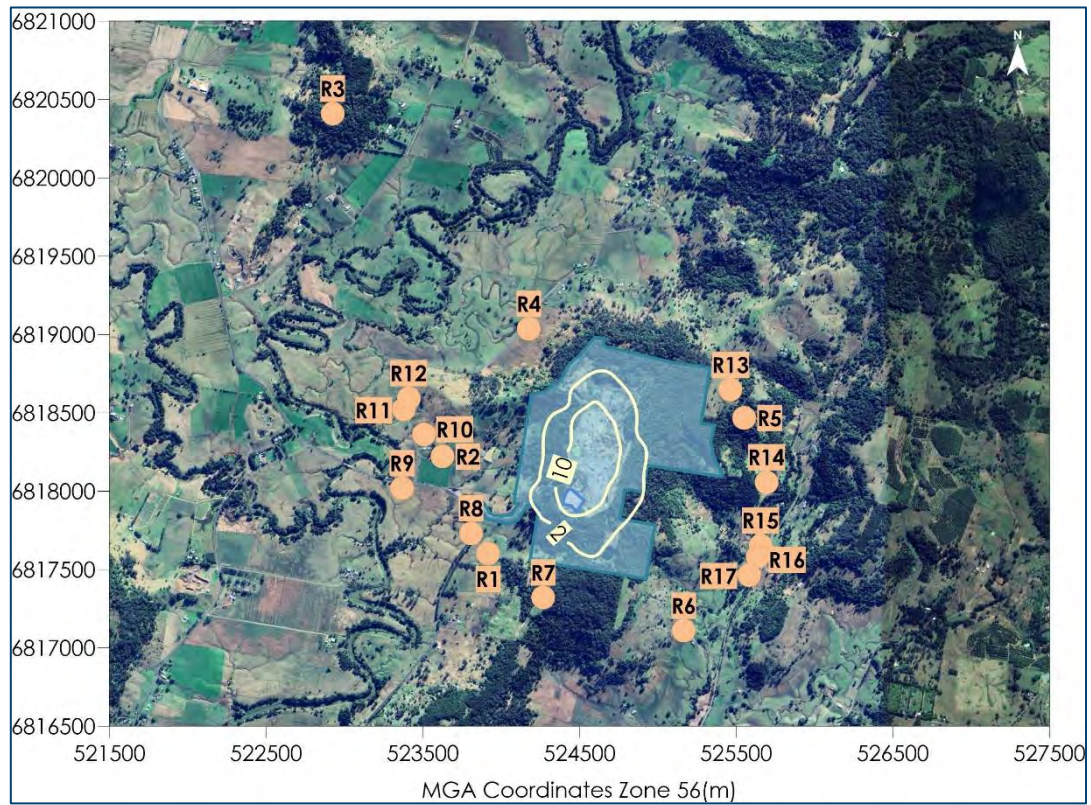


Figure C-4: Predicted incremental annual average PM₁₀ concentrations (µg/m³)

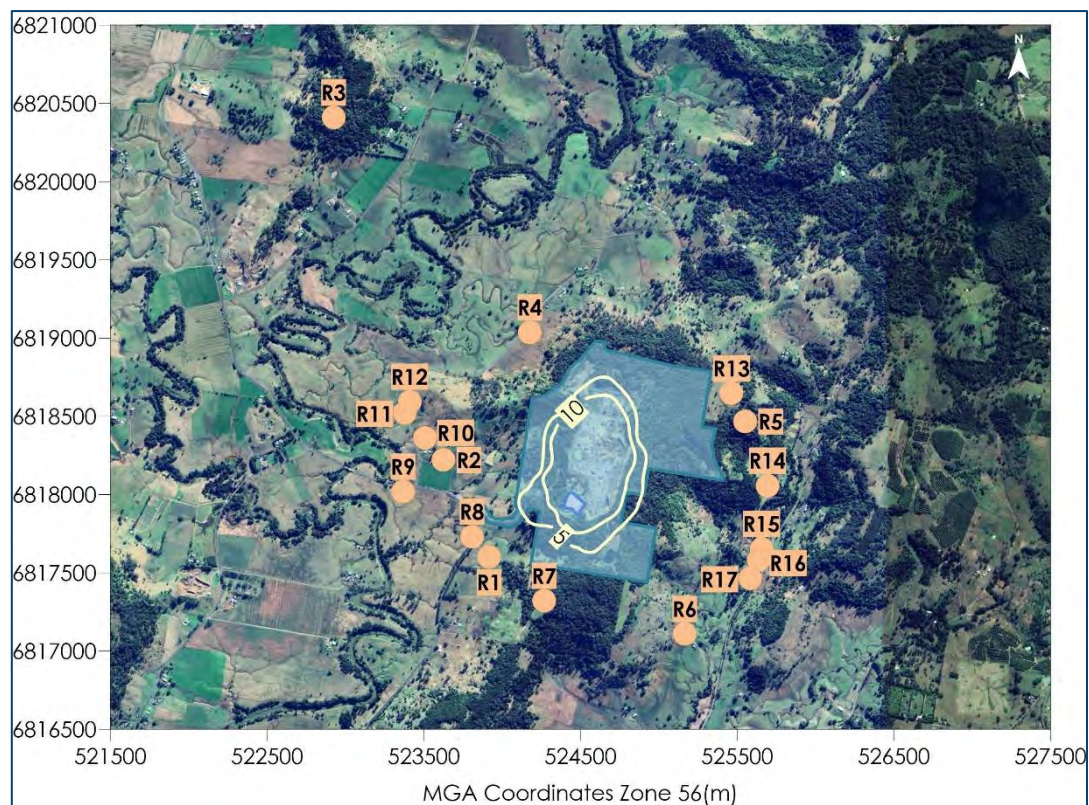


Figure C-5: Predicted incremental annual average TSP concentrations ($\mu\text{g}/\text{m}^3$)

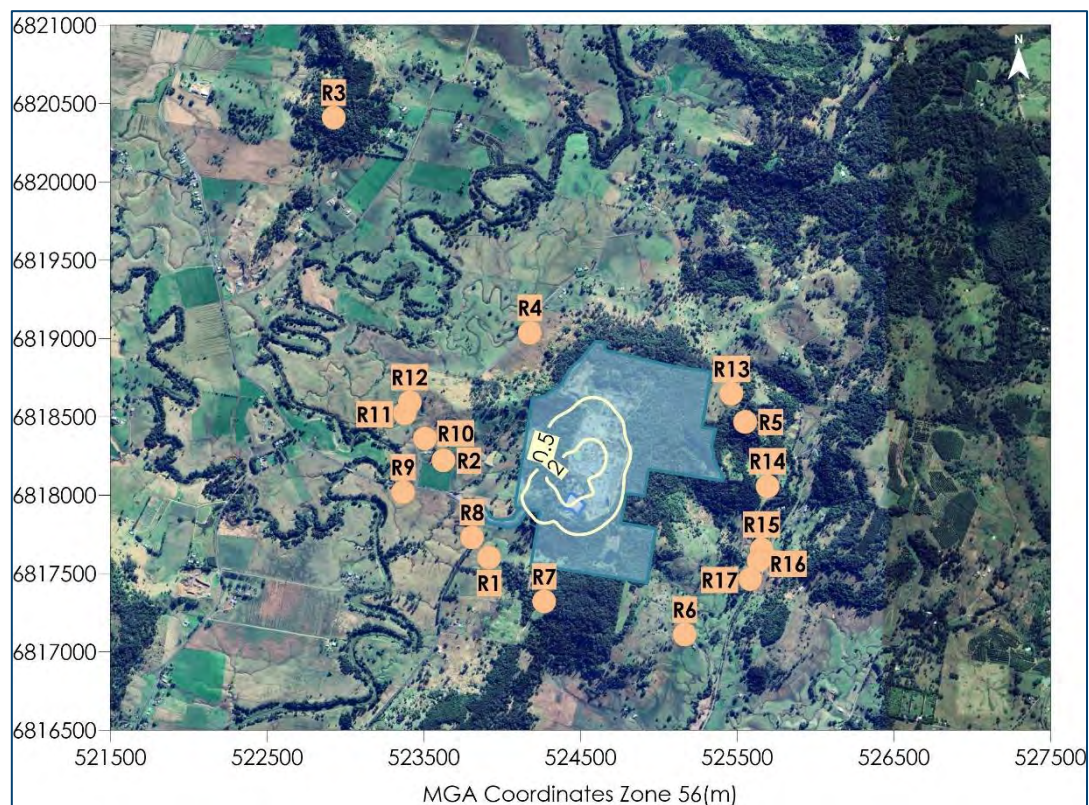


Figure C-6: Predicted incremental annual average dust deposition levels ($\text{g}/\text{m}^2/\text{month}$)

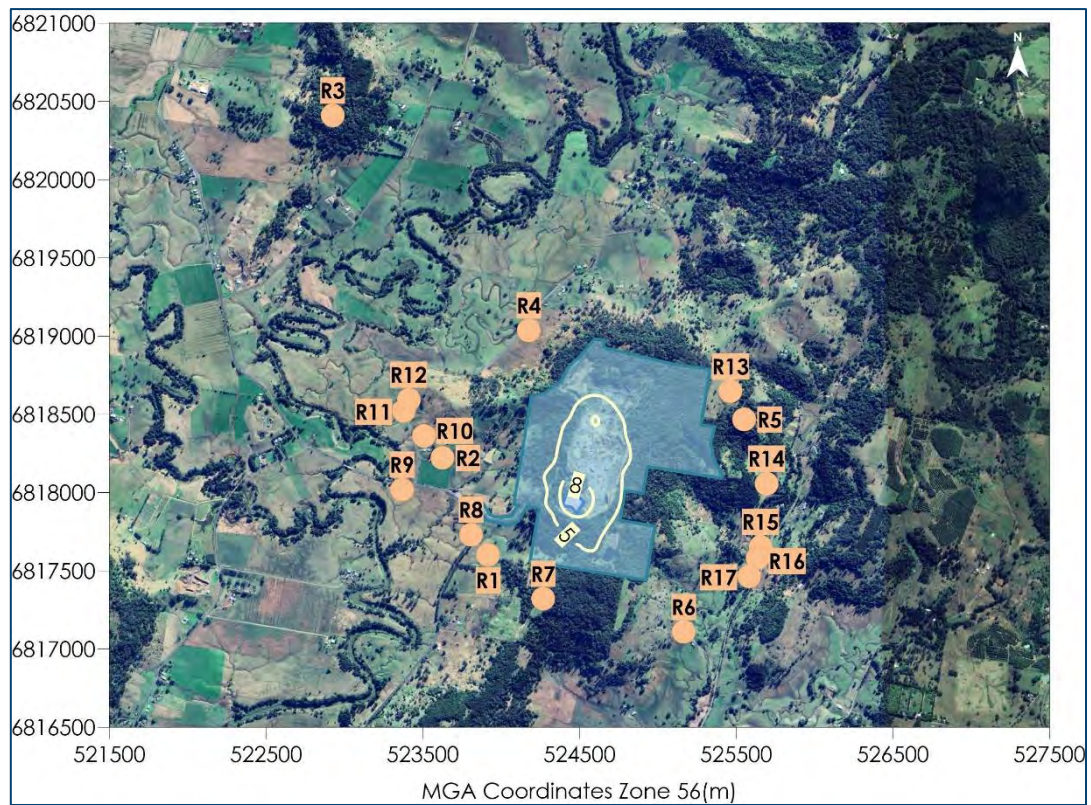


Figure C-7: Predicted cumulative annual average $PM_{2.5}$ concentrations ($\mu g/m^3$)

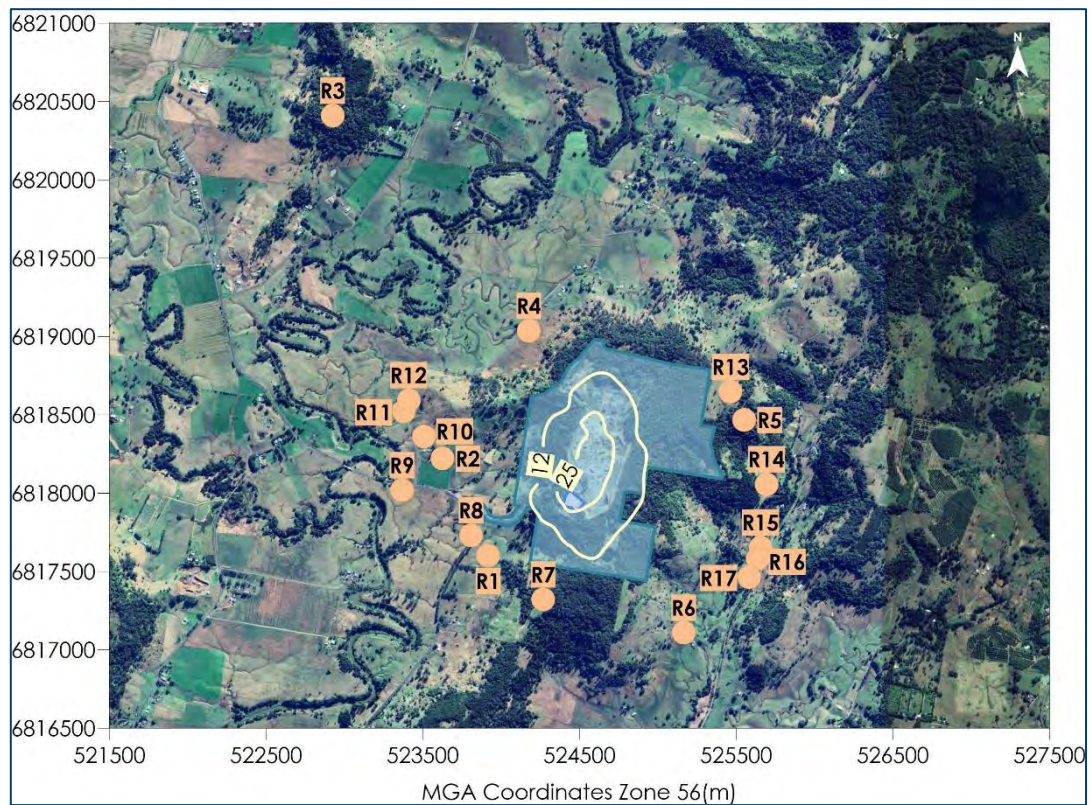


Figure C-8: Predicted cumulative annual average PM_{10} concentrations ($\mu g/m^3$)

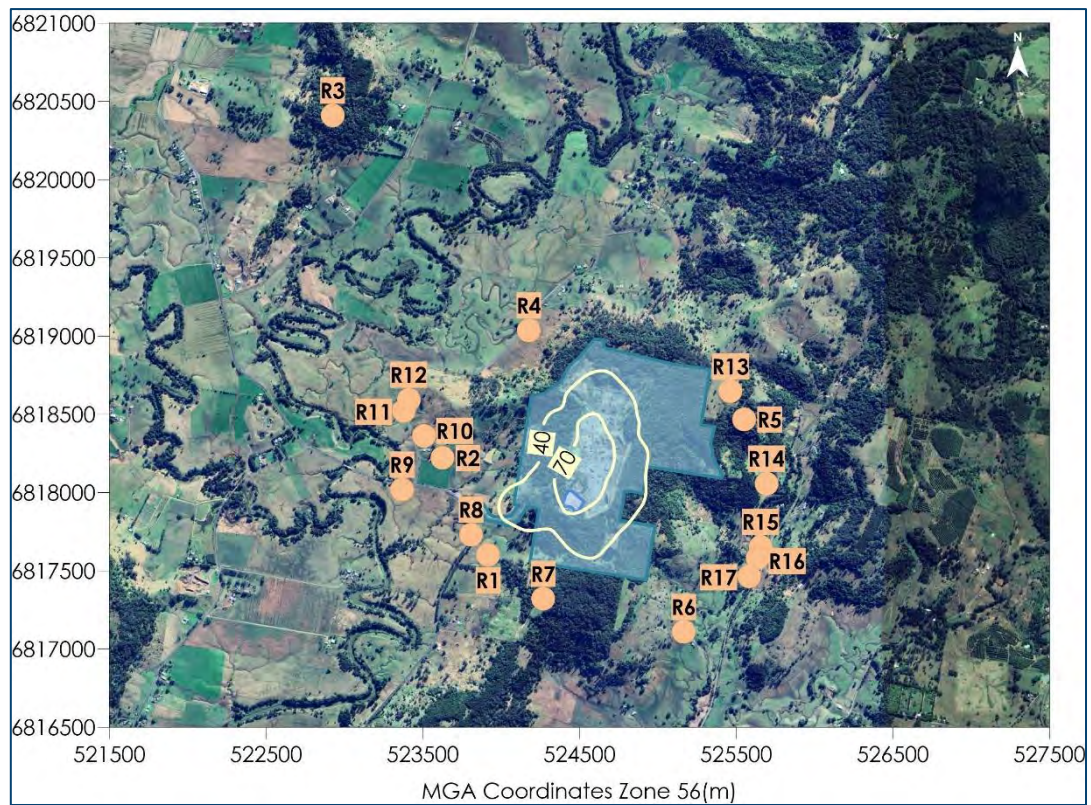


Figure C-9: Predicted cumulative annual average TSP concentrations ($\mu\text{g}/\text{m}^3$)

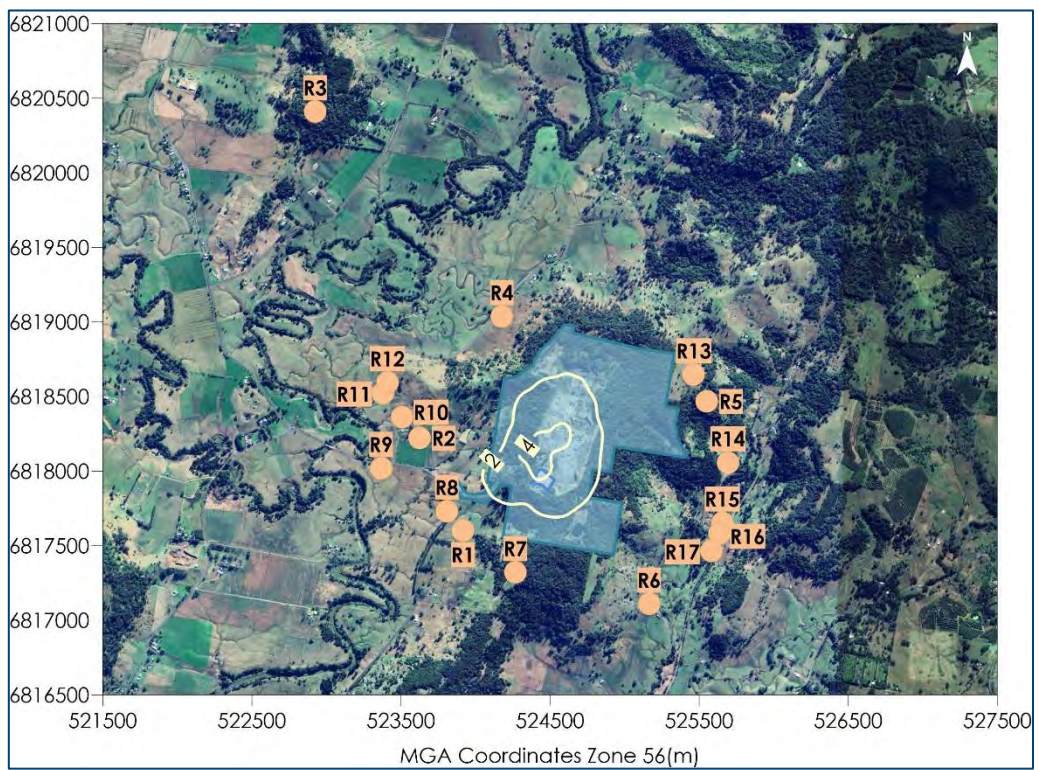
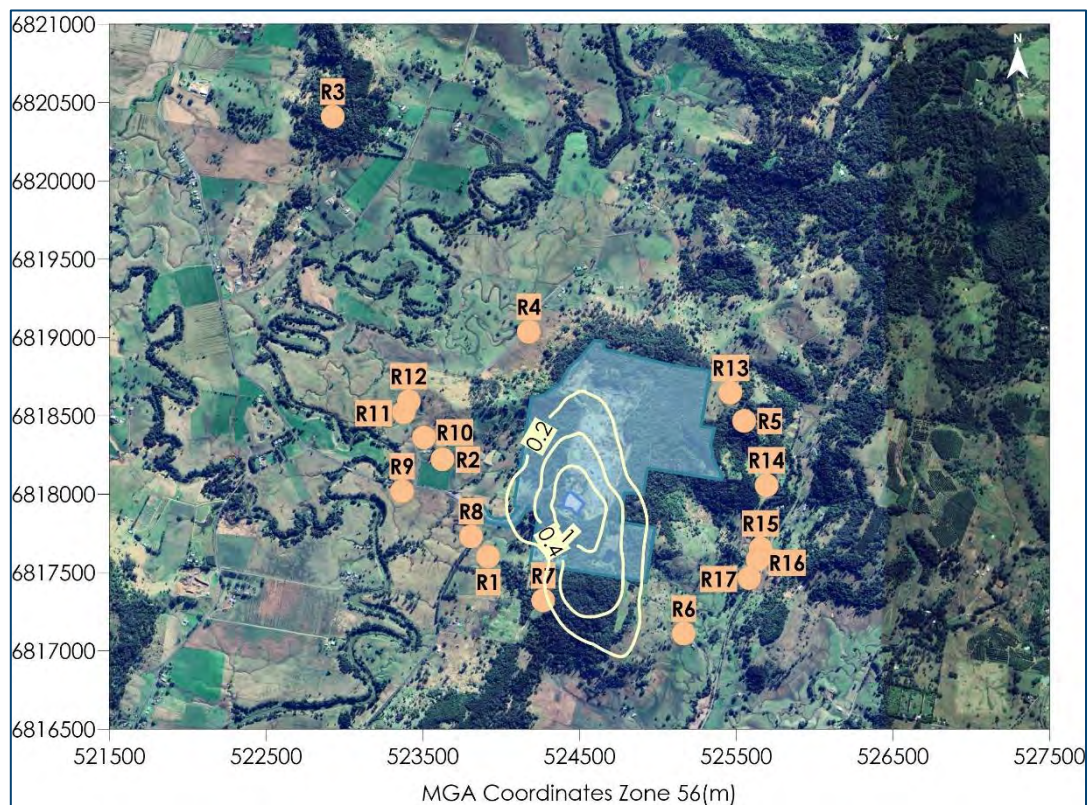
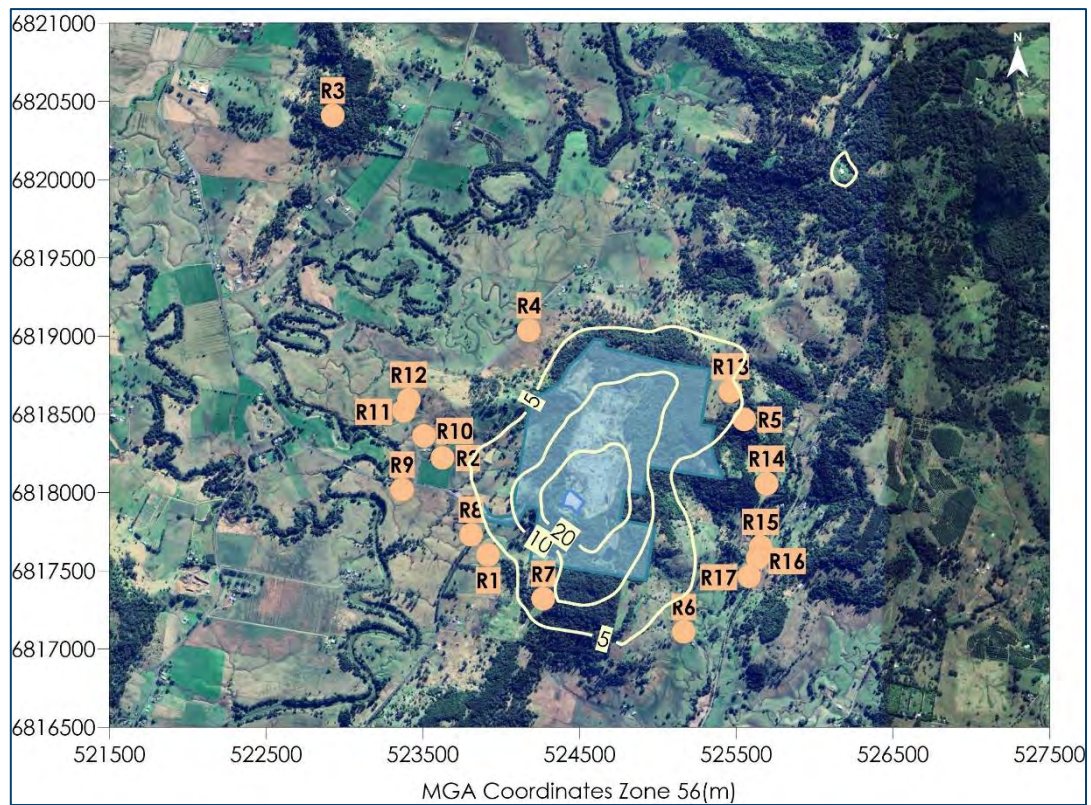


Figure C-10: Predicted cumulative annual average dust deposition levels ($\text{g}/\text{m}^2/\text{month}$)



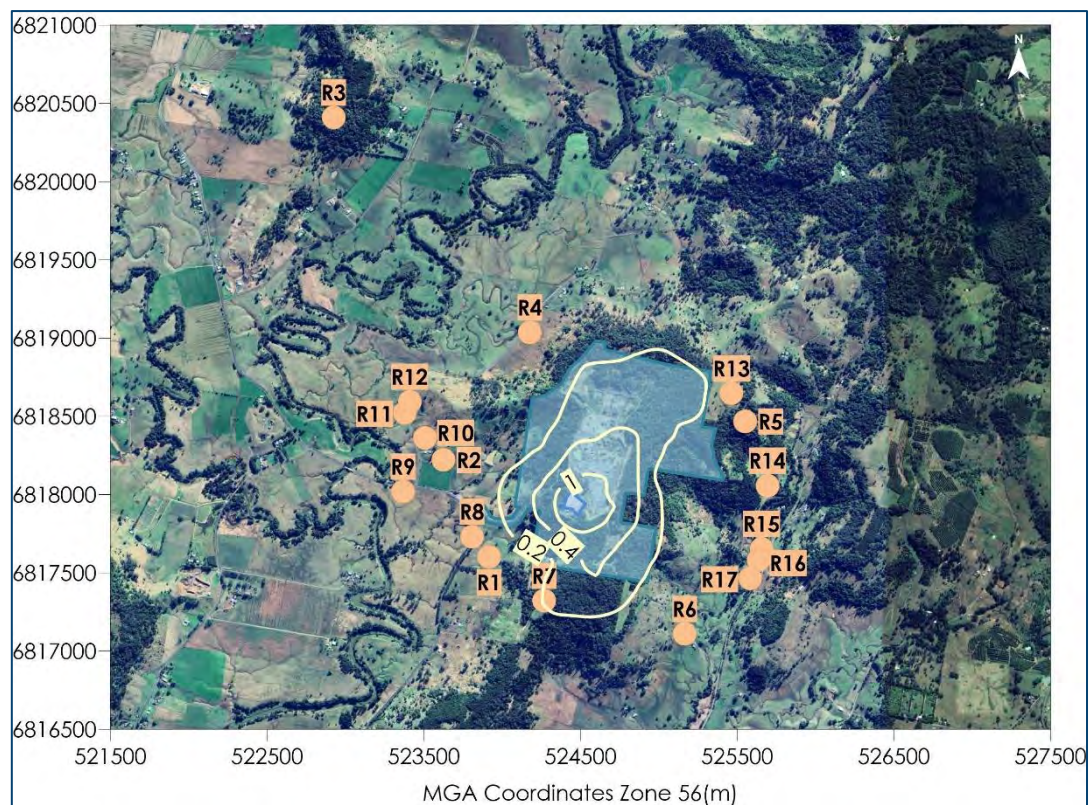


Figure C-13: Predicted incremental maximum 1-hour average SO₂ concentrations due to the Project

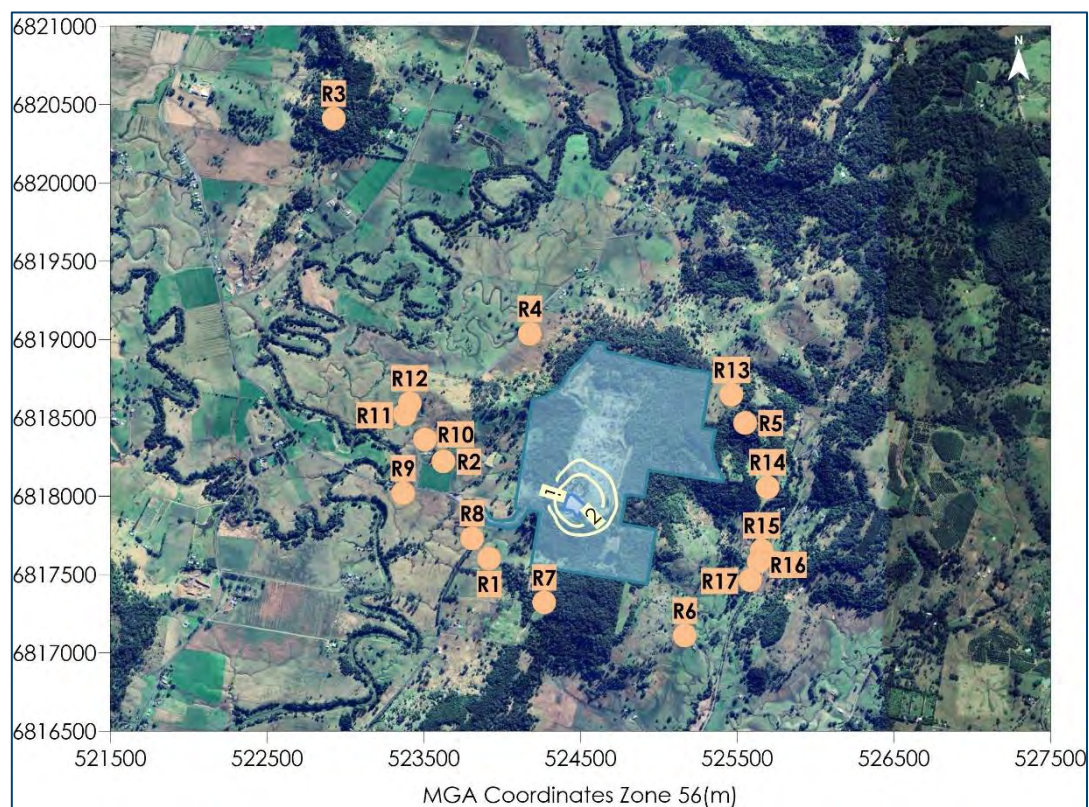


Figure C-14: Predicted incremental 99th percentile nose-response average ground level odour concentrations

Appendix D

Further detail regarding 24-hour $PM_{2.5}$ and PM_{10} analysis



Further detail regarding 24-hour average PM_{2.5} and PM₁₀ analysis

The analysis below provides a cumulative 24-hour PM_{2.5} and PM₁₀ impact assessment in accordance with the NSW EPA Approved Methods; refer to the worked example on Page 50 to 51 of the Approved Methods.

The background level is the ambient level at the Coffs Harbour monitoring station.

The predicted increment is the predicted level to occur at the receptor due to the Project.

The total is the sum of the background level and the predicted level. The totals may have minor discrepancies due to rounding.

Table D-1 to **Table D-4** assesses the selected receptors and shows the predicted maximum cumulative levels at the selected receptor.

The left half of the table examines the cumulative impact during the periods of highest background levels and the right half of the table examines the cumulative impact during the periods of highest contribution from the project.

The **green** shading represents days ranked per the highest background level but below the criteria.

The **blue** shading represents days ranked per the highest predicted increment level but below the criteria.

The **orange** shading represents days where the measured background level is already over the criteria.

Any value above the PM_{2.5} criterion of 25µg/m³ or above the PM₁₀ criterion of 50µg/m³ is in **bold red**.



Table D-1: Cumulative 24-hour average PM₁₀ concentration (µg/m³) – Receptor R1

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
8/10/2021	26.0	0.9	26.9	1/07/2021	4.9	7.3	12.2
15/10/2021	25.6	1.0	26.6	3/07/2021	4.7	7.0	11.7
10/10/2021	25.0	3.6	28.6	10/11/2021	10.1	6.3	16.4
2/03/2021	23.5	1.3	24.8	30/06/2021	8.4	6.2	14.6
16/01/2021	23.0	1.1	24.1	11/08/2021	9.7	6.1	15.8
12/09/2021	22.7	1.6	24.3	20/08/2021	10.9	6.1	17.0
9/10/2021	22.2	4.3	26.5	28/09/2021	8.4	5.8	14.2
30/10/2021	20.6	0.2	20.8	2/07/2021	5.2	5.8	11.0
1/09/2021	20.3	3.7	24.0	18/10/2021	11.5	5.8	17.3
16/04/2021	19.8	2.1	21.9	5/11/2021	6.6	5.6	12.2

Table D-2: Cumulative 24-hour average PM₁₀ concentration (µg/m³) – Receptor R7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
8/10/2021	26.0	1.1	27.1	1/07/2021	4.9	10.5	15.4
15/10/2021	25.6	1.0	26.6	30/06/2021	8.4	8.0	16.4
10/10/2021	25.0	4.0	29.0	11/05/2021	10.0	7.8	17.8
2/03/2021	23.5	0.6	24.1	24/06/2021	6.4	7.2	13.6
16/01/2021	23.0	1.1	24.1	3/07/2021	4.7	6.8	11.5
12/09/2021	22.7	1.7	24.4	5/11/2021	6.6	6.8	13.4
9/10/2021	22.2	2.0	24.2	26/06/2021	7.5	6.4	13.9
30/10/2021	20.6	0.2	20.8	2/07/2021	5.2	6.2	11.4
1/09/2021	20.3	1.5	21.8	12/05/2021	7.3	5.9	13.2
16/04/2021	19.8	1.2	21.0	3/06/2021	10.1	5.4	15.5



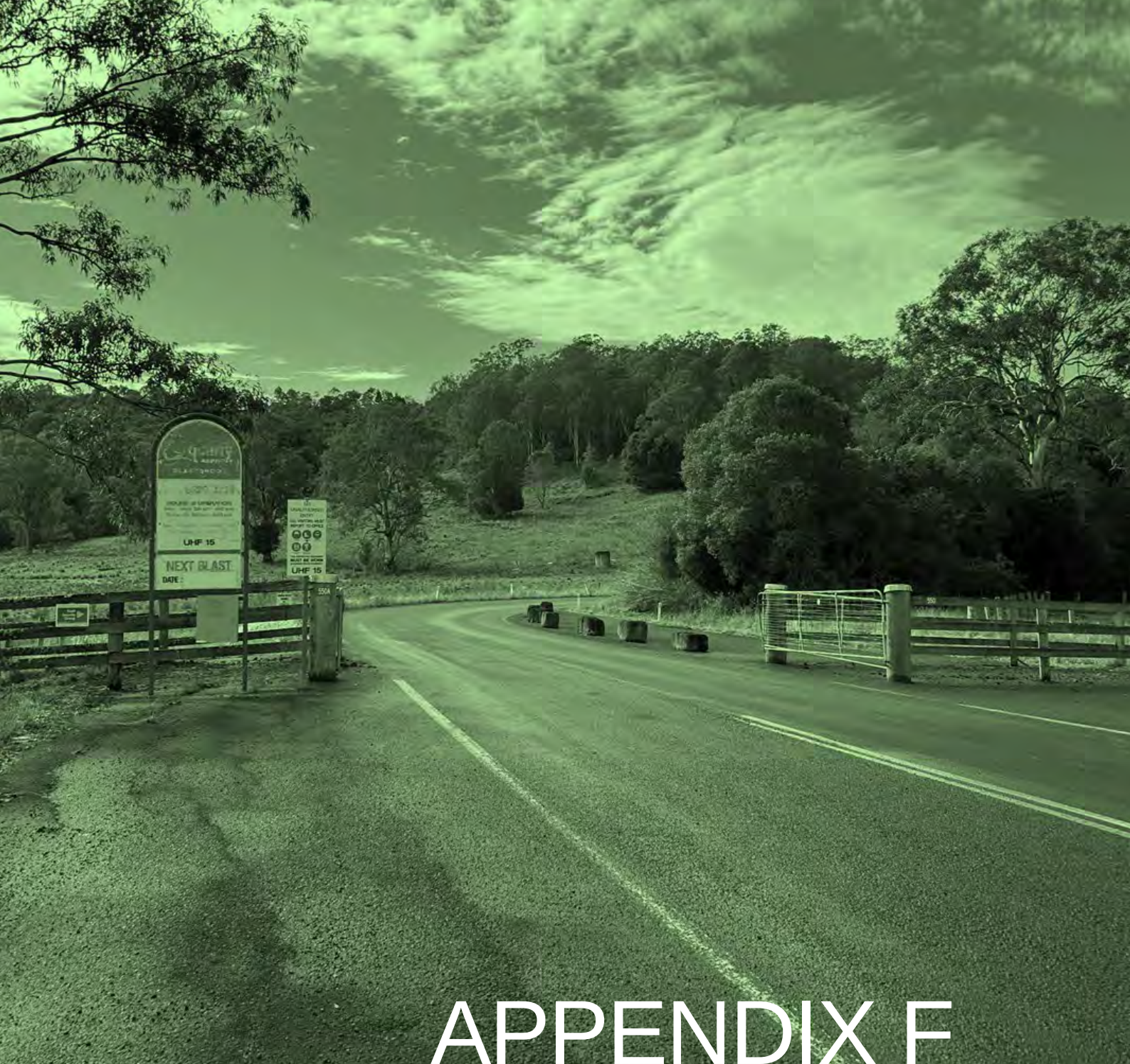
Table D-3: Cumulative 24-hour average PM_{2.5} concentration (µg/m³) – Receptor R1

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
1/09/2021	12.6	1.0	13.6	3/07/2021	2.4	1.7	4.1
12/09/2021	11.4	0.4	11.8	1/07/2021	2.1	1.7	3.8
27/06/2021	10.4	0.8	11.2	30/06/2021	4.0	1.6	5.6
31/08/2021	10.2	1.0	11.2	10/11/2021	4.1	1.5	5.6
8/05/2021	10.1	0.9	11.0	20/08/2021	5.7	1.5	7.2
10/10/2021	9.9	0.9	10.8	11/08/2021	4.1	1.4	5.5
21/08/2021	9.7	1.1	10.8	18/10/2021	4.5	1.4	5.9
16/04/2021	9.4	0.5	9.9	28/09/2021	2.7	1.4	4.1
25/04/2021	9.3	1.0	10.3	2/07/2021	1.4	1.3	2.7
20/09/2021	9.0	0.7	9.7	5/11/2021	2.0	1.3	3.3

Table D-4: Cumulative 24-hour average PM_{2.5} concentration (µg/m³) – Receptor R7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
1/09/2021	12.6	0.4	13.0	1/07/2021	2.1	1.7	3.8
12/09/2021	11.4	0.7	12.1	11/05/2021	3.8	1.5	5.3
27/06/2021	10.4	0.3	10.7	24/06/2021	1.4	1.5	2.9
31/08/2021	10.2	0.8	11.0	29/09/2021	4.6	1.5	6.1
8/05/2021	10.1	0.5	10.6	30/06/2021	4.0	1.4	5.4
10/10/2021	9.9	1.1	11.0	26/11/2021	2.1	1.4	3.5
21/08/2021	9.7	1.0	10.7	3/07/2021	2.4	1.4	3.8
16/04/2021	9.4	0.2	9.6	7/11/2021	3.3	1.3	4.6
25/04/2021	9.3	0.5	9.8	5/11/2021	2.0	1.3	3.3
20/09/2021	9.0	0.6	9.6	10/11/2021	4.1	1.2	5.3





APPENDIX F

DESIGNATED VEGETATION
PROTECTION AREAS (DVPA)

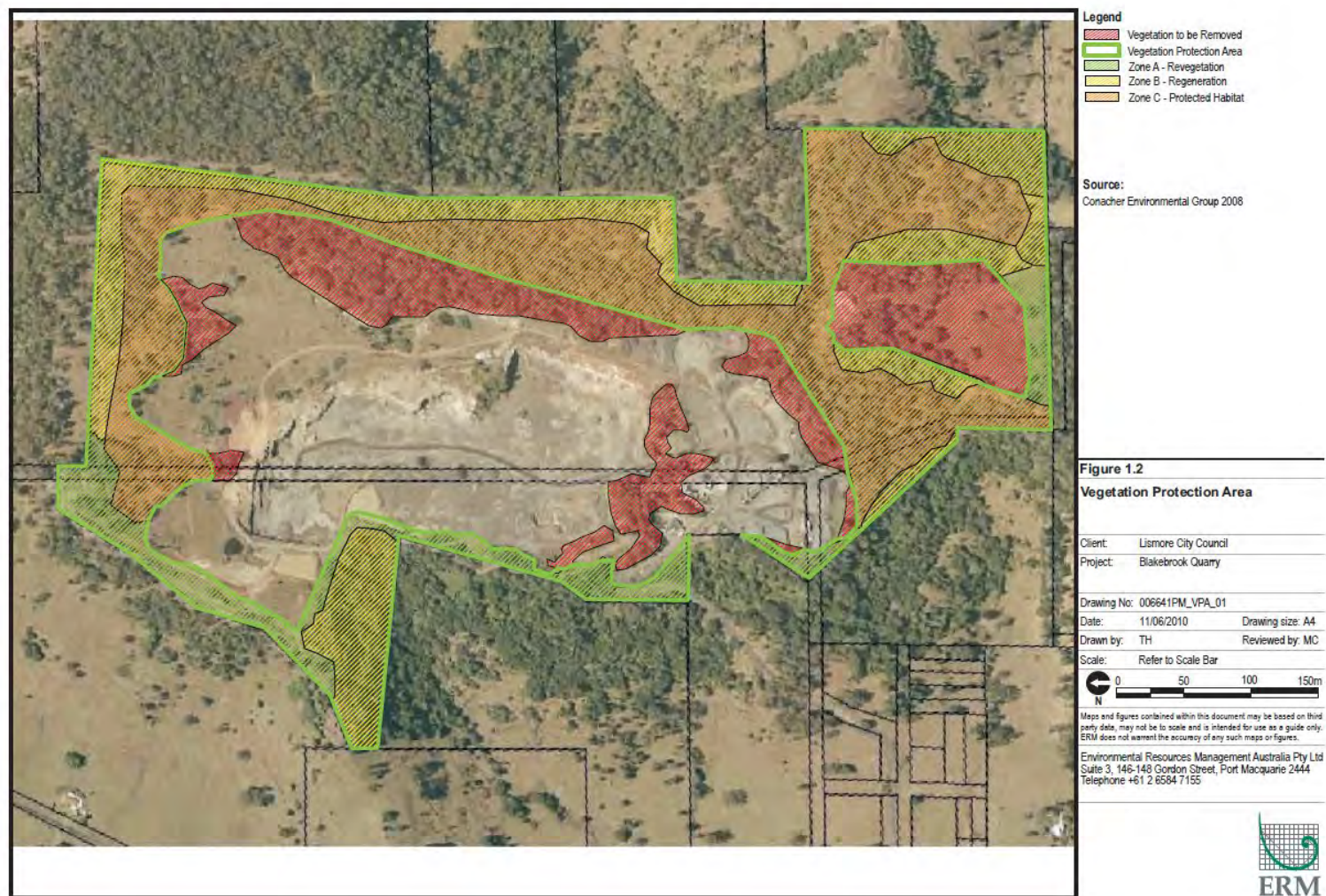
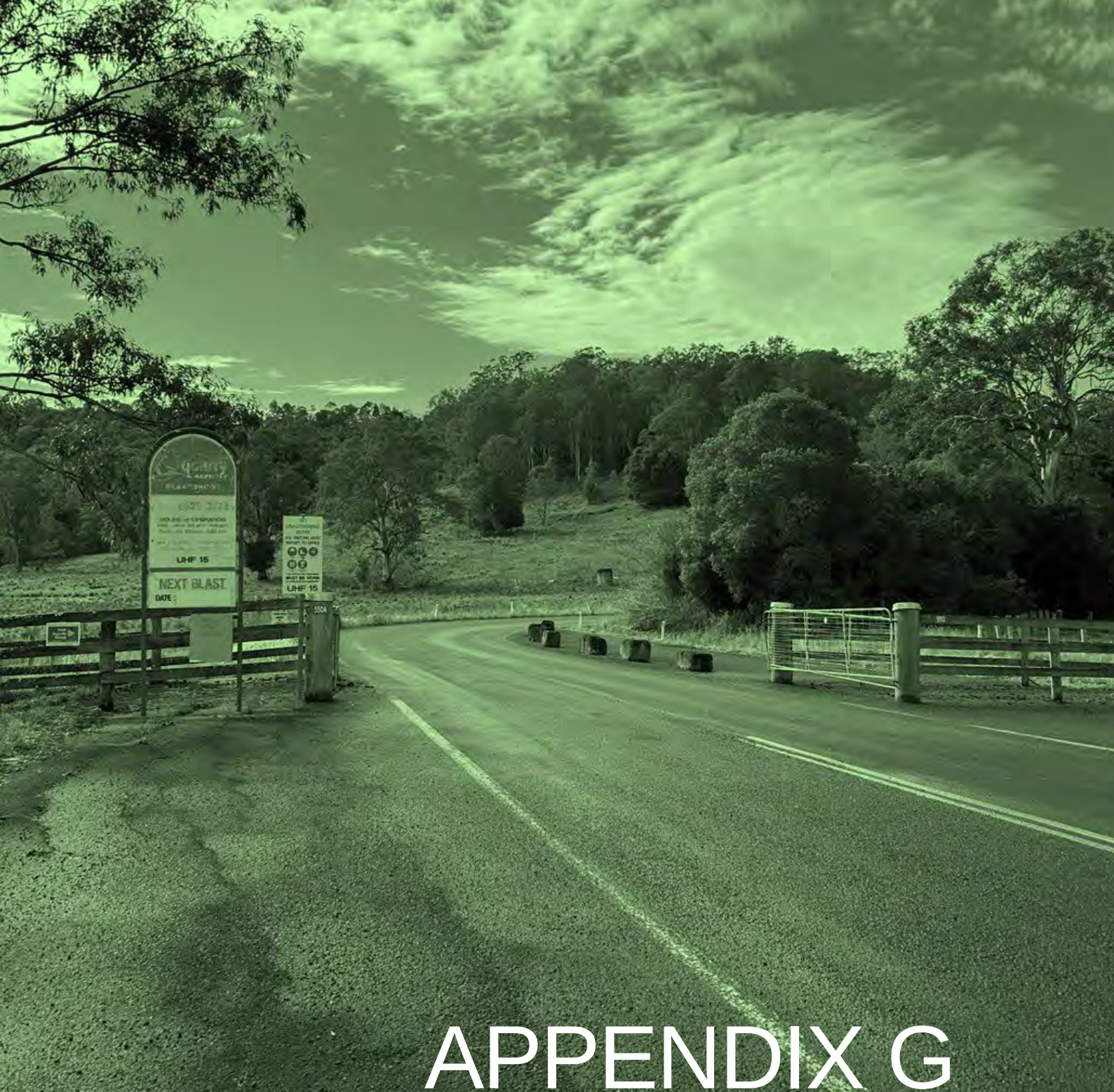


Figure has been extracted from Blakebrook Quarry Biodiversity and Rehabilitation Management Plan (Revision 4.1)



APPENDIX G

LISMORE CITY COUNCIL
LANDOWNER CONSENT



Our ref: TRIM ref ED25/24697

Contact: Hamish McDonagh-Aiken
Operational Compliance
Lismore City Council
0408 085 242

4 July 2025

Mr Dale Thomas
Downer EDI Works Pty Ltd
60-62 Qantas Drive
Brisbane Airport Queensland 4008

Dear Mr Thomas

Landowner Consent for Lodgement of SSD Modification 4 – Blakebrook Quarry Asphalt Plant

Please find attached the signed Landowner Consent Form from Lismore City Council in relation to Downer EDI Works Pty Ltd's (Downer) proposed modification to Project Approval MP07_0020, governing the Blakebrook Quarry and asphalt plant operations.

Council's consent is granted under Clause 98(1)(b) of the Environmental Planning and Assessment Regulation 2021.

Please note that this landowner consent:

- Does not constitute Council's endorsement of the application content, which remains subject to Council's internal review and approval prior to lodgement.
- Is conditional upon Downer providing written agreement, prior to lodgement, confirming that it will cover all reasonable costs incurred by Council as a result of the modification process or from any subsequent regulatory conditions imposed on the Project Approval.
- Is not transferable and cannot be used for any unrelated modification proposal without Council's further written consent.

Please contact Council's Compliance Coordinator if you require clarification or assistance prior to submission.

Yours faithfully

Joshua Smith
Acting Chief Operation and Financial Officer

Owners Consent Form

Lismore City Council, PO Box 23A, Lismore 2480
Ph. 02 6625 0500 Email: council@lismore.nsw.gov.au



This form may be used for:

- | | |
|--|---|
| ☐ Consent to lodge a Development Application | ☐ Consent to lodge a Construction Certificate |
| ☒ Consent to modify a Development Consent (\$4.55) | ☐ Consent to lodge a Section 138 Application |
| ☐ Consent to lodge a Section 68 Application | ☐ Application for a Cemetery and/or Burial on Private Land |
| ☐ Consent to lodge a Building Information Certificate | ☐ Consent to lodge an Occupation Certificate |
| ☐ Consent to lodge a Subdivision Certificate | ☐ Consent to lodge a Planning Proposal |

Before you Lodge

About this form

This form can be used as an owner's consent form for any of the applications listed above.

How to complete this form

1. Ensure that all fields have been filled out correctly.
2. Please note that fields on this form marked with an * are mandatory and must be completed before submitting the application.
3. Once completed you can submit this form as part of your application documentation

Part 1: Details of Property

Address No. 	Street Name * Nimbin Road	
Suburb Blakebrook	Nearest Cross Street/Road 	
Lot 54	DP 1254990	Section

Part 2: Applicant Name Only

Title 	Given Name/s * Dale	Family Name * Thomas
Organisation/Company Name Downer EDI Works Pty Ltd		

Part 3: Description of Proposal

Downer is seeking approval to modify Project Approval MP07_0020 to allow:

- Increased asphalt production from 50,000 to 100,000 tonnes per annum;
- 24/7 operations of the asphalt plant (quarry operations remain unchanged);
- Receiving, storing, and processing recycled inputs including reclaimed asphalt pavement, recovered glass sand, crumb rubber, and TonerPlas.

Part 4: Owner's Details (all owners names)

Title	Given Name/s *	Family Name *
Mr	Joshua	Smith
Title	Given Name/s *	Family Name *
Title	Given Name/s *	Family Name *
Title	Given Name/s *	Family Name *

Organisation/Company Name

Lismore City Council

Address *

Lismore City Council Corporate Centre

Home Number

Business Number

Mobile Number *

+61460849290

Fax Number

Email Address

joshua.smith@lismore.nsw.gov.au

Part 5: Owner's Consent

Every owner of the land must sign this form. **When works affect a joint wall, consent of both property owners is required (eg semi-attached or units).** If the owner is a company, the form must be signed by an authorised director. If the property is a unit under strata title or a lot in a community title, then In addition to the owners signature the common seal of the body corporate must be stamped on this form over the signature of the owner and signed by the chairman or secretary of the Body Corporate or the appointed managing agent. If the land is crown land, an authorised officer of the Department of Lands must sign the application **an original signature must be provided.** If the land is owned by Council, the General Manager or delegate must sign the application.

As owner/s of the land nominated above, I/we consent to lodgement of the application(s) described on this form.

I/we also consent for authorised council officers to enter the land or premises to carry out inspections and surveys or take measurements or photographs as required for the administration of the Act(s), Regulations or Planning Instrument.

I/we acknowledge that applications will be published on DA Tracking on Council's website and have read and understand the information on Page 3 of this form.

Please note: If you are signing on the owner's behalf as the owner's legal representative, you must state the nature of your legal authority and attach documentary evidence (e.g. power of attorney, executor, trustee, company director, etc). If the land is Crown land, an authorised officer of the Department of Lands (or Trustee) must sign the application. **An original signature must be provided.**

Owners Name *

Joshua Smith

Owners Signature *

Owners Name *

Owners Signature *

Owners Name *

Owners Signature *

Owners Name *

Owners Signature *

Part 5: Owner's Consent Continued

Owners Name *

Owners Signature *

Date

Part 6: Conflict of Interest

To ensure transparency in Council's decision making process and to avoid potential conflicts of interest, owners are to make a declaration as to whether they are a Council employee or are a friend/ relative / associate to a Council employee or Councillor.

I am a Council Employee or Councillor

☒

Yes

☐

No

I am a friend, relative or associate to a Council Employee or Councillor

☒

Yes

☐

No

If yes, state relationship

Acting Chief Operating and Financial Officer

Part 7: Important Information / Privacy Information

Privacy Notification

- 1) The information you provide in this application is personal information for the purposes of the *Privacy and Personal Information Protection Act 1998* which will enable Council staff (or any appointed agent), and any relevant state agency, and the community to consider/assess your application under the *Environmental Planning and Assessment Act 1979* and other applicable State legislation. The supply of the information by you is voluntary, however, if you cannot provide or do not wish to provide the information sought, your application may not be accepted. You have the right to access and have corrected information provided in your application. Please ensure that the information is accurate and advise us of any changes. Address enquires concerning this matter to Council's Governance Section.

Access to Information

- 2) The *Government Information (Public Access) Act & Regulation 2009* states that it does not apply to so much of the information as consists of:
- (a) *the plans and specifications for any residential parts of a proposed building, other than plans that merely show its height and its external configuration in relation to the site on which it is proposed to be erected, or*
 - (b) *commercial information, if the information would be likely to prejudice the commercial position of the person who supplied it or to reveal a trade secret.*

Council considers that persons inspecting the plans of a proposed development that may impact on their amenity cannot effectively do so without knowledge of the basic internal layout e.g. Living rooms, bedrooms etc where privacy from overlooking may be a problem. Accordingly, applicants and owners are requested, as part of signing this application, to give permission for persons, as part of the Notification Process, to inspect the internal plans accompanying the application. Council will not permit copies to be taken or extracts made of internal plans. Internal plans of residential premises will not be published on Council's website. As Council is unlikely to be aware of sensitive commercial information, it is the applicant's responsibility to ensure that such information is clearly identified and separate from other application documentation, and any requirements relating to disclosure of the information specified, or the information will otherwise be made publicly available by Council.

DA Tracking and Notification

- 3) Online DA tracking is a software product that allows all customers to view plans, details and to track the progress of a Development Application throughout the assessment process. It represents key milestones in the Development Application process however, it is not a detailed history. Persons wishing to confirm information in detail should contact Council via either the email facility at the bottom of the Development Application tracking window, or in writing in order to obtain a written response. The information that can be viewed online is clearly labelled in the relevant application checklists. Please refer to the Development Application Checklist at the back of this form. **All items labelled 'Online DA Information' in red will be publicly accessible through Council's website. Please also refer to the Copyright note.**
- 4) Development applications will be publicly notified/advertised in accordance with Council's Community Participation Plan.

DA Decision Making

- 5) If in the opinion of Council Officers any significant issues of public interest or policy and material impacts are identified, the application will most likely be reported to a Council meeting, otherwise qualified staff will make a decision under delegated authority.

Copyright Note

- 6) The applicant is advised that Council may use or make copies (including electronic copies) of the development application and accompanying documents for the purpose of complying with its obligations under the Environmental Planning and Assessment Act 1979, the Local Government Act 1993, the Roads Act 1993 and Council's Community Consultation Policy. In addition, the Council may make such further copies as, in its opinion, are necessary to facilitate a thorough consideration of the development application by Council and public participation in the development assessment process. This will include making copies of the advertised plans, supporting documentation and the determination available on Council's website to be viewed by a member of the public and using the plans and accompanying documents for Council's Strategic Planning purposes. The applicant is responsible for obtaining all copyright licenses necessary from the copyright owners for this purpose.



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