# Martins Creek Quarry Project

State Significant Development Assessment SSD-6612

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*Cover image: Martins Creek Quarry view to the south-west of the West Pit*

# Executive summary

Martins Creek Quarry is an existing hard rock quarry located within the Dungog Local Government Area, approximately 7 kilometres (km) north of Paterson, in the Upper Hunter region of New South Wales (NSW). The Quarry was established in 1914 by the NSW Government, primarily for the purpose of supplying ballast and other quarry materials to the rail industry. It was operated continuously by various NSW Government entities until late 2012, when Buttai Gravel Pty Ltd (part of the Daracon Group, Daracon) commenced operations at the site.

In September 2016, Daracon submitted a State significant development (SSD) application for the Martins Creek Quarry Project (SSD 6612). The application sought approval for the consolidation of the existing development consents and expansion of the quarry into new areas to extract, process and transport up to 1.5 million tonnes per annum (Mtpa) of hard rock material over a 30-year period.

In May 2021, in response to government and community feedback, Daracon revised the Project, completed new or updated environmental assessments, and submitted an amended development application, reducing the proposed extraction rate, operating hours and truck movements. Daracon is now seeking approval to extract, process and transport up to 1.1 Mtpa of quarry material from Martins Creek Quarry over a 25-year period.

## Strategic context

The existing quarry site is positioned immediately to the north of the village of Martins Creek. For many decades, there have been private residences in Martins Creek village located close to the quarry. While most of the surrounding land is used for agricultural purposes, rural residential land use has become more prominent in the general locality over the years. The area also attracts many visitors due to the historic and scenic values of the nearby township of Paterson and its surrounds.

The quarry is connected to the Main North Coast railway line, which provides direct access by rail to Newcastle, Sydney and broader regional NSW. This connection has historically been used by the quarry operators to supply railway ballast for regional rail infrastructure purposes.

The Greater Newcastle/Sydney Metropolitan regions are accessed from the quarry via local roads which connect to the Hunter Expressway and M1 Pacific Motorway. This allows for the delivery of quarry products to these regions and the major infrastructure upgrade projects within them.

Demand for quarry products in NSW is driven by government spending on public infrastructure and private investment in commercial, industrial and residential development. The need for infrastructure investment in NSW, including within the Hunter region, is identified in several key State and regional strategy documents and the NSW Government has committed over $108 billion in infrastructure spending over the four years to 2025. The construction of these projects will require substantial quantities of high-quality hard rock quarry products.

## Assessment process

The Project has been declared a ‘controlled action’ under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), due to its potential impacts on threatened species and communities. The Commonwealth has agreed that the proposal may be assessed by the NSW Government, in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments.

The Department most recently publicly exhibited the Project for a period of 60 days from 2 June 2021 until 31 July 2021. Daracon provided a Submissions Report in November 2021. The Submissions Report included several additional mitigation measures, including the installation of a noise barrier in Martins Creek and a commitment to constructing the new access road and rail spur extension within two years of any development consent rather than within four years, as previously proposed.

The Department's assessment report and recommended conditions will now be referred to the Independent Planning Commission (the Commission) to make a determination on the Project.

## Engagement

The Department considers that its engagement process met the community participation requirements of the EP&A Act and associated EP&A Regulation. The Department also considers that this process has fulfilled the State's obligations under the Bilateral Agreement with the Commonwealth Government.

During the public exhibition of the amended Project, the Department received 670 public submissions, including 33 from special interest groups. 31 of these submissions supported, 634 objected, and five commented on the Project. Of the 634 objecting submissions, 624 were unique submissions. The remaining 10 objecting submissions were duplicates.

The Department also received advice from 11 State government agencies and three local councils (Dungog Shire Council, Maitland City Council, and Port Stephens Council).

In recognition of the high level of public interest in the Project, the Department also carried out site visits at Martins Creek Quarry and met with the Martins Creek Quarry Community Action Group in Paterson on 2 November 2016, 22 June 2021 and 22 June 2022.

## Assessment

Due to the Project's proximity to Martins Creek and Daracon's proposed use of 28 km of local roads between Martins Creek and East Maitland (including through Paterson) for road haulage of quarry products, the Department considers that the key assessment issues relate to traffic and transportation, noise, air quality, and social impacts. Given it is an extractive industry proposal involving vegetation removal and the ongoing establishment of voids in the landscape, the Department also considers that potential water, biodiversity, and rehabilitation and final landform impacts are also important assessment issues for the Project.

### *Traffic*

The aspects of the Project that have the greatest potential for adverse traffic and transportation impacts are those affecting the safety and efficiency of the local road network as a result of road haulage of materials to and from the quarry.

Traffic volumes generated by the Project would not result in a change to the existing levels of service for roads along the primary haulage route. While some deterioration in intersection and road network performance is predicted during the life of the Project, this would mostly result from broader regional traffic growth and would be expected to occur with or without the Project.

The Department considers that potential road haulage route alternatives, including options for wholly bypassing the village of Paterson, are limited by several engineering, environmental and physical constraints. Alternative routes would likely require extensive road upgrades, involve travel over a longer distance, and not necessarily achieve substantial reductions in traffic or amenity impacts.

The Department recognised that the originally proposed road haulage rate of 1.45 Mtpa would likely result in an unacceptable impact to the community and requested that Daracon reduce the proposed road transportation rate. The Department considers that Daracon has responded to this feedback and incorporated an appropriate mix of road and rail transport options into the Project design in order to balance impacts on the community with the viability of the quarry.

The Department also recognises that the proposed annual road haulage limit of 500,000 tpa represents a rate that is not dissimilar to historical road transportation rates undertaken by the quarry over an approximate 18-year period between 2002 and 2019, including a period of approximately 10 years when the quarry was operated by NSW Government through Railcorp.

Daracon has proposed several road upgrades and mitigation and management measures to minimise the Project's traffic and transport impacts. The Department has recommended conditions requiring Daracon to prepare a Traffic Management Plan and undertake road upgrades prior to the commencement of full-scale road haulage activities under the recommended consent. Subject to these conditions, the Department considers that the traffic and transport impacts of the Project are acceptable.

### *Noise*

The Department acknowledges that noise impacts have been a key concern for the community. Notwithstanding this, the Department also recognises that the quarry has operated for over 100 years and it is evident that the community has been subject to noise and other amenity impacts for a very long time. The existing quarry is subject to several significant legacy noise issues, which are subject to some recognition under the Noise Policy for Industry, and the Project offers an opportunity to significantly improve several noise management aspects of the existing operation, particularly daytime noise amenity in the vicinity of Martins Creek.

The Department required Daracon to address community concerns regarding potential noise impacts. Daracon responded through project design changes and mitigation measures that include the use of a physical noise barrier and low noise emitting plant, a proactive and reactive noise management system, restricted operating hours, and new and upgraded infrastructure, to minimise noise impacts on nearby sensitive receptors. Both the Department and the NSW Environment Protection Authority (EPA) consider that the proposed mitigation measures are feasible and reasonable and represent a commitment to best practice noise management by Daracon.

The Department considers that noise impacts from the Project can be managed through stringent conditions of consent, which strike a fair balance between protecting the amenity of the local community and meeting operational demands regarding loading and dispatch times. Subject to these conditions, the Department considers the noise impacts of the Project are acceptable.

### *Air quality*

No exceedances of the EPA's air quality assessment criteria have been predicted at any sensitive receiver locations, with the exception of one exceedance of the cumulative 24-hour PM10 criterion at one receptor location (R1) in Year 20 of operations. Daracon has demonstrated, to the satisfaction of EPA, and the Department's independent air quality expert, that this exceedance could be avoided through the implementation of a proactive and reactive air quality management system.

Daracon has also proposed a comprehensive suite of best practice mitigation and management measures to minimise the air quality impacts of the development. The Department's recommended conditions include a requirement for these measures to be incorporated into an Air Quality Management Plan for the Project. On this basis, the Department considers the air quality impacts of the Project are acceptable.

### *Social impacts*

The Department recognises that many of the social impacts from the Project are related to traffic, air quality, noise, and other environmental impacts that have been assessed separately in accordance with relevant legislation and government policy.

Other potential social impacts from the Project include impacts to the rural amenity and historical character of the local area, including within the village of Paterson and the Maitland suburb of Bolwarra Heights, and a loss of sense of community and social cohesion. They also include potential disruptions to daily living and movement patterns of residents due to the operation of heavy vehicles along the primary haulage route.

Daracon has proposed a range of mitigation and management strategies to address these impacts including:

- implementing a Community Contributions and Sponsorship Program to fund community initiatives and a Community Engagement Strategy that improves accessibility to information and targets identified community concerns;
- payment of financial contributions to Dungog Shire Council and Maitland City Council via local infrastructure contribution plans and contributions to community initiatives;
- re-establishing a Community Consultative Committee (CCC) for the Project;
- continuing to employ and procure from local sources to enhance the local economic benefits of the Project; and
- employing a dedicated Community Liaison Representative to manage ongoing community engagement associated with the Project.

The Department has recommended conditions of consent requiring Daracon to prepare and implement a Social Impact Management Plan (SIMP) in consultation with DSC, local affected communities, and other key stakeholders. The Department's recommended conditions, developed in accordance with the SIA Guideline and representing leading practice in social impact management, would require the SIMP to include:

- measures to avoid, minimise and mitigate the negative social impacts associated with the Project;
- measures to enhance the Project's positive impacts, by detailing opportunities to support community services and facilities; and
- a stakeholder engagement strategy to evaluate and implement social management and mitigation measures over the life of the Project.

The Department considers that, with the implementation these measures (coupled with the management measures proposed in respect of traffic and transport, noise blasting, air quality, and other impacts) and the application of the Department's recommended conditions, the extent of actual and perceived social impacts would be appropriately managed.

### *Other issues*

The Department has assessed the impacts of the Project on other values including water resources, biodiversity, rehabilitation and final landform, economic, greenhouse gas, visual amenity, Aboriginal cultural heritage, historic heritage, blasting, and hazards and waste impacts. The Department considers that, following the implementation of reasonable and feasible mitigation measures, the residual impacts of the Project can be suitable managed and/or offset.

## Evaluation

The Department has carried out a detailed assessment of the merits of the Project, having regard to all of Daracon's project documentation, advice from NSW government agencies and independent experts, and all submissions from members of the public and special interest groups. The Department's assessment has also considered the objects of the EP&A Act and relevant considerations under Section 4.15(1) of the EP&A Act.

The Department acknowledges that there is a high degree of public interest in the Project and the range of community concerns is also broad, including but not limited to impacts on the safety and efficiency of the local road network, noise, air quality, socio-economic, water resource and biodiversity impacts. Notwithstanding these community concerns, the Department considers that Daracon has responded to feedback from the Department, other government agencies and the community and made substantial changes to reduce impacts, while maintaining the economic viability of the Project.

The Department recognises that the existing quarry has operated for over a century and that the activities undertaken during this time have caused varying degrees of impact to the environment and the community. It is also clear from the history of operations that there have been high levels of community concern over aspects of the quarry's past activities, particularly amenity impacts associated with the road haulage of quarry products.

It is also evident that there has been some uncertainty regarding the scale and nature of the activities deemed to be permissible under the existing consents, licences and other approvals for the quarry. The Department considers that a contemporary SSD consent for the quarry would provide an opportunity to address this uncertainty by clearly defining the Project's operating parameters and enabling holistic, contemporary environmental performance standards and management practices to be applied.

The Department has recommended a comprehensive and precautionary suite of conditions to ensure that the Project complies with contemporary criteria and standards, and that residual impacts are effectively minimised, managed, offset and/or compensated for. The recommended conditions were provided to key NSW Government agencies and their comments taken into account in finalising the conditions.

The Department recognises that the proposed quarry extension would contribute a broad range of affordable, high-quality construction materials to local and regional markets. It would contribute to the supply of materials for the construction of housing and major regional infrastructure projects. The Department recognises the proximity between the Project's hard rock resource and the existing approved operations, and the synergies this presents for utilising existing infrastructure and reducing capital costs. The Department accepts there is a strategic need for hard rock quarry materials in the Lower Hunter region and considers the site to be well-suited for the Project.

The Department also considers that the Project would result in significant economic benefits to the region and to the State of NSW through the supply of materials critical to the construction industry and is therefore justified from an economic efficiency perspective.

The Department has carefully weighed the environmental impacts of the Project against the significance of the Project's identified hard rock resource and the wider socio-economic benefits associated with extending the operation of the quarry for a further 25 years under a contemporary development consent. On balance, the Department considers that the benefits of the Project outweigh its residual costs and that the Project is in the public interest and is approvable, subject to the strict conditions of consent.

# Contents

# 1 Introduction

1. Martins Creek Quarry is an existing hard rock quarry located within the Dungog Local Government Area (LGA) approximately 7 kilometres (km) north of Paterson, in the Upper Hunter region of New South Wales (NSW) (refer to **Figure 1-1**). The quarry is operated by Buttai Gravel Pty Ltd, which is part of the Daracon Group (Daracon).

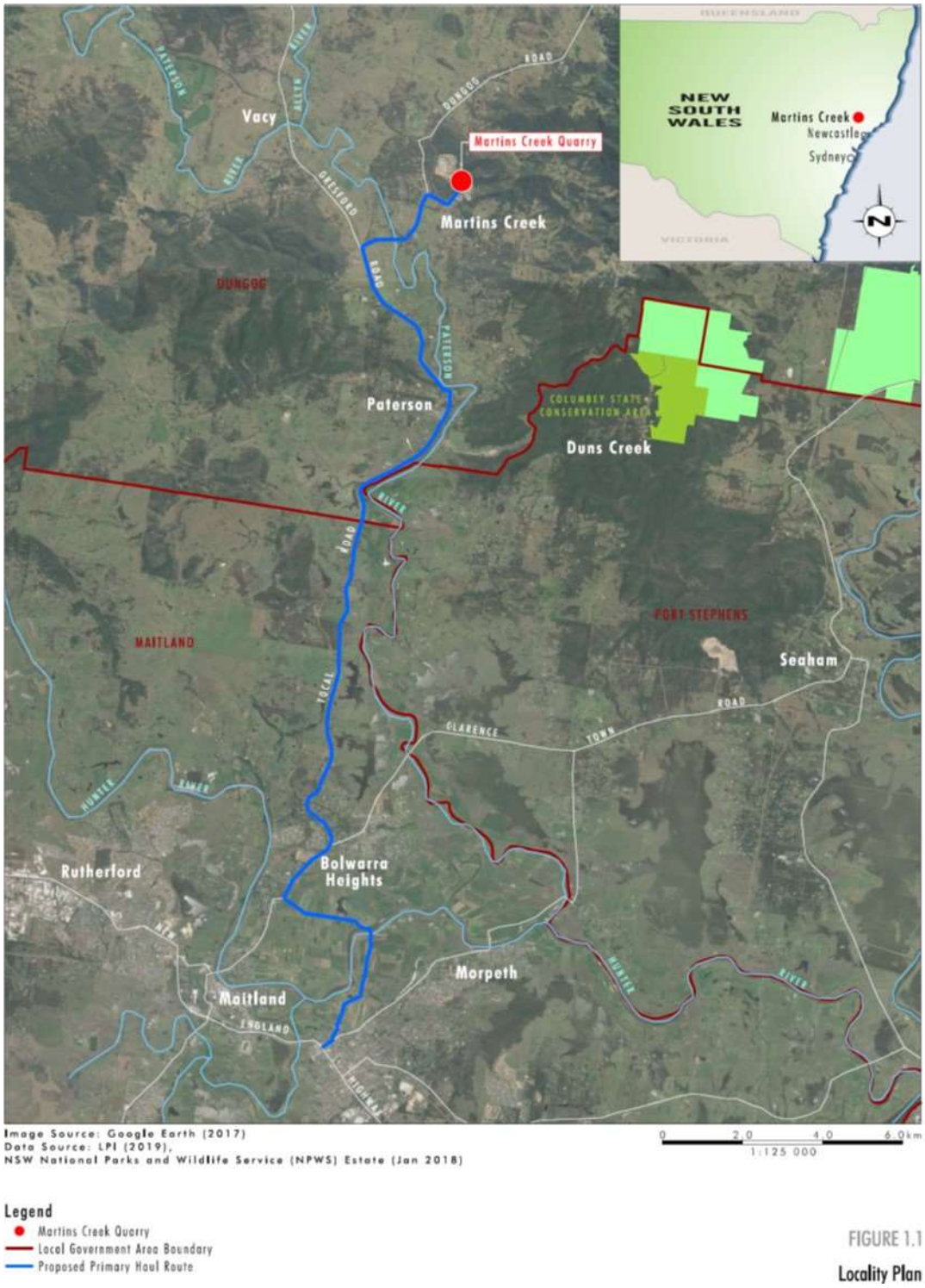


**Figure 1-1** Local context

# 2 Project

2. Daracon's original application sought an expansion of the quarry into new areas to extract, process and transport up to 1.5 million tonnes per annum (Mtpa) of hard rock material over a 30-year period. In May 2021, in response to government and community feedback, Daracon revised the Project to reduce impacts and extract, process and transport up to 1.1 Mtpa over a 25-year period.

3. A comparison of the key features of the original Project and amended Project is presented in **Table 2-1**. The key components of the amended Project (the Project) are also illustrated in **Figure 2-1**.

**Table 2-1** | Comparison of original and amended Project

| Component | Original Project (2016) | Amended Project (2021) |
|---|---|---|
| **Project life** | 30 years | 25 years |
| **Limits on extraction and product transport** | Total extraction of up to 1.5 Mtpa | Total extraction up to 1.1 Mtpa |
| | Mostly road (up to 1.45 Mtpa), with approximately 50,000 tpa by rail | Road and rail transportation, with a maximum of 500,000 tpa by road |
| | Two road haulage route options | Only one route option (refer to **Figure 2.2)** |
| **Disturbance footprint** | 82.2 ha, including previously cleared land | 66 ha, including previously cleared land |
| **Operating hours** | In-pit quarrying operations 6 am to 6 pm Monday to Saturday | No in-pit mobile crushing in the West Pit.<br>Blasting of quarry material only between 11 am and 3 pm Monday to Friday |
| | Evening/Night crushing and processing activities 6 pm to 10 pm | No quarrying or processing during Evening period (6 pm to 10 pm). No operations during Night period (10 pm to 7 am) No crushing or processing prior to 7 am Monday to Saturday |
| | Pugmill mixing and binder delivery operations - 4.30 am to 10 pm Mon to Friday, 4.30 am to 6 pm Saturday | |
| | Sales loading and stockpiling for road transport - 5.30 am to 7 pm Monday to Saturday | 7 am to 6 pm Mon to Sat. No loading of trucks before 7 am Mon to Fri. No quarry trucks through Paterson prior to 6.45 am Monday to Friday |
| **Workforce** | Operations – 36 full time equivalent positions | Operations – 22 full time equivalent positions |
| **Infrastructure** | New access road and driveway including a bridge over the existing railway line | Further engineering design work has been undertaken on the access road |
| | Potential extension of internal rail siding | Further engineering design work has been undertaken on the internal rail siding |
| **Product transport** | Maximum 215 loaded product trucks per day (430 movements per day) | Max. of 140 loaded trucks (280 movements) per day for 50 days per |

| Component | Original Project (2016) | Amended Project (2021) |
|---|---|---|
| | | year otherwise 100 loaded trucks (200 movements) per day |
| | Maximum 40 loaded product trucks per hour (80 movements) per hour | Max. of 20 loaded product trucks (40 movements) per hour between 7 am and 3 pm. Max. of 15 loaded trucks (30 movements) per hour between 3 and 6 pm |

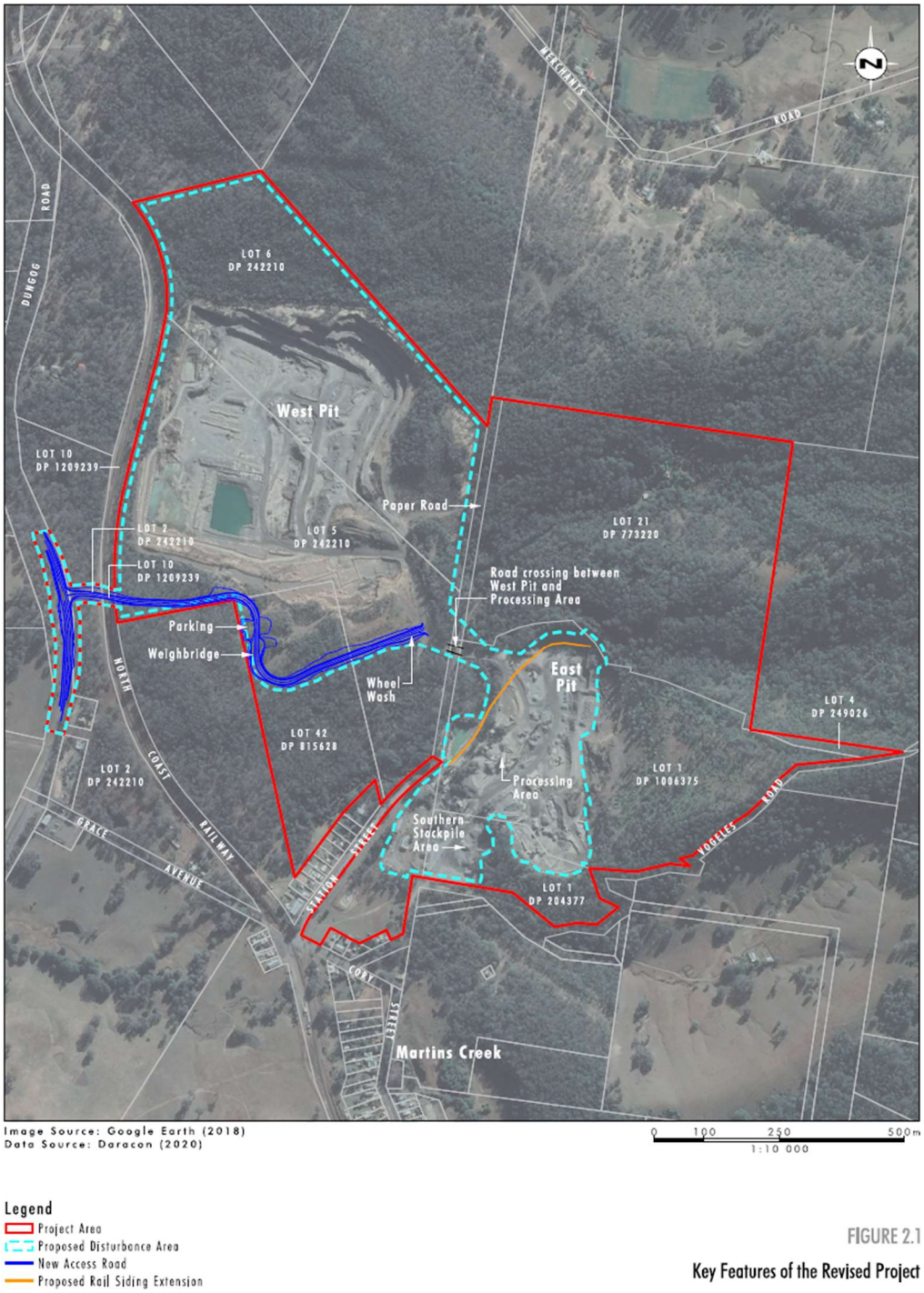


**Figure 2-1** Key features of the Project

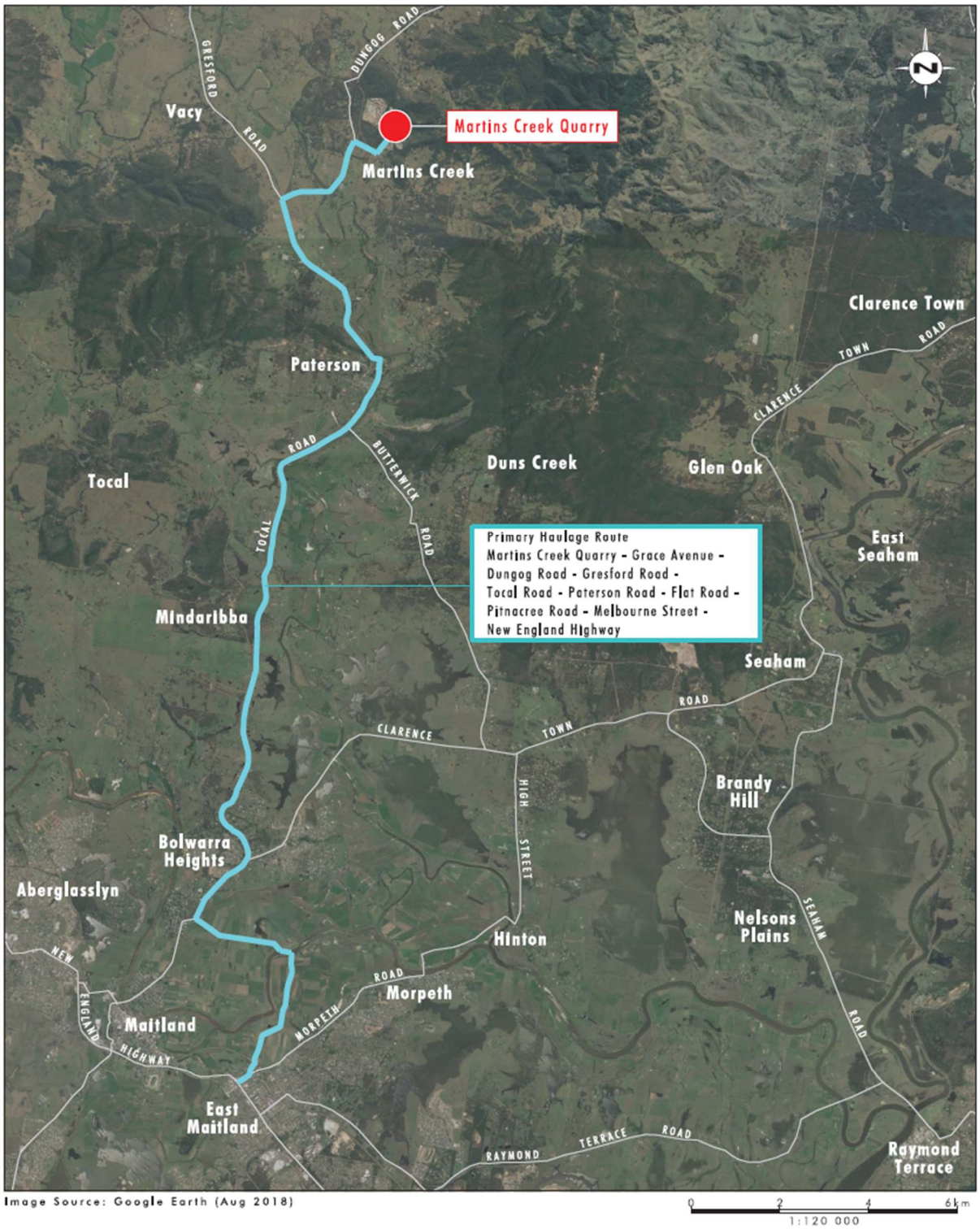


**Figure 2-2** Proposed primary haulage route

## 2.1 Historical operations and court proceedings

4. The quarry was established in 1914 by the NSW Government, primarily for the purpose of supplying ballast and other quarry materials to the rail industry. It was operated continuously by various NSW Government entities until 2012, when Buttai Gravel Pty Ltd, which is part of the Daracon Group (Daracon), secured a long-term licence over the site.

5. Quarry operations are divided into two areas, the West Pit (or Western Lands), located northwest of Station Street, and the Processing Area (or Eastern Lands), located northeast of Station Street.

6. Quarrying in the Eastern Lands portion of the site commenced in either 1914 or 1915 and continued for approximately 75 years. In 1991, Dungog Shire Council (DSC) granted a development consent to expand quarrying activities into the Western Lands portion of the site (within Lots 5 and 6 of DP 242210), subject to conditions. Quarrying operations commenced in this area in approximately 1993. Existing use rights for the processing of material within the Eastern Lands portion of the site at a rate of up to 449,000 tonnes per annum (tpa) were recognised by DSC in 1999.

7. In 2015, DSC lodged proceedings against Daracon in the NSW Land and Environment Court (LEC) for breaching Section 76A (now Section 4.2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). DSC alleged that activities at the quarry were being undertaken otherwise than in accordance with the existing 1991 consent.

8. In October 2018, the LEC ruled that operations were not in accordance with the 1991 consent and made several declarations and orders. The lessee and the operator lodged an appeal with the Court of Appeal. The Court of Appeal's June 2019 judgement did not specifically address all aspects of the existing approval rights. While the Court determined that extraction was permitted from within Lot 5 of DP 242210, it did not make a ruling on the approved annual extraction limit. In the absence of any such ruling, the annual production limit of 500,000 tpa set out in the environment protection licence (EPL) for the site has been adopted. A summary of existing approved operations, based on the Court of Appeal's orders, the 1991 consent, and the site's EPL is presented in **Table 22**.

**Table 2-2 |** Key elements of the approved operations

| Component | |
|---|---|
| **Land use** | Extractive industry primarily for winning railway ballast material |
| **Project life** | Unspecified |
| **Quarry extent** | Extraction of rock from West Pit (western portion of site) on Lot 5 DP 242210<br>Processing within Processing Area (eastern portion of site) on Lot 1 DP 1006375 |
| **Production limit** | Extraction of 500,000 tpa and processing of 449,000 tpa |
| **Road transport limit** | Not greatly more than 30% of annual production |
| **Rail transport limit** | Not greatly less than 70% of annual production |
| **Operating hours** | 7 am to 5 pm Monday to Friday |

# 3 Strategic context

## 3.1 Project setting

9. The existing Martins Creek Quarry site is located immediately to the north of the village of Martins Creek. The quarry is bound to the west by the North Coast Railway Line, to the south by Vogeles Road and Martins Creek and to the north and east by a vegetated ridgeline.

10. The quarry is located within the catchment of the Paterson River, a tributary of the Hunter River. The Paterson River is located approximately 1.5 km west of the site. The surrounding landscape is characterised by gently undulating to undulating hills.

11. For many decades, there have been private residences in Martins Creek village located near the quarry. While most of the surrounding land is used for agricultural purposes, rural residential land use has become more prominent in the general locality over the years. Recent rural residential subdivisions have been established north and south of Martins Creek, and in Vacy to the north and northwest of the site.

12. The quarry is connected to the Main North Coast railway line, which provides direct access by rail to Newcastle, Sydney and broader regional NSW. This connection has historically been used to supply railway ballast for regional rail infrastructure purposes.

13. The Greater Newcastle/Sydney Metropolitan regions are accessed from the quarry via local roads which connect to the Hunter Expressway and M1 Pacific Motorway. This allows for economic delivery of quarry products to these regions and the major infrastructure upgrade projects within them.

## 3.2 Hunter Regional Plan 2036

14. The Hunter Regional Plan 2036 sets out the NSW Government's strategic vision for the Hunter Region based on four key goals, which are to:

- establish a leading regional economy;
- provide for a biodiversity-rich natural environment;
- foster development of thriving communities; and
- create greater housing choice and jobs.

15. These goals are to be achieved by delivering on a range of directions and actions which aim to strengthen the region's economic resilience, maintain its well-established economic and employment bases, and build on its existing strengths to foster greater market and industry diversification. They also aim to protect its diverse terrestrial and aquatic ecological systems, conserve its heritage values, and create thriving communities that enrich the quality of life and wellbeing of their residents.

16. Importantly, the Plan emphasises the need to manage different land uses in pursuit of complementary outcomes and attainment of its overriding goals. The increased demand for construction materials that could be partially met by the Project, combined with the surrounding rural and residential development and the recognised historic and tourism values of the region,

prompts the need for careful and balanced consideration of these potentially competing land uses. The Department considers that this has been achieved in its assessment of the application, which balances the environmental, social, and economic costs and benefits of the Project.

## 3.3 Demand for construction materials

17. The construction sector is a key contributor to economic growth in NSW, employing approximately 370,000 workers and contributing 45% of the NSW taxation revenue base. Competitive and reliable supplies of quarry products are critical to the NSW construction industry. Demand for these products is driven by government spending on public infrastructure and private investment in commercial, industrial and residential development.

18. The need for infrastructure investment in NSW, including within the Hunter region, is identified in several key State and regional strategy documents, including:

- *Future Transport 2056: Regional NSW Services and Infrastructure Plan* (TfNSW, 2019), which identifies key transport priorities for regional NSW. Within the Hunter region, this includes road bypasses of regional centres, better rail connections and establishment of a freight corridor for the Lower Hunter;
- *Hunter Regional Plan 2036* (NSW Government, 2016), which predicts population growth within the Hunter and Sydney regions and plans for expanding transport networks and inter-regional transport connections;
- *NSW State Infrastructure Strategy* (NSW Government, 2014), which identifies 30 investment recommendations for infrastructure projects valued at a combined $18.9 billion, including targeting productive regional industries and connected regional communities; and
- *Strategic Regional Land Use Plan: Upper Hunter Infrastructure* (NSW Government, 2012), which identifies maintaining and improving infrastructure, particularly road and rail capacity, as a key deliverable for the Upper Hunter region.

19. To meet these identified needs, the NSW Government has committed over $108 billion in infrastructure spending over the four years to 2025. This infrastructure pipeline includes multi-billion dollar road and rail projects in the Sydney metropolitan area, new and upgraded education and health infrastructure throughout the State, and several highway upgrade projects in the Hunter region. The construction of these projects would require substantial quantities of high-quality hard rock quarry products.

## 3.4 Regional extractive industry market

20. Access to suitable extractive resources is limited by geology, local lithology and competing land uses. To be economically viable, extractive material suppliers also need to be relatively close to markets, with good transport links to enable conveyance of high volumes of product.

21. Martins Creek Quarry has historically supplied markets in the Hunter, Central Coast, Lower North Coast and Sydney Metropolitan regions. The extractive materials produced by the quarry can be used in rail, concrete, asphalt and general civil construction. The resource is a hard igneous rock

suitable for road base, concrete manufacture, sealing aggregates, ballast, large rock, and manufactured sand.

22. In addition to the existing Martins Creek Quarry, there are six other approved hard rock quarries with the capacity to provide significant volumes of high strength aggregates and construction materials within the Hunter Region. A breakdown of production rates and total available resources from these quarries is presented in **Table** .

**Table 3-2 |** Approved Hunter Region hard rock quarries and production rates

| Quarry | Production (tpa) | Resource (Mt) |
|---|---|---|
| Martins Creek Quarry | 449,000 | Unspecified** |
| Karuah Quarry | 500,000 | 11.2 |
| Karuah East Quarry | 1,500,000 | 29 |
| Seaham Quarry | 800,000 | 3.3 |
| Allandale Quarry | 2,000,000* | Unspecified |
| Brandy Hill Quarry | 1,500,000 | 78.1 |
| Teralba Quarry | 1,200,000 | 22 |
| **Total** | **7,949,000** | **>143.6** |

**EPL limits production to 2,000,000 tpa*

*** Daracon estimates up to 22 Mt of remaining resource could be extracted under the Project*

# 4 Statutory context

## 4.1 State significance

23. The Project is an extractive industry development with a resource of more than 5 million tonnes. Accordingly, the Project is SSD under Schedule 1 of *State Environmental Planning Policy (State and Regional Development)* 2011 (SRD SEPP).

## 4.2 Permissibility

24. The Project area is primarily zoned RU1 Primary Production, with a small portion zoned RE1 Public Recreation, under the *Dungog Local Environmental Plan 2014* (Dungog LEP).

25. The Project meets the definition of 'Extractive industries' under the Dungog LEP. Extractive industry development is permissible with consent in the RU1 zone but prohibited in the RE1 zone. Extractive industry development is not proposed within the RE1 zone. Proposed activities within the RE1 zone are limited to surface water management and environmental monitoring.

26. The Department is satisfied that the proposed activities within the RE1 zone would not preclude the area from future land uses consistent with the objectives of the zone under the Dungog LEP.

Further, Section 4.38(3) of the EP&A Act provides that development consent for SSD may be granted despite the development being partly prohibited by an environmental planning instrument. Accordingly, the Department is satisfied that, despite a small portion of the Project area being zoned RE1, the development is permissible with consent.

## 4.3 Consent authority

27. Under Section 4.5(a) of the EP&A Act and clause 8A of the SRD SEPP, the Independent Planning Commission of NSW (the Commission) is the consent authority for the application, as more than 50 unique submissions in the form of objections were made in respect of the Project.

## 4.4 Mandatory matters for consideration

28. The Department has undertaken a detailed assessment of the Project, taking into consideration each of the relevant matters listed in Section 4.15 of the EP&A Act, including:

- applicable Environmental Planning Instruments (EPIs, see **Appendix F**);
- issues raised in submissions on the Project (see **Section 5**);
- the likely environmental, social and economic impacts of the Project (see **Section 6**);
- the suitability of the site for the Project (see **Sections 3** and **6**);
- the objects of the EP&A Act (see **Appendix F**); and
- the public interest (see **Section 7**).

## 4.5 Surrender of development consent

29. Section 4.63 of the EP&A Act provides that if a development consent is surrendered as a condition of a new development consent and the new consent includes continuation of development that was previously authorised, then the consent authority:

- is not required to re-assess the likely impact of the continued development to the extent that it could have been carried out but for the surrender of the consent;
- is not required to re-determine whether to authorise that continued development under the new development consent (or the manner in which it is to be carried out); and
- may modify the manner in which that continued development is to be carried out for the purpose of the consolidation of the development consents applying to the land concerned.

30. If the Project is approved, Daracon has committed to surrender the existing development consent for Martins Creek Quarry. Activities at the quarry would be regulated under a single contemporary consent. While the consent authority is not required to re-assess the impacts of the ongoing activities of an approved project, the Department's assessment has considered worst-case impact scenarios to ensure that the full range of impacts are considered.

## 4.6 Biodiversity assessment

31. Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires applications for SSD to be accompanied by a Biodiversity Development Assessment Report (BDAR). However, clause 28(1) of the *Biodiversity Conservation (Savings and Transitional) Regulation* 2017 provides that "The former planning provisions continue to apply … to the determination of a pending or interim planning application".

32. The Department notes that the Project is a "pending or interim planning application" under this Regulation. As a result, although the *Threatened Species Conservation Act* 1995 (TSC Act) was repealed by the BC Act, some provisions of the TSC Act that would be in force if it had not been repealed (such as assessment guidelines) continue to apply to the Project.

33. For this reason, the application was accompanied by a Biodiversity Assessment Report (BAR) and Biodiversity Offset Strategy (BOS) prepared in accordance with the 2014 *Framework for Biodiversity Assessment – NSW Biodiversity Offsets Policy for Major Projects* (FBA), rather than a BDAR.

## 4.7 Commonwealth matters

34. On 21 July 2016, the (now) Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) determined that the Project was a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act), due to its potential impacts on threatened species and communities (see Sections 18 & 18A of the EPBC Act).

35. In its determination, the Commonwealth agreed that the proposal may be assessed by the NSW Government, in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments. The Department's Secretary issued supplementary SEARs for the Project addressing matters of national environmental significance (MNES) on 4 August 2016.

36. On 24 February 2022, DCCEEW accepted a variation to the proposed action in accordance with Section 156B of the EPBC Act to account for the changes proposed by the amended Project (see **Appendix A**). Accordingly, the Commonwealth assessment requirements for MNES remain relevant.

37. The Department's assessment of impacts on MNES is provided in **Section 6.6** and **Appendix G**.

38. Following the Commission's determination of SSD 6612 (if approved), the matter would be referred to DCCEEW for determination under the EPBC Act in accordance with the relevant provisions of that Act.

## 4.8 Integrated and other NSW approvals

39. Under Section 4.41 of the EP&A Act, several approvals are integrated into the SSD approval process and consequently are not required to be separately obtained for the proposal. These include:

- approvals relating to heritage required under the *National Parks and Wildlife Act 1974* and the *Heritage Act 1977*; and

- certain water approvals under the *Water Management Act* 2000.

40. Under Section 4.42 of the EP&A Act, several other approvals (if required) cannot be refused and must be granted in terms substantially consistent with any consent granted for the Project. These include:

- consents under the *Roads Act 1993*; and
- an EPL under the *Protection of the Environment Operations Act 1997*.

41. Daracon can obtain these other approvals where required. The Department has consulted with the relevant government authorities responsible for these other approvals (see **Section 5**) and considered the relevant issues relating to these approvals in its assessment of the development (see **Section 6**). None of the relevant authorities' objects to the Project.

# 5 Engagement

## 5.1 Chronology of events regarding assessment of the Project

42. A chronology of key events regarding assessment of the Project is presented in **Table 5-1**.

**Table 5-1 |** Chronology of key events

| Date | Event |
|---|---|
| September 2014 | Daracon requests Secretary's Environmental Assessment Requirements (SEARs) for a project seeking approval to regularise operations and expand the existing Martins Creek Quarry. |
| November 2014 | SEARs for the Martins Creek Quarry Project (SSD 6612) are issued by the Department. |
| May 2015 | SEARs for the Martins Creek Quarry Project are re-issued by the Department to reflect updated biodiversity assessment requirements in accordance with the FBA. |
| August 2016 | SEARs for the Martins Creek Quarry Project are re-issued to include Commonwealth assessment requirements under the EPBC Act. |
| September 2016 | Daracon lodges an Environmental Impact Statement (EIS) and Development Application (DA), seeking approval for the extraction of 1.5 Mtpa of quarry material over a 30-year project life, with the majority of product transported via road. |
| October 2016 to November 2016 | The Project is placed on public exhibition. During the public exhibition period, 873 submissions are received from the community and special interest groups. |
| September 2017 | Daracon commences detailed review of submissions, further community engagement, additional technical studies, and project refinement. |
| September 2020 | Daracon requests an amendment to the DA for the Project in accordance with then clause 55 of the EP&A Regulation |
| November 2020 | The Department agrees to these amendments to the DA. |
| May 2021 | Daracon lodges an amended DA and supplementary EIS, assessing and seeking approval for extraction of 1.1 Mtpa of quarry material over a 25-year project life, with a maximum of 500,000 tpa transported via road and the balance transported |

| Date | Event |
|---|---|
| | via rail. This document also included a Submissions Report responding to public submissions and agency advice relating to the original Project. |
| June 2021 to July 2021 | The Department places the amended Project on public exhibition for a period of 60 days. During the exhibition period, 670 submissions are received from the community and special interest groups, of which 634 objected to the Project. |
| November 2021 | Daracon lodges a Submissions Report, responding to the public submissions and agency advice relating to the amended Project. |

## 5.2 Department's engagement

43. The Department publicly exhibited the original Project from 13 October 2016 until 24 November 2016 (43 days). The amended Project was exhibited from 2 June 2021 until 31 July 2021 (60 days). The original Project and amended Project were also made available on the Department's website.

44. The Department advertised the exhibition of the original Project in The Australian, Sydney Morning Herald, Dungog Chronicle, and The Maitland Mercury. The Department advertised the exhibition of the amended Project in The Australian, Sydney Morning Herald, Daily Telegraph and Newcastle Herald. The Department also notified adjoining and nearby landowners and sought advice from relevant Government agencies, including DSC and Maitland City Council.

45. The Department also carried out site visits at Martins Creek Quarry and met with the Martins Creek Quarry Community Action Group on 2 November 2016, 22 June 2021 and 22 June 2022.

46. The Department considers that its engagement process met the community participation requirements of the EP&A Act and associated EP&A Regulation. The Department also considers that this process has fulfilled the State's obligations under the Bilateral Agreement with the Commonwealth Government.

## 5.3 Summary of agency advice and submissions

47. The Department received advice from 11 State government agencies and three local councils in response to the most recent exhibition of the Project. The issues raised in the agency advice are discussed in **Section 5.4**.

48. A total of 873 public submissions were received in response to the exhibition of the original Project. Of these, 419 objected, 447 expressed support, and seven commented on the original Project. The Department received a total of 670 public submissions in response to the exhibition of the amended Project, including 637 from individuals and 33 from special interest groups (see **Appendix B**). These submissions comprised:

- 31 (4.6%) submissions expressing support for the Project, including 14 from individuals and 17 from special interest groups;
- 634 (94.6%) submissions objecting to the Project, including 619 from individuals and 15 from special interest groups; and
- 5 (0.7%) submissions providing comment on the Project, including 4 from individuals and one from a special interest group.

49. Of the 634 objecting submissions, 624 were considered to be unique submissions. The remaining 10 submissions were considered to be duplicates. A summary of the public submissions received is presented in **Table 5-2**. Copies of all submissions are included in Appendix B.

**Table 5-2 |** Summary of public submissions for the amended Project

| Proximity | Submissions | Support | Object | Comment |
|---|---|---|---|---|
| Within approximately 5 km of Project area and proposed primary haulage route | 483 | 1 | 479 | 3 |
| Between approximately 5 km and 100 km of Project area and proposed primary haulage route | 156 | 24 | 130 | 2 |
| Greater than 100 km from the Project area and proposed primary haulage route | 31 | - | 25 | - |
| **Total** | **670** | **31** | **634** | **5** |

50. A summary of the issues raised in public submissions in provided in **Section 5.5**.

## 5.4 Agency advice

51. Maitland City Council objected to the Project. Dungog Shire Council and Port Stephens Council did not object to the Project. Several other agencies commented on particular aspects of the Project and proposed particular conditions of consent. A copy of all advice received from agencies is included in Appendix E. The advice and recommendations are summarised below in **Table 5-3** and considered in more detail in **Section 6** of the report. No comments were provided by NSW Rural Fire Service, Department of Primary Industries – Fisheries, NSW Health, or Forestry Corporation of NSW.

**Table 5-3 |** Agency advice on the amended Project

| Agency | Summary of advice |
|---|---|
| Biodiversity Conservation Division of the Department (BCD) | • Requested:<br>  ○ further details on survey effort;<br>  ○ additional information on the assessment of MNES;<br>  ○ further consideration of impacts on downstream waterways;<br>  ○ consideration of the impact of local flooding on quarry worker safety; and<br>  ○ that riparian vegetation condition and bank stability would need to be monitored, together with development of appropriate remedial actions as required.<br>• Following its consideration of the final Submissions Report and supplementary information provided by Daracon, BCD indicated that any residual matters could be dealt with via recommended conditions of consent. |
| NSW Environment Protection Authority (EPA) | • Requested:<br>  ○ that the *Voluntary Land Acquisition and Mitigation Policy* apply unless suitable mitigation measures can be implemented;<br>  ○ further consideration of noise and air quality mitigation measures;<br>  ○ a revision to the cumulative air quality impact assessment; |

| Agency | Summary of advice |
|---|---|
| | ○ demonstration that the air quality impacts represent a worst-case scenario;<br>○ demonstration that all reasonable and practical measures to avoid discharges and maximise onsite water reuse have been applied;<br>○ an updated site water balance; and<br>○ discharge characterisation and impact assessment for likely pollutants.<br>• Following consideration of the Submissions Report and supplementary information, the EPA confirmed its concerns had been generally addressed and that Daracon's proposed management and mitigation measures were considered appropriate. |
| Transport for NSW (formerly NSW Roads and Maritime Services, TfNSW) | • TfNSW's requirements regarding the intersection of Gresford Road and Dungog Road have been addressed.<br>• Requested:<br>○ specified design requirements for upgrades and assessment for Gostwyck Bridge;<br>○ clarification of proposed contributions to road maintenance costs; and<br>○ Daracon enter into an agreement with Australian Rail Track Corporation (ARTC) for the new access road overbridge.<br>• Following its review of Daracon's final Submissions Report, TfNSW indicated it had no further comments. |
| Water Group of the Department (DPE Water) | • Requested:<br>○ a review of surface water licensing requirements;<br>○ a site water balance review to confirm water availability, and assess changes to downstream flows and final void recovery;<br>○ assessment of groundwater impacts on an additional registered bore;<br>○ dam sizing and water licensing requirements to be included in the site's Water Management Plan; and<br>○ a groundwater level monitoring program.<br>• Following its review of Daracon's final Submissions Report, additional information, and the recommended conditions of consent, DPE Water indicated it had no further comments. |
| Heritage NSW | Commented that the Aboriginal Cultural Heritage Assessment was adequate. Supported Daracon's proposed management measures and requested that the Aboriginal Cultural Heritage Management Plan be prepared in consultation with Registered Aboriginal Parties. |
| Heritage Council of NSW | Commented that the Project is not expected to have any adverse physical or visual impacts to items on the State Heritage Register. |
| Crown Lands | Commented that it had no objection to the Project. |
| Department of Primary Industries – Agriculture | • Noted that rehabilitation outcomes would be further investigated during development of a Quarry Closure Plan.<br>• Made recommendations regarding land use and rehabilitation planning (see **Section 6.7**). |
| NSW Resources Regulator (RR) | • Noted that RR would not be regulating the Project's rehabilitation activities.<br>• Noted that Daracon would need to comply with the *Work Health and Safety Act 2011* and *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and regulations. |
| Dungog Shire Council (DSC) | • Expressed concerns regarding the Project's traffic and transport, noise, air quality, biodiversity, heritage, social and economic impacts.<br>• Requested:<br>○ that road haulage be limited to 150,000 tpa, at a maximum rate of 30 laden trucks per day; |

| Agency | Summary of advice |
|---|---|
| | ○ blasting impacts are managed via relevant blasting criteria and establishing baseline information on the condition of privately-owned buildings and structures;<br>○ consideration be given as to whether the Project would have any impact on the Lower Hunter Water Plan;<br>○ a Koala Management Plan to manage impacts on Koalas;<br>○ photomontages to assist in assessing visual impacts; and<br>○ a review of Daracon's Rail Logistics Options Report by a suitably qualified and independent professional.<br>• Disputed Daracon's findings that the Project would not impact public infrastructure costs. |
| Maitland City Council (MCC) | • Raised concerns over traffic and noise impacts from heavy vehicle movements.<br>• Requested additional noise mitigation measures.<br>• Noted that road pavements along the primary haulage route would require more regular monitoring and maintenance.<br>• Noted that, with a suitable contribution from Daracon, MCC should be able to provide a reasonable road surface over the life of the quarry to reduce road pavement noise.<br>• Commented that monetary contributions provided to MCC by Daracon for road maintenance should be calculated in accordance with MCC's 2016 *Citywide Contributions Plan*. |
| Port Stephens Council (PSC) | • Noted that the primary haulage route would not use any road within the Port Stephens Council (PSC) LGA and therefore PSC's haulage contribution rate would not apply. |

## 5.5 Community and special interest group submissions

52. Of the total 634 objecting submissions received on the amended project, 72% were made by residents or special interest groups located within 5 km of the Project site and/or proximate to the haulage route, 23% were made from locations between 5 km and 100 km away and 5% were made from further afield.

53. In contrast, of the total supporting submissions, 1 (3.2%) was made from within 5 km and/or proximate to the haulage route, 24 were made from distances of between 5 km and 100 km and 6 (19.4%) were made from further afield.

54. The key issues raised in the objecting community and special interest group submissions are summarised in **Figure 5-1**. These issues have been given detailed consideration in the assessment of the Project's impacts, as set out in **Section 6**.

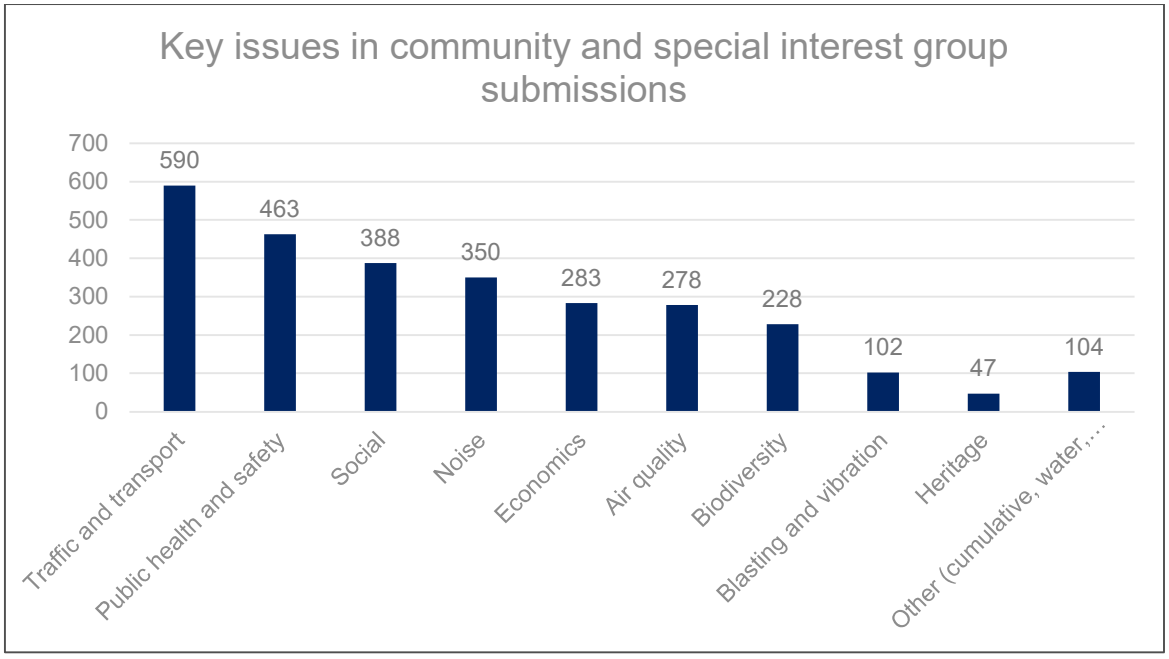


**Figure 5-1** | Key issues raised in community and special interest group submissions

## 5.6 Submissions Report

55. On 2 August 2021, the Department requested that Daracon prepare a Submissions Report that responded to the issues raised in agency advice and public submissions following exhibition of the amended Project.

56. On 18 November 2021, Daracon lodged its final Submissions Report (see **Appendix C**). This Report noted some additional minor changes to the Project including refinements to the timing of the proposed access road construction and proposed noise mitigation measures.

57. In response to community submissions, Daracon committed to constructing the new access road within two years of consent (instead of four as originally proposed), subject to obtaining relevant secondary approvals from ARTC and DSC within 12 months of consent.

58. In response to agency comments, Daracon also undertook further investigation of noise mitigation options and proposed additional noise attenuation of train loading activities and installation of an acoustic barrier along the northern end of Station Street in Martins Creek.

59. Additional advice on the final Submissions Report was sought from agencies and provided to Daracon in conjunction with several requests for additional information issued by the Department. Responses to these requests from Daracon have been carefully considered in the Department's assessment and evaluation of the Project. Where necessary, they have also been provided to relevant agencies for comment. Copies of the requests and corresponding responses are available in Appendix D.

# 6 Assessment

60. Due to the Project's proximity to Martins Creek and Daracon's proposed use of 28km of local roads between Martins Creek and East Maitland (including through Paterson) for road haulage of quarry products, the Department considers that the key assessment issues relate to traffic and transportation, noise, air quality, and social impacts.

61. Given it is an extractive industry proposal involving vegetation removal and the ongoing establishment of voids in the landscape, the Department considers that potential water, biodiversity, and rehabilitation impacts are also important assessment issues for the Project.

62. These issues are discussed in **Sections 6.1** to **6.7** below. A summary of the Department's assessment of other issues is provided in **Section 6.8**.

## 6.1 Traffic and transport

### Introduction

63. 590 submissions raised concerns regarding traffic and transport impacts. Key traffic and transportation issues relate to concerns over potential traffic congestion, road safety, and damage to road surfaces from heavy vehicles.

64. The Department considers that the aspects of the Project that have the greatest potential for adverse traffic and transportation impacts are those affecting the safety and efficiency of the local road network as a result of road haulage of materials to and from the quarry. This includes potential cumulative impacts from the operation of the approved Brandy Hill Expansion Project (SSD 5899), an existing quarry project that also uses some of the Project's proposed primary haul route.

### Quarry material haulage

65. The Project's primary haul route would be 28 km in length. It would utilise Station Street and Grace Avenue in the village of Martins Creek, then follow regional road MR 101 via Dungog Road, Gresford Road, Tocal Road, Paterson Road, Flat Road, Pitnacree Road and Melbourne Street before joining with the New England Highway at East Maitland (refer to **Figure 2-2**). Other local roads would also be utilised on occasion to service local projects on a campaign basis. The Project would result in additional traffic along the primary haulage route, including through the villages of Martins Creek, Paterson, Bolwarra Heights, Bolwarra and East Maitland.

66. Daracon is seeking approval to dispatch a maximum of 140 laden trucks per day (280 movements) for up to 50 days per year. For the remainder of the year, trucking would be limited to 100 loaded trucks (200 movements) per day. Hourly peak trucking would be limited to:

- 20 laden trucks per hour (40 movements), Monday to Friday between 7 am and 3 pm; and
- 15 laden trucks per hour (30 movements), Monday to Friday between 3 pm and 6 pm.

67. No road haulage of quarry product would be undertaken on Saturdays, Sundays or public holidays, or between 24 December and 1 January, inclusive. There would also be no trucks permitted to travel through Paterson village before 6.45 am each day.

68. The Project would be limited to road haulage of 500,000 tpa, with the balance of the approved maximum production (1.1 Mtpa) to be transported via rail. A comparison of this annual road haulage volume and historical annual road haulage volumes for Martins Creek Quarry between 1993 and 2019 is shown in **Figure 6-1**. The Department acknowledges that road haulage rates shown in this figure are not consistent with the LEC's 2019 decision regarding the extent of approved operations (as summarised in **Section 2.1**).

69. The LEC concluded that the approved annual road transportation limit was 'not greatly more than 30% of annual production'. The EPL for the site limits annual extraction to 500,000 tpa. On this basis, 150,000 tpa (30% of 500,000 t) represents a reasonable approximation of the currently approved level of road transport. Notwithstanding this, it is evident that the quarry has operated at a trucking rate close to or above 500,000 tpa for a period of approximately 18 years, dating back to 2002-03.

70. The Department acknowledges that there is some uncertainty regarding the road haulage limits that have applied to the quarry at various points over its life. There is also evidence that the quarry has at times operated outside of the conditions of its approvals. However, the Department's role at this stage is not to prosecute potential historical non-compliances but to assess the Project as proposed, including the traffic impacts.

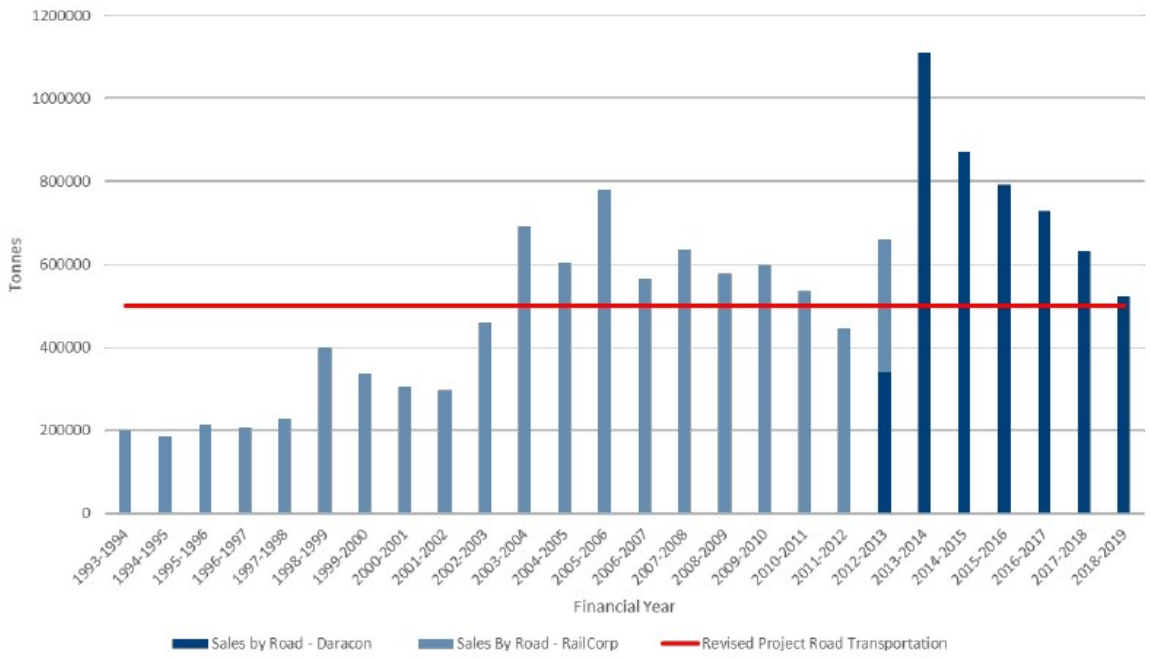


**Figure 6-1** | Proposed annual road haulage tonnage vs historical road haulage 1993 - 2019

## Road haulage alternatives

71. The Department considers that reasonable and feasible road haulage alternatives, including options for wholly bypassing the village of Paterson, are limited by several constraints. One potential haulage route alternative would involve the use of Martins Creek Road, which connects Martins Creek with Paterson Road to the south-east of Paterson (refer to **Figure 2-2**). While this option would bypass Paterson, the route would require quarry trucks to travel through the eastern portion of Martins Creek, and past the Martins Creek Public School. The 8 km-long road is also a narrow rural road that is generally unsuitable for use by quarry trucks and other heavy vehicles on

a regular basis. The use of other alternative routes, such as to the north and then east of Martins Creek, are longer and involve passing through other rural villages, and which would shift potential traffic and amenity impacts to multiple other villages.

## Existing road network

72. The key features of the road network along the primary haulage route are summarised in **Table 6-1**.

**Table 6-1 |** Key features of the proposed primary haulage route

| Aspect | Description |
|---|---|
| Road standards | Constructed to a 'rural road' standard. The primary haulage route does not conform with Austroads requirements in several locations in relation to pavement alignment and corridor width/clear zones. Key issues include:<br>• lack of space between the intersection of Station Street and the railway crossing and the road alignment across the railway crossing;<br>• one-way bridge operation for heavy vehicles at Gostwyck Bridge on Dungog Road;<br>• lack of sheltered right turn lane on Gresford Road for drivers turning right into Dungog Road;<br>• tight road alignment on 90º bend at Gresford Road/Duke Street in Paterson; and<br>• lack of pavement width on Tocal Road at Bolwarra Heights. |
| Pavement conditions | Much of the primary haulage route is in fair to good condition. However, there is also a proportion of the route that is in poor to very poor condition. The roads in Maitland Shire tend to be in better condition and have stronger pavements compared to the roads in Dungog Shire (SMEC, 2021). |
| Key intersections | • *Dungog Road/Gresford Road:* give way control with Gresford Road being the priority road; currently operates at a high standard;<br>• *Paterson Road/Flat Road:* three-way roundabout; currently operates at a high standard;<br>• *Pitnacree Road/Melbourne Street:* four-way traffic signal control; currently operates at close to capacity; and<br>• *Melbourne Street/New England Highway:* four-way traffic signal control; currently operates at close to capacity. |
| Gostwyck Bridge | A two-lane (single lane for heavy vehicles) steel truss and timber girder bridge supported by concrete piers spanning the Paterson River on Dungog Road. Listed in the NSW State Heritage Inventory, the Dungog LEP and TfNSW's Section 170 Heritage Register. The bridge is considered to have a high heritage significance at a local level. |
| Public transport | There are bus routes along the primary haulage route.<br>Martins Creek railway station is located approximately 500 m south of the quarry entrance on Station Street. It provides passenger links to Newcastle to the south and Dungog to the north. Maitland station, located 27 km south of the quarry, provides access to services to the west towards Singleton and beyond. |
| Pedestrian and cyclist facilities | There are footpaths through Paterson, Bolwarra Heights (north of Maitland), and East Maitland. There are no other similar dedicated facilities along the primary haulage route. |

## Existing rail network

73. The Project would utilise the existing Martins Creek Quarry rail siding, which connects to the North Coast railway line. The North Coast railway line joins the Main Northern railway line and Hunter Valley Coal Network at Maitland, around 25 km south of Martins Creek. The existing rail siding can accommodate trains up to approximately 345 m in length.

74. The existing rail siding can accommodate ballast trains operated by ARTC in the Hunter Valley but is too short for longer aggregate trains serving non-railway markets. Rail transportation is further constrained by available train paths on the network and daytime-only train loading hours. This effectively limits rail transportation to one train per day.

## Assessment of traffic and transport impacts

75. The Traffic Impact Assessment (TIA) was prepared by Seca Solutions Pty Ltd, to assess road traffic impacts from the Project and the cumulative traffic impacts associated with other nearby traffic generating developments, including the Brandy Hill Expansion Project (SSD 5899), which was approved by the Commission in July 2020.

## Road network impacts

### *Daily traffic flows*

76. Peak road haulage operations would typically occur during the morning and afternoon periods, on a campaign basis. The impacts to the level of service provided by the road network along the primary haulage route from the Project are shown in **Table 6-2**.

**Table 6-2 |** Assessed daily traffic flow impacts

| Location | Speed limit | Road type | Heavy vehicle proportion | Terrain | Level of Service (No Project) | Level of Service (Project) |
|---|---|---|---|---|---|---|
| Dungog Rd | 80 | Rural | 18% | Rolling | B | B |
| Gresford Rd | 80 | Rural | 12% | Rolling | C | C |
| Paterson village* | 50 | Urban | - | - | B | B |
| Tocal Rd | 100 | Rural | 10% | Rolling | C | C |
| Paterson Rd | 60 | Urban | - | - | D | D |
| Flat Rd | 80 | Rural | 5% | - | D | D |

*Flows through Paterson taken as higher of flows recorded on Gresford Road and Tocal Road

77. The results show that the traffic volumes generated by the Project would not result in any change in the existing level of service of the roads along the primary haulage route.

### *Peak hour impacts on key intersections*

78. Sidra modelling provided for the Project's maximum truck movements per hour along the primary haulage route and included a future growth scenario for the year 2028. The results are presented in **Table 6-3**. While increases to average delays and queue lengths are expected, the intersections of Dungog Road/Gresford Road, Paterson Road/Tocal Road and Paterson Road/Flat Road would continue to perform to a very high standard for the life of the Project, with the results indicating an overall level of service of 'A'[1] on each approach, with minimal delays and congestion. However, the signalised intersections of Pitnacree Road/Melbourne Street/Lawes Street and Melbourne

[1] Level of service criteria as per RMS's Guide *to Traffic Generating Developments.*

Street/New England Highway are predicted to deteriorate from current overall levels of service of 'D / D' and 'E / D' respectively, to overall levels of service of 'F / F' (the worst performance level) by 2028.

79. The Department acknowledges that road upgrades may be required in the future to account for the predicted deterioration in the performance of these intersections. However, this deterioration is predicted both with and without the Project and is mostly attributable to broader regional traffic growth. The Department therefore considers that the additional traffic movements generated by the Project would have an acceptable impact on the operation of the key intersections along the primary haulage route.

**Table 6-3 |** Modelled intersection performance along primary haulage route, Year 2028 - no Project vs Project[1]

| Intersection | Level of Service | | | Average Delay (s) | | 95% Queue (m) | |
|---|---|---|---|---|---|---|---|
| | Existing, No Project[2] | Year 2028, No Project | Year 2028, Project | Year 2028, No Project | Year 2028, Project | Year 2028, No Project | Year 2028, Project |
| Dungog Rd / Gresford Rd | A / A | A / A | A / A | 3.5 / 3.5 | 4.5 / 4.2 | 2.4 / 4.5 | 4.4 / 6.9 |
| Paterson Rd / Tocal Rd | A / A | A / A | A / A | 3.9 / 4.0 | 3.8 / 4.0 | 6.1 / 13.7 | 6.3 / 14.2 |
| Paterson Rd / Flat Rd | A / A | A / A | A / A | 7.8 / 7.6 | 8.0 / 8.1 | 66.7 / 44.8 | 75.9 / 50.9 |
| Melbourne St / Pitnacree Rd / Lawes St | D / D | F / F | F / F | 103.2 / 102 | 111 / 104.5 | 213 / 733 | 574 / 733 |
| Melbourne St / New England Hwy | E / D | F / F | F / F | 135.7 / 122.9 | 152.4 / 126.2 | 901.7 / 837 | 942 / 873 |

*Notes:* *[1]The above table shows overall intersection performance. Refer to SECA Solutions (Technical Design Note, March 2022) for the modelled performance of individual approaches at each intersection.*

*[2] Existing, No Project scenario represents 2018 traffic flows with quarry traffic removed.*

### *Site access*

80. The existing access into the quarry site is via Grace Avenue and Station Street in Martins Creek and a level crossing adjacent to Station Street. The layout of the existing access does not comply with current Austroads requirements.

81. The new access road would allow for heavy vehicle access directly into the quarry off Dungog Road. It would remove truck movements from streets within Martins Creek and the level crossing. Following commissioning of the new access (within approximately 2 years of any consent granted), the existing access would only be used for temporary emergency access, if required. Until the new access road is constructed, all vehicle access would be via the existing access on Station Street. Daracon has committed to implementing a series of operational traffic controls to manage road safety and efficiency impacts prior to and following construction of the new access road (see 'Mitigation', below).

82. DSC commented that the Project does not provide alternative access to the quarry during flooding. It also queried the proposed access provisions for over-dimension vehicles. In response to the first issue, Daracon has committed to not undertaking road haulage during flooded conditions, except to supply material for Government emergency flood rectification works. In response to the second issue, Daracon has advised that the new access would be designed and constructed to cater for over size and/or over mass vehicles, which only would be required infrequently (approximately 1 per month) and subject to separate specific permits from TfNSW and DSC.

83. The Department is satisfied that, once constructed, the new access road would improve access to the quarry and help cater for the safe movement of through traffic on the local road network. The Department is also satisfied that the proposed construction and operational controls for managing site access are reasonable and feasible.

### *Road safety*

84. Many community members raised concerns that proposed truck movements along the primary haulage route would increase safety risks for road users and pedestrians. DSC and MCC also raised several specific concerns, including:

- increased deterioration of the local road network and a corresponding increase in road maintenance costs;
- inadequate sight distances for the proposed new and upgraded intersections and Gostwyck Bridge;
- insufficient pavement widths and poor existing road surface conditions;
- a lack of clear zones and overtaking areas along the route;
- utilisation of the existing level crossings at Station Street and Grace Avenue which have been identified by DSC and ARTC as requiring upgrades; and
- pedestrian safety risks due to the passage of quarry trucks through Paterson.

85. In response to these concerns, Daracon has proposed the following for DSC:

- road upgrades along the haulage route;
- road maintenance contributions, including a levy of $0.25 per tonne of material transported by road to be used towards road maintenance;
- a levy of $0.05 per tonne of material transported by rail to be directed towards services and infrastructure that directly benefits Martins Creek village, including the Martins Creek Public School;
- a contribution of $180,000 towards pedestrian paths and crossings, and bus shelters in the village of Paterson and accompanying signage; and
- an annual contribution to the Council's Community Benefits and Wellbeing Fund of approximately $40,000 per annum, based on proposed production and haulage rates.

86. In relation to road upgrades, Daracon has committed to undertaking road improvement works at several locations along the proposed road haulage route. These would provide the following improvements to road safety:

- new access to the quarry off Dungog Road (refer to **Figure 6-2**) would remove all quarry-related trucks (except during emergencies) from the existing quarry access, including the level crossing off Station Street;
- upgrade to the approach to Gostwyck Bridge (refer to **Figure 6-3**), including curved approaches, new line marking and vehicle activated signage, would reduce the potential for vehicle collisions on the bridge;
- upgrade to the Gresford Road and Dungog Road intersection (refer to **Figure 6-4**) would provide a sheltered right turn lane on Gresford Road and extend the existing south-bound acceleration lane on Gresford Road, reducing the potential for rear-end type accidents; and
- modified footpath and line marking at the King Street and Duke Street intersection in Paterson to match the geometry of heavy vehicle turn paths and relocation of on-street parking (refer to **Figure 6-5**) would minimise the potential for vehicle and pedestrian accidents at this location.

87. Daracon's conceptual design of these proposed upgrades has been developed to the satisfaction of TfNSW. Daracon has also committed to undertaking their detailed design in accordance with relevant Austroads Guidelines and in consultation with TfNSW and/or DSC, as required.

88. TfNSW has recommended that Daracon's proposed upgrade to the Gresford Road and Dungog Road intersection is constructed to DSC's satisfaction prior to operational commencement of the Project. The Department's recommended conditions include progressive trucking limits until this upgrade is constructed to the satisfaction of the Secretary.

89. In relation to ongoing road maintenance contributions, the Department notes that there is a significant difference between the estimated costs of road maintenance provided by Daracon (that are based on an expert modelling report prepared by SMEC) and the contributions required under the DSC contributions plan. The Department acknowledges that the SMEC model is used in 45 other local government areas across NSW and may represent a more accurate prediction of the site-specific road maintenance requirements for the project. However, the Department also notes that both the existing damage to roads and future costs of maintenance have likely increased since the SMEC report was prepared.

90. Given the uncertainty surrounding the precise road maintenance costs of the project over time, the Department has recommended conditions that provide two options for determining the road maintenance costs. The first and more conservative option is to simply pay the costs stipulated in the DSC contributions plan, while the second option would allow Daracon to commission an expert to determine an alternative rate, in consultation with DSC.

91. For MCC, Daracon would provide road pavement contributions for the portion of the proposed primary haulage route within the Maitland LGA. The value of contributions would be determined in accordance with MCC's contributions plan, or as otherwise agreed with MCC.

92. The Department understands that the Paterson locality is a popular destination for tourists, including cycling enthusiasts, and that these activities are mostly undertaken during weekends and on public holidays. The Project does not propose to undertake trucking during these periods, helping to alleviate potential road safety impacts.

93. Pedestrian movements are typically concentrated in the centre of towns (e.g. Paterson, Bolwarra Heights, and East Maitland). The Department acknowledges that DSC raised concerns that impacts

to pedestrian safety within Paterson had not been appropriately addressed. To mitigate impacts on pedestrians, Daracon has proposed to upgrade the Duke Street and King Street intersection, implement a Drivers' Code of Conduct, including provisions for heavy vehicles to reduce speed to 40 km/hr when travelling through the village of Paterson and while passing stationary buses, and provide monetary contributions to DSC for works to improve pedestrian amenity as determined by DSC. The Department considers that, with the implementation of these reasonable and feasible mitigation measures, risks to pedestrian safety from the Project can be appropriately managed.

94. The Department is satisfied that the Project would pose an acceptable level of risk to road users, including cyclists and pedestrians.

### *Cumulative traffic impacts*

95. Daracon's assessment of operational traffic impacts assumed a background traffic growth rate of 2% per annum up to the year 2030. It also considered existing and approved truck movements associated with the Brandy Hill Quarry, which would occur along southern portions of the primary haulage route (through Bolwarra Heights, Bolwarra and East Maitland). While future deterioration of road network performance is predicted, for the most part, this is not a Project-induced impact. On this basis, the Department is satisfied that the traffic movements associated with the Project would have an acceptable impact upon the overall (i.e. cumulative) operation of the road network.

### *Construction traffic*

96. Daracon has committed to undertaking all construction activities for the Project within five years of any grant of development consent. Traffic associated with construction activities would typically comprise:

- 20 to 30 light vehicle trips arriving at the quarry between 6:30 am and 7 am and departing between 6 pm and 6:30 pm; and
- up to 10 heavy vehicles per day supplying construction materials to the Project site or the proposed road upgrade sites (refer to **Figure 6-2** – **Figure 6-5**). These would be included within the operational daily limit of 140 outbound truck loads per day.

97. Construction of the proposed road upgrades would result in some short-term traffic interruptions and delays on the local road network. These works would be controlled by site-specific Traffic Control Plans prepared prior to each portion of road works commencing. Traffic impacts from activities at the quarry would be managed via the implementation of a Construction Traffic Management Plan prepared in accordance with TfNSW's Traffic Control at Work Sites Manual.

98. The Department is satisfied that, with implementation of the proposed traffic management controls, traffic from construction activities would have minor and short-term impacts on the safety and efficiency of the local road network. Notwithstanding this, the Department has recommended conditions of consent requiring Daracon to complete its proposed construction activities within specified timeframes to facilitate the timely completion of the proposed road upgrades and reduce the duration of any construction-related traffic impacts.


**Figure 6-2** Proposed new access road and intersection off Dungog Road


**Figure 6-3** Proposed Gostwyck Bridge approach upgrade


**Figure 6-4** Proposed Dungog Road and Gresford Road intersection upgrade


**Figure 6-5** Proposed King Street and Duke Street intersection upgrade

### Rail network impacts

99. Throughout Daracon's community engagement program and the public exhibition process, the community consistently requested that the Project is designed to avoid or minimise the use of road haulage and prioritise rail transport of quarry products. The Department also advised that Daracon maximise the use of rail transportation wherever reasonable and feasible. To evaluate the viability of rail transportation options, Daracon commissioned a rail logistics options study (Plateway, 2021). This study assessed the availability of access to the rail network for the quarry, the market demand for quarry products transported via rail, and the feasibility of rail transport for servicing local and non-local rail and construction markets.

100. It found that, while there is sufficient network capacity to support increased use of rail transport, this capacity is generally not available during the hours of passenger train operation (primarily daytime period). If Martins Creek Quarry was used to load aggregate for the general construction industry, then evening and night-time loading would be essential. Similarly, rail distribution into the Sydney market would only be feasible with the ability to load trains on a 24 / 7 basis. The viability of selling products into the Sydney market would also be contingent on the quarry being able to accommodate longer trains and to secure access to suitable train paths and unloading facilities. The design of the Project reflects these requirements.

101. The study also found that the option of transferring aggregate output from road to rail in the Hunter Region would not be viable, due to the large number of individual customers and the small volumes being delivered to each destination. To enable a rail-based logistics option to be competitive in the local market, the market share and size would have to allow a throughput more than the Project's total proposed annual production.

102. The use of rail transport within the quarry's primary market area (i.e. the Hunter Region) is limited by:

- lack of suitable rail unloading facilities at product destinations;
- large number of product destinations and types;
- short haulage distances; and
- several competing quarries using the road system as a more commercially viable and flexible supply to service the same markets.

103. For these reasons, the Department accepts Daracon's position that it is not feasible for it to undertake quarry operations relying solely on rail transport.

104. The Project seeks approval to transport up to 500,000 tpa of quarry products via road out of a total production rate of 1.1 Mtpa, with the balance to be transported via rail subject to market demands and network availability. It also seeks approval to undertake train loading 24 hours per day, seven days per week and to extend the existing rail siding by approximately 360 m further to the northeast to enable loading of longer trains. These measures represent a commitment by Daracon to maximise the use of rail transport wherever feasible within the identified network and market constraints.

105. The Department acknowledges the constraints associated with the use of rail transport by the Project to supply the Hunter Region. It also recognises the efforts that have been made by Daracon

to maximise the use of rail transport, wherever feasible. The Department considers that an appropriate mix of road and rail transportation options have been incorporated into the Project to balance road haulage related impacts on the community with the viability of the quarry.

### Mitigation and management

106. Daracon's proposed measures to mitigate and manage traffic and transport impacts include:

- **Road upgrades**, including:
  - constructing a new access road to allow heavy vehicle access via Dungog Road directly into the quarry; and
  - road upgrades along the primary haulage route (refer to **Figure 2-2**);
- **Traffic management and drivers' conduct**, including:
  - developing and implementing construction and operational traffic management plans;
  - implementing an assessment and pre-qualification process prior to engaging any transport subcontractors, including review of the subcontractor's management processes and procedures to ensure compliance with the Heavy Vehicle National Law and associated Chain of Responsibility. Regular audits would also be undertaken to ensure compliance with these requirements;
  - developing and implementing a Drivers' Code of Conduct, which would require drivers to report any substantial road pavement irregularities along the primary haulage route, with these reports being passed on to DSC or MCC for attention. The Driver's Code of Conduct would also include truck speed limits through towns and villages along the primary haulage route;
  - ensuring all trucks entering and leaving the quarry observe a reduced speed limit of 40 km/hour through the village of Paterson, with further reduction to 20 to 25 km/hr around the King and Duke Street intersection; and
  - planning quarry activities and revising haulage (as required) on days when there is extra traffic in Paterson due to community events, e.g. Tocal Field Days, car show events, Baptist Church events and funerals;
- **Monitoring, reporting and consultation**, including:
  - conducting regular monitoring, spot checking and observations of driver behaviour;
  - exploring opportunities to further monitor driver conduct and truck convoying, as suggested by the community, including fleet management technologies and GPS monitoring for non-Daracon vehicles;
  - investigating all complaints and potential breaches of Daracon's traffic and transport policies and procedures and initiating disciplinary action as required; and
  - advising the community, DSC and the EPA of any activities associated with supply of quarry products in response to emergencies, as required.

### Summary

107. The Department acknowledges that traffic and transport impacts from road haulage activities are key community concerns for the Project. Given the history of Daracon's operations, during which road transport peaked at a rate of approximately 1.1 Mtpa in 2013-14 (prior to the LEC's decision regarding the existing quarry's approved limits), these concerns are fully understandable.

108. Notwithstanding this, the Department also recognises that the proposed annual road haulage limit of 500,000 tpa represents a rate that is not dissimilar to historical road transportation rates undertaken by the quarry over an approximate 18-year period between 2002 and 2019, including a period of approximately 10 years when the quarry was operated by the NSW Government through Railcorp. It is also less than 50% of the 2015 peak which raised very high levels of concern in the community (particularly in Paterson) at the time.

109. Daracon's TIA indicates that the traffic volumes generated by the Project would not result in a change to the existing level of service of each of the roads along the primary haulage route. While some deterioration in the performance of three intersections is predicted, this would result mostly from broader regional traffic growth and would be expected to occur with or without the Project. Similarly, while road network performance along the primary haulage route is expected to deteriorate during the life of the Project, the contribution from the Project is considered to be negligible in comparison to the impacts from broader regional traffic growth.

110. Construction of the proposed road upgrades would themselves result in some traffic interruptions and delays on the local road network, although impacts would be temporary and lead to overall improvements in road safety and performance.

111. Daracon has sought to maximise the use of rail transport, wherever feasible. The Department considers that an appropriate mix of road and rail transport options has been incorporated into the Project to balance impacts on the community with the viability of the quarry. Daracon has also proposed several road upgrades and mitigation and management measures to minimise the Project's traffic and transport impacts. The Department has recommended conditions requiring Daracon to prepare construction and operational traffic management plans and undertake road upgrades prior to the full-scale commencement of road haulage activities under the recommended consent. They also require strict monitoring of road haulage rates. Subject to these conditions, the Department considers that the traffic and transport impacts of the Project are acceptable.

## 6.2 Noise

### Introduction

112. The Department considers that the aspects of the Project that have the greatest potential for adverse noise impacts are:

- noise from operation of plant and equipment during extraction, processing and train loading;
- non-network rail noise from idling and movement of trains on the privately-owned rail spur; and
- road traffic noise generated from road haulage activities, workforce transportation and material deliveries.

113. Noise was raised as an issue in 350 objecting submissions. The key noise-related issues raised included potential impacts to residents due to the increased hours of operation, road noise impacts from heavy vehicles travelling along the proposed primary haulage route and impacts to residents of Martins Creek and surrounds associated with the proposed loading of trains.

### Acoustic environment

114. Key contributors to the acoustic environment in the vicinity of the Project site are noise emissions from the existing quarry, occasional freight and passenger trains operating on the Main Northern Railway, and other sounds more typical of rural and rural-residential land use settings. Noise sensitive receivers in the vicinity of the Project site are shown in **Figure 6-6**. Higher densities of residential receivers are located to the south and northwest of the site, within the villages of Martins Creek and Vacy respectively. Rural-residential and residential receptors sensitive to road noise are also located along the primary haulage route.

115. Noise emissions from the existing quarry are regulated in accordance with an EPL granted by the EPA (EPL 1378). While the EPL doesn't specify noise limits, it requires that all operations are conducted in a manner that does not cause offensive noise. There have not been any noise-related non-compliances to date under EPL 1378, nor have there been any pollution reduction programs imposed by the EPA on the quarry regarding the management of noise impacts. Notwithstanding this, given the quarry's location and its extensive history of operations, it is reasonable to conclude that the residents of Martins Creek and surrounding areas have been subject to noise impacts from the quarry for many years. It is also reasonable to conclude that the quarry's operations, which have been occurring for over 100 years, pre-date all current inhabitants of the area.

### Assessment of noise impacts

116. The Project's Noise Impact Assessment (NIA) was undertaken generally in accordance with the *Noise Policy for Industry* (NPfI, EPA, 2017), the *Interim Construction Noise Guideline* (ICNG, EPA, 2013), the *NSW Road Noise Policy* (RNP, DECCW, 2011) and the *Rail Infrastructure Noise Guideline* (RING, EPA, 2013).

117. As an existing industrial noise source, the NIA accounted for both the historical operations of the quarry and the proposed expansion of operations. It also considered the Project's Road and rail traffic impacts and noise impacts from construction activities.

118. The NPfI includes provisions for assessing noise impacts involving the continuation of existing industrial developments. Where an existing industry, such as Martins Creek Quarry, has been in operation for more than 10 years and noise levels from existing operations exceed the 'project amenity noise level' (i.e. the objective for noise impacts from a single industrial development at a receiver location), the project amenity noise level may be adopted as the 'project noise trigger level' (PNTL, i.e. the benchmark noise level at a sensitive receiver location above which noise management measures are required to be considered).

119. In accordance with these provisions, the NIA compared noise emission predictions (assuming maximum approved production under the existing consent, consistent with the EPL, and LEC and Court of Appeal rulings) with the identified project amenity noise levels and the project intrusiveness noise levels (derived from background noise monitoring) to determine PNTLs for all sensitive receivers. Where the noise emission prediction exceeded the recommended project amenity noise

level, the project amenity noise level was adopted as the PNTL. Where the prediction was below the project amenity noise level but above the project intrusiveness noise level, the existing noise level was adopted as the PNTL. Where it was below the project intrusiveness noise level, the project intrusiveness noise level was adopted as the PNTL. The Department considers this an appropriately conservative approach in the context of the existing quarry operation and the provisions for such existing industrial developments in the NPfI.

120. Other elements of the Project, including the return and loading of road trucks during the evening shoulder period, train loading during the evening and night-time periods, expansion of the West Pit extraction area and use of the new access road to Dungog Road, were considered new development and PNTLs were established based on the higher of the applicable project intrusiveness noise level and project amenity noise level. The Department and EPA consider that the approach adopted in the NIA to derive PNTLs is correct and appropriate for the Project.

121. The NIA categorised all sensitive receivers surrounding the Project site into 14 Noise Assessment Groups (NAGs, refer to **Figure 6-6** and **Table 6-4**), based on areas with similar acoustic environments and noise management requirements. NAGs 1 to 4 are mainly affected by noise generated by the existing quarry operations (primarily the Processing Area and loading facilities) and PNTLs were established based on either the predicted noise levels from existing operations, the recommended project amenity noise level, or the project intrusiveness level (as described above). NAGs 5 to 14 are mainly affected by the areas of quarrying that did not have existing consent and were assessed as being affected by the equivalent of a new development.

**Table 6-4 |** Receiver areas / noise assessment groups

| Receiver area | Description |
|---|---|
| NAG 1 | Station St immediately southwest of the processing plant area |
| NAG 2 | Northern section of Cory St and western end of Douglas St immediately south of processing plant |
| NAG 3 | Grace Ave, immediately southwest of the processing plant on western side of the North Coast Railway Line |
| NAG 4 | Southern section of Cory St south of processing plant |
| NAG 5 | Grace Ave between Martins Creek and Dungog Rd |
| NAG 6 | West of Dungog Rd to south-west of the Project site |
| NAG 7 | West of Dungog Rd to west of Project site and immediately west of proposed new access road |
| NAG 8 | Mowbray Lane west of the Project site |
| NAG 9 | West of Dungog Rd immediately north-west of the quarry area |
| NAG 10 | Horns Crossing Rd north-west of the quarry area |
| NAG 11 | Vacy to the north-west of the quarry area |
| NAG 12 | Merchants Rd to the north and north-east of the Project site |
| NAG 13 | Vogeles Rd east of Project |
| NAG 14 | South of Project including Black Rock Rd, Cook St, and south of Grace Ave east of Dungog Rd |

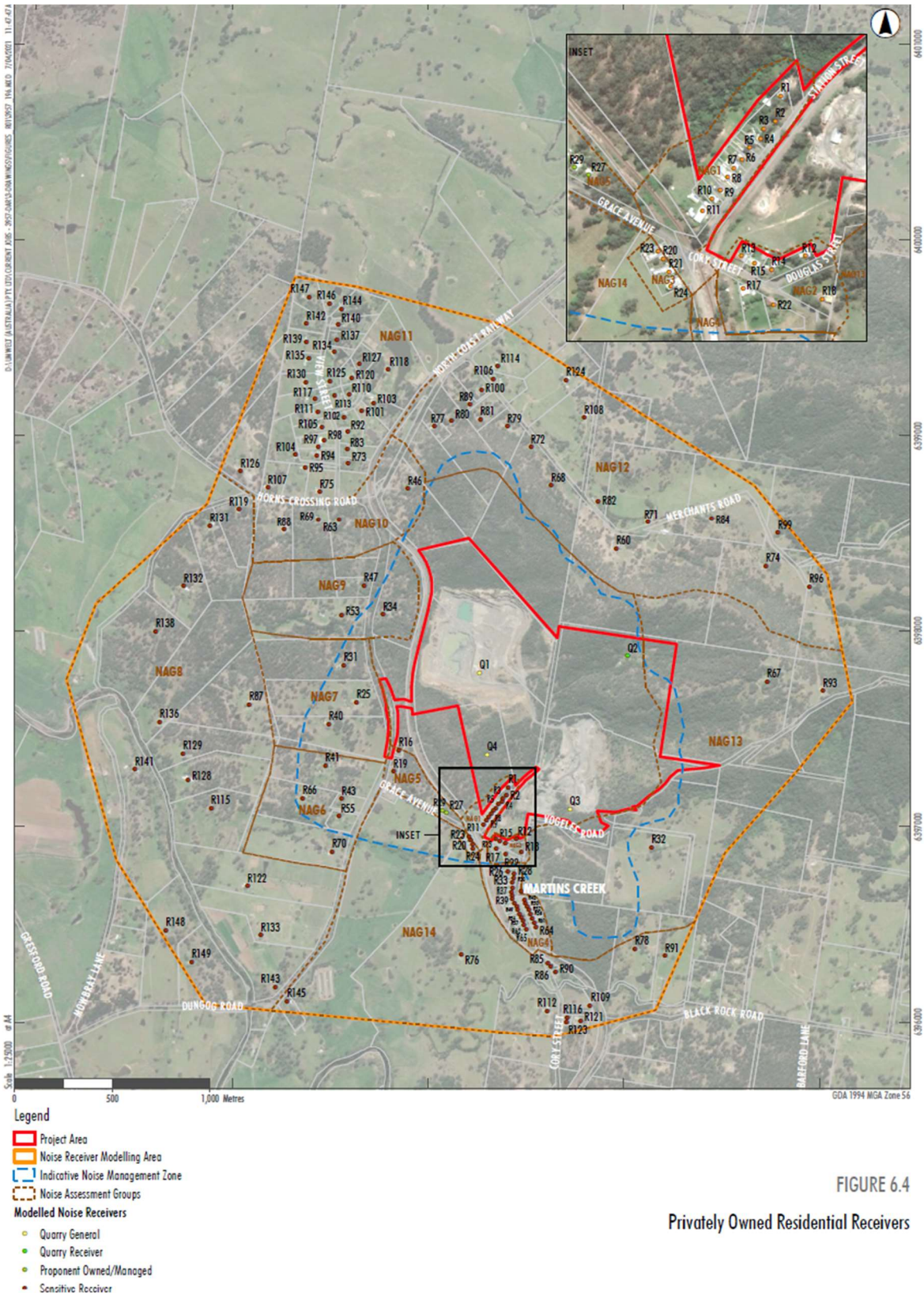


**Figure 6-6** Noise/air quality sensitive receivers and NAGs surrounding the Project site

## Operational noise

122. The NIA considered scenarios representative of reasonable worst-case operational noise emissions during five Project stages: Years 2, 6, 10, 15 and 20.

### *Daytime operational noise impacts*

123. A summary of the predicted worst-case operational noise impacts for the daytime period (7:00 am to 6:00 pm), with consideration of the additional mitigation proposed by Daracon, is presented in **Table 6-5**.

124. Year 2 was assessed separately to Years 6, 10, 15 and 20, as not all Daracon's proposed noise controls, including the rail spur extension and new access road, would be in place by this time. Daracon's initial Year 2 noise level predictions considered two scenarios, with and without the existing rail loading facility operating. With operation of the existing train loading facility (representing a worst-case scenario), exceedances of the LAeq, 15-min PNTLs were predicted at a total of 56 receptor locations, of which 12 exceedances were >5 dB. Without rail loading, 22 exceedances were predicted, of which one was >5 dB. These results indicate that the train loading facility, as it is currently configured, represents a major contribution to daytime noise level exceedances. This is also true for the 'existing operations' scenario, where the operation of the existing train loading facility increases LAeq,15min noise levels at receptors within NAGs 1- 4 by up to 10 dB and contributes to exceedances at 10 receptors. However, this aspect of the quarry's operations must be characterised as an existing development with a legacy noise issue and treated by the Department as such.

125. In response to the EPA's comments on the NIA, and the Department's concerns with the number and magnitude of Year 2 daytime noise exceedances, Daracon provided a revised noise mitigation strategy in its final Submissions Report. This included proposing an additional 4 m high, 180 m long noise barrier to be installed between the existing rail siding and the receivers along the northern end of Station Street. The revised strategy also proposed modified operations in the West Pit during rail loading. The updated Year 2 daytime noise predictions presented in the final Submissions Report (and summarised in **Table 6-5**) demonstrate that, with implementation of these additional mitigation measures, noise level exceedances >5dB can be eliminated. With the implementation of these measures, daytime noise impacts on sensitive receptors during train loading would be reduced when compared with the quarry's current operations.

126. Accordingly, the Department has recommended conditions that would require Daracon to install the proposed 4 m high noise barrier prior to undertaking daytime train loading operations exceeding current approved limits (i.e. one train per day). Daracon's proposed modified operations during train loading would also need to be documented in a Noise Management Plan for the Project for the Department's approval prior to commencing these activities. Further, daytime train loading would be limited to one train per day until the proposed rail spur extension is commissioned (see below). These requirements would ensure that noise levels from train loading are limited in duration, while supporting sustainable train haulage of material in line with community expectations.

127. After Year 2, exceedances of the LAeq, 15-min PNTLs were predicted at a total of 26 receptor locations, of which one was >5 dB, eleven were between 3 and 5 dB and 14 were 2 dB or less. These exceedances are mostly attributed to quarrying operations in the West Pit and use of the new access road. Importantly, these predictions demonstrate that, with a few exceptions, the daytime noise impacts from the Project would be reduced after Year 2 of operations (i.e. following construction of the new access road and rail spur extension). The acoustic environment in the vicinity of Martins Creek would improve such that no daytime exceedances would occur within NAGs 1 – 4 (the receptor groups closest to the Processing Area) following commissioning of this new infrastructure (see **Table 6-5**).

**Table 6-5 |** Summary of predicted worst-case operational noise impacts during the Daytime period

| Noise Assessment Group | Number of exceedances ($L_{Aeq, 15\text{-}min}$) | | |
|---|---|---|---|
| | ≤2 dB | ≥3 but ≤5 dB | >5 dB |
| ***Daytime, Year 2 with rail loading and additional mitigation proposed in final Submissions Report*** | | | |
| NAG 01 | 7 | 1 | - |
| NAG 04 | 10 | 4 | - |
| NAG 05 | 1 | - | - |
| NAG 06 | 1 | 4 | - |
| NAG 07 | - | 3 | - |
| NAG 08 | 5 | 4 | - |
| NAG 09 | - | 2 | - |
| NAG 10 | 4 | - | - |
| NAG 11 | 5 | - | - |
| NAG 13 | 1 | - | - |
| NAG 14 | 2 | - | - |
| **Total** | **36** | **18** | **0** |
| ***Daytime, Years 6, 10, 15 and 20*** | | | |
| NAG 01 | - | - | - |
| NAG 04 | - | - | - |
| NAG 05 | - | 2 | - |
| NAG 06 | 2 | 3 | - |
| NAG 07 | | 2 | 1 |
| NAG 09 | 1 | 2 | - |
| NAG 10 | 4 | 1 | - |
| NAG 11 | 6 | - | - |
| NAG 12 | - | - | - |
| NAG 13 | 1 | 1 | - |
| NAG 14 | - | - | - |
| **Total** | **14** | **11** | **1** |

### *Evening shoulder period operational noise impacts*

128. The NPfI allows for the negotiation of appropriate PNTLs with the regulatory/consent authority where operations outside of daytime hours can be justified. Daracon has proposed an evening shoulder period (for a single hour between 6 pm and 7 pm, Monday to Friday) to offset the proposed change in the currently approved morning start time of 6 am to the proposed new start time of 7 am. “Evening shoulder” operational noise impacts from the Project would be associated with the

proposed arrival and loading of up to 10 trucks between 6 pm and 7 pm Monday to Friday, so as to be ready for early morning dispatch the following day. Loading of trucks during the evening shoulder period would provide a viable (but improved) alternative to truck loading and transport in the early morning during the relinquished 6 am to 7 am operational window.

129. A summary of predicted worst-case operational noise impacts for the evening shoulder period is presented in **Table 6-5**. Exceedances of the LAeq, 15-min PNTLs during this period were predicted at a total of nine receptors, of which two were >5 dB, five were between 3 and 5 dB and two were by 2 dB or less. Both the exceedances of >5 dB and three of the exceedances between 3 and 5 dB were predicted to occur during the first two years of operations, prior to construction of the new access road. Accordingly, the Department has recommended conditions that would restrict the arrival and loading of trucks during the evening shoulder period until the new access road is commissioned. Subject to this restriction, the Department accepts Daracon's proposal for an evening shoulder period.

**Table 6-6 |** Summary of predicted worst-case operational noise impacts during Evening shoulder period

| Noise Assessment Group | Number of exceedances ($L_{Aeq, 15\text{-}min}$) | | |
|---|---|---|---|
| | ≤2dB | ≥3 but ≤5 dB | >5 dB |
| NAG 01 | - | 3 | 2 |
| NAG 05 | - | 1 | - |
| NAG 06 | 1 | - | - |
| NAG 07 | 1 | 1 | - |
| **Total** | **2** | **5** | **2** |

### *Evening and Night-time noise impacts*

130. A summary of the NIA's predicted worst-case operational noise impacts for the evening (7 pm to 10 pm (Monday to Friday) and 6 pm to 10 pm (weekends)) and night-time (10 pm to 7 am) periods is presented in **Table 6-5**. Exceedances of the LAeq 15-min PNTLs during the evening period were predicted at eight receptor locations, of which one was >5 dB, five were between 3 and 5 dB and two were 2 dB or less. During the night-time period, exceedances of the PNTLs were predicted at 22 receptor locations, of which three were >5 dB, three were between 3 and 5 dB and sixteen were 2 dB or less. These exceedances are attributed to the loading of trains following commissioning of the rail spur extension.

131. Night-time noise levels would not exceed the applicable sleep disturbance criterion (Lmax > 52 dB(A)) at any sensitive receptor.

132. Evening and night-time loading of trains would not be undertaken until the rail spur extension has been commissioned and Daracon has undertaken onsite noise measurement of train loading to validate the assumptions used in the NIA. Accordingly, the Department has recommended conditions requiring Daracon to undertake validation of the noise model using site-based monitoring during trials prior to formally commencing evening and/or night-time train loading activities (i.e. following commissioning of the rail spur extension).

**Table 6-7 |** Summary of predicted worst-case operational noise impacts for Evening & Night-time periods

| Noise Assessment Group | Number of exceedances ($L_{Aeq, 15\text{-}min}$) | | |
|---|---|---|---|
| | ≤2 dB | ≥3 but ≤5 dB | >5 dB |
| ***Evening*** | | | |
| NAG 01 | 2 | 2 | 1 |
| NAG 06 | 1 | - | - |
| NAG 08 | 2 | - | - |
| **Total** | **5** | **2** | **1** |
| ***Night-time*** | | | |
| NAG 01 | 6 | 2 | 3 |
| NAG 02 | 3 | 1 | - |
| NAG 04 | 4 | - | - |
| NAG 06 | 1 | - | - |
| NAG 08 | 2 | - | - |
| **Total** | **16** | **3** | **3** |

### *Consideration of operational noise impacts under the Voluntary Land Acquisition and Mitigation Policy (VLAMP)*

133. Residual operational impacts (i.e. those predicted to occur following the application of all reasonable and feasible source and pathway mitigation measures, as proposed in the NIA and otherwise committed to by Daracon) and their relative significance with reference to the VLAMP, are set out in **Table 6-8**.

**Table 6-8 |** VLAMP characterisation of residual operational noise impacts

| Period | Receivers | Residual Impact, dB | | | VLAMP Impact* |
|---|---|---|---|---|---|
| | | PNTL | Predicted | Difference | |
| ***Daytime*** | R025 | 40 | 48 | >5dB | Moderate |
| | R006 | 58 | 62 | ≥3 but ≤5 dB | Marginal |
| | R058 | 47 | 51 | | |
| | R061 | 47 | 50 | | |
| | R064, R065 | 46 | 49 | | |
| | R016, R040, R047, R70 | 40 | 45 | | |
| | R043, R046, R031, R122, R133, R053, R66 | 40 | 44 | | |

| Period | Receivers | Residual Impact, dB | | | VLAMP Impact* |
|---|---|---|---|---|---|
| | | PNTL | Predicted | Difference | |
| | R115, R143, R067, R55 | 40 | 43 | | |
| ***Evening Shoulder*** | R002, R003 | 38 | 44 | >5 dB | Moderate |
| | R001, R004 | 38 | 43 | ≥3 but ≤5 dB | Marginal |
| | R025 | 37 | 42 | | |
| | R005 | 38 | 41 | | |
| | R016 | 37 | 40 | | |
| ***Evening*** | R001 | 36 | 43 | >5 dB | Moderate |
| | R002, R003 | 36 | 40 | ≥3 but ≤5 dB | Marginal |
| ***Night-time*** | R001 | 35 | 44 | >5 dB | Significant |
| | R002, R003 | 35 | 41 | | |
| | R004, R005, R017 | 35 | 38 | ≥3 but ≤5 dB | Marginal |

**Excludes 'Negligible' residual impacts as these exceedances would not be discernible by the average listener and therefore under the VLAMP do not warrant receiver/receptor-based treatments or controls.*

134. Three sensitive receptors (R001, R002, R003, within NAG 1) are predicted to experience 'Significant' residual impacts. These impacts are associated with the night-time loading of trains following commissioning of the rail spur extension. One of these sensitive receptors (R001) would also experience 'Moderate' impacts during the evening period and the other two (R002 and R003) would experience 'Moderate' impacts during the evening shoulder period until the new access road is constructed. A further receptor (R025), which is the closest receiver to the new access road, would experience 'Moderate' impacts during the daytime period once the new access road is commissioned. In addition, 'Marginal' residual impacts would occur at 20 receptor locations during the daytime period, five locations during the evening shoulder period (reducing to two locations following commissioning of the new access road), two locations during the evening period and three locations during the night-time period.

135. The Department acknowledges that many of the daytime and evening shoulder noise impacts would be reduced following commissioning of the new access road and rail spur extension. Notwithstanding this, the proposed timing for implementing these measures (within two years of project approval) is contingent on several factors outside of Daracon's control (e.g. approvals and other input from stakeholders) and may extend beyond this timeframe. As such, the Department does not consider these impacts to be entirely transitional. On this basis, the Department has recommended conditions that require Daracon to commission the new access road before undertaking activities during the evening shoulder period and to commission the rail spur extension before increasing the rate of daytime train loading beyond one train per day.

136. Additionally, the Department's recommended conditions require Daracon to provide noise mitigation treatments at relevant affected receiver locations consistent with the VLAMP's provisions. The recommended conditions also include voluntary land acquisition provisions for the three sensitive receptors where 'Significant' residual impacts are predicted.

137. The Department considers that, with implementation of Daracon's proposed mitigation measures and the recommended conditions of consent, the residual operational noise impacts of the Project are acceptable.

### Non-network rail noise

138. Non-network rail noise impacts from the Project are those associated with trains entering and leaving the quarry along the quarry's privately-owned rail spur that runs from the North Coast railway line. Noise associated with loading of trains is considered to be Project 'operational noise'. Key sensitive receptors for non-network rail noise are the residences along Station Street, Douglas Street, Cory Street and Grace Avenue in Martins Creek. Non-network rail noise impacts are managed under the RING. A summary of limitations under the RING that would apply to the Project's non-network rail noise resulting from train pass-by events (estimated at 130 seconds duration), is presented in **Table 6-9**.

**Table 6-9 |** Summary of non-network rail noise impacts[2]

| Receiver | Location | Pass-by events before exceeding Recommended Acceptable $L_{Aeq}$ | | | Pass-by events before exceeding Recommended Maximum $L_{Aeq}$ | | |
|---|---|---|---|---|---|---|---|
| | | Day | Evening | Night | Day | Evening | Night |
| R001 – R011 | Station St, Martins Creek | >20 | 1 | <1 | >20 | 3 | 2 |
| R012 | Douglas St, Martins Creek | | 4 | 3 | | 13 | 9 |
| R013 | Cory St, Martins Creek | | 1 | <1 | | 4 | 3 |
| R014 | | | 3 | 2 | | 8 | 6 |
| R015 | | | 2 | 1 | | 6 | 4 |
| R017 | | | 2 | 2 | | 7 | 5 |
| R018 | | | 6 | 4 | | 19 | 13 |
| R022 | | | 3 | 2 | | 11 | 8 |
| R026 | | | 6 | 4 | | 20 | 14 |
| R020 | Grace Ave, Martins Creek | | 2 | 2 | | 7 | 5 |
| R021 | | | 2 | 2 | | 8 | 5 |
| R023 | | | 3 | 2 | | 9 | 6 |

139. During the daytime period, more than twenty pass-by events could occur without exceeding the Recommended Acceptable or Recommended Maximum LAeq noise levels at the closest noise-sensitive receivers, which are located on Station Street. During the evening period, only one pass-by event could occur before the Recommended Acceptable LAeq noise level for these receivers

[2] The assessment of non-network rail noise impacts was completed as part of the NIA that accompanied the amended DA. While the impacts were not re-assessed to consider the additional mitigation provided by the noise barrier proposed by Daracon in its final Submissions Report, the Department considers that the additional noise barrier would likely reduce non-network rail noise to several receptors along Station St, Martins Creek.

would be exceeded. Three pass-by events could occur during the evening period without exceeding the Recommended Maximum LAeq noise level.

140. During the night-time period, the Recommended Acceptable LAeq noise level for eleven receivers on Station Street and one receiver on Cory Street would be exceeded by a single pass-by event. Two night-time pass-by events could occur before exceeding the Recommended Maximum LAeq noise level at the closest sensitive receiver locations.

141. Notwithstanding these predictions, the Department also acknowledges that the capacity of the overall Hunter rail network is most constrained during the daytime period. Allowing limited train movements during the evening and night-time periods would improve Daracon's ability to maximise the use of rail transportation, consistent with broad community expectations. Further, the Department considers that a small number of typically 130-seconds duration train pass-by events would represent an acceptable level of impact when spread over the course of an evening and/or night-time period. Accordingly, the Department has recommended conditions limiting Daracon to two pass-by events during the evening period and two during the night-time period. At this frequency, the Recommended Maximum LAeq noise levels would not be exceeded.

142. The Department has also recommended conditions restricting the use of the non-network rail line to locomotives that, at the time they were new or substantially modified, were approved to operate under an EPL.

### Road noise

143. The Department acknowledges community concerns regarding the Project's potential road noise impacts on the village of Paterson and other sensitive receptors along the primary haulage route. Notwithstanding this, the Department recognises that there are major challenges associated with avoiding or mitigating road noise impacts on these receptors. Reasonable and feasible haulage route alternatives, including options for wholly bypassing the village of Paterson, are limited by physical, engineering and environmental constraints (refer to 'Road haulage alternatives' in **Section 6.1**). The Department also considers that Daracon's proposed road transportation limit of 500,000 tpa from a total production limit of 1.1 Mtpa, with the balance to be transported via rail, represents a substantial commitment to minimise potential road noise impacts.

144. Daracon's road traffic noise predictions indicate that existing road traffic noise levels along the proposed primary haulage route already exceed the RNP's relevant criteria for several receivers. At the Project's proposed maximum daily and hourly trucking rates, only one additional receiver would exceed these when compared with existing road noise levels. Where RNP criteria are already exceeded due to existing traffic impacts or are predicted to be exceeded due to the Project, the Project-related increase in road noise levels would be less than 2 dB. The RNP states that road noise level increases of up to 2 dB are considered barely perceptible to the average person. The Department considers that road noise level increases of this magnitude would result in negligible impacts to sensitive receivers.

145. It is recognised that the ongoing operation of the quarry would contribute to traffic impacts in Paterson and along the haulage route, but even if the quarry was to completely cease operations, the noise amenity of Paterson would not significantly improve. Further, following commissioning of the new access road, the road traffic noise levels for the most affected receivers along local roads

in Martins Creek would be reduced by between 9 and 13 dB. On this basis, the Department considers that the predicted road noise impacts from the Project are acceptable.

### Construction noise

146. Construction activities would mostly be undertaken during recommended standard construction hours (7 am to 6 pm Monday to Friday and 8 am to 1 pm Saturday), although some activities (such as bridge construction works) may occur outside of these hours to take advantage of track possession opportunities within the ARTC rail corridor.

147. The LAeq,15-min construction noise management levels for all residential receivers in NAGs 1 to 14 during recommended standard construction hours is 45 dB(A). Residential receivers experiencing construction noise above this level are considered to be 'noise affected' under the ICNG. A residential receiver is 'highly noise affected' if the construction noise level exceeds 75 dB(A)LAeq,15min.

148. Construction of the new access road could generate noise levels greater than the recommended noise management level of 45 dB(A) at up to 64 residential receiver locations (see **Table 6-7**). Construction of the noise mitigation measures in the vicinity of the Processing Area could also generate noise levels above 45 dB(A) at up to 31 residential receiver locations. No receivers would experience construction noise levels above 75 dB(A).

**Table 6-10 |** Summary of predicted construction noise impacts

| Activity | Maximum noise level, dB(A) | Number of receivers exceeding 45 dB(A) | Number of receivers exceeding 75 dB(A) |
|---|---|---|---|
| New access road construction | 57 | 64 | 0 |
| Noise mitigation works in East Pit | 58 | 31 | 0 |

149. The Department acknowledges there are 31 receivers which would be 'affected' by construction noise levels exceeding 45 dB(A). Importantly, no receiver would be highly 'affected' by construction noise levels. The Department also recognises that these construction works would be temporary and, once completed, would very substantially reduce the Project's ongoing operational noise impacts on most affected sensitive receivers. The Department considers that, with implementation of appropriate mitigation measures, including a construction noise management plan and out of hours work protocol, noise impacts on affected sensitive receivers could be appropriately managed.

### Mitigation and management

150. Daracon proposes to install enclosures and noise barriers around key infrastructure and to purchase low-noise emitting plant, where possible. Daracon also proposes to establish a proactive noise management system combining predictive meteorological forecasting and real-time noise monitoring to guide its day-to-day operations. In-pit operations would also be modified to reduce overall noise emissions during train loading activities.

151. Additionally, to mitigate impacts from train loading activities, Daracon is proposing an extension to the existing rail spur to move train loading activities further away from sensitive receivers in the village of Martins Creek. Similarly, Daracon's proposed new access road from the West Pit onto Dungog Road would relocate road noise associated with truck arrivals and departures away from receivers in Martins Creek.

152. Following its review of the NIA, the EPA requested further consideration of noise mitigation and management measures to address residual noise impacts, particularly those during the evening and night-time periods. This included assessing if any other operational noise management measures could be implemented until the new access road was constructed. In response to this request, Daracon revised the proposed timeframe for constructing the new access road and rail spur extension from four years to two years following any grant of consent, subject to obtaining the necessary secondary approvals within 12 months of that consent. The EPA subsequently advised that its concerns regarding noise impacts from the Project had been addressed.

153. The Department's recommended conditions would require Daracon to employ best practice noise management and to take all reasonable steps to manage construction, operational, road and rail noise generated by the Project, particularly during noise-enhancing conditions. The recommended conditions would also require Daracon to:

- undertake validation of the noise model using site-based monitoring during trials prior to the formal commencement of evening and night-time train loading activities (i.e. following commissioning of the rail spur extension);
- mitigate, and where necessary acquire upon request, noise affected sensitive receivers in accordance with the VLAMP;
- monitor compliance with the consent's noise criteria using a combination of real-time and attended noise monitoring undertaken on at least a quarterly basis;
- establish suitable protocols for receiving and handling community complaints and investigating any potential exceedances;
- commission the proposed rail spur extension before undertaking expanded daytime, evening and night-time train loading; and
- develop and implement a Noise Management Plan in consultation with the EPA and to the satisfaction of the Secretary.

154. The Department considers that with implementation of Daracon's proposed mitigation measures and its recommended noise management conditions, noise impacts on affected sensitive receivers can be appropriately mitigated and managed during both construction and operation of the Project.

### Summary

155. The Department acknowledges that noise is a key concern for the various communities affected by the Project. It also recognises that the noise impacts from the Project are not insignificant. Notwithstanding this, the quarry has operated in various capacities for over 100 years (albeit including operations above its approved limits) and it is evident that during this time, the receptors surrounding the quarry and along the primary haulage route have been subject to noise and other amenity impacts significantly greater than those predicted to be experienced during operation of

the Project. The existing quarry is subject to several significant legacy noise issues and the Project offers an opportunity to significantly improve several aspects of its operations, particularly daytime noise amenity in the vicinity of Martins Creek.

156. Daracon has responded to community concerns through project design changes and mitigation measures that include the use of physical noise barriers and low noise emitting plant, a proactive and reactive noise management system, restricted operating hours and new and upgraded infrastructure to minimise noise impacts on sensitive receptors.

157. The Department also notes that the range of noise reduction strategies for existing developments such as Martins Creek Quarry is generally more limited than for new developments. A key limitation in this regard is the extent to which spatial separation between the Project's operations and sensitive receptors can be used to minimise impacts. Notwithstanding this, the Department considers that the proposed infrastructure improvements, operational configuration, and mitigation measures are feasible and reasonable and represent a commitment to best noise management practice by Daracon. The EPA has also indicated that the concerns that it previously expressed over the Project's noise impacts have been satisfactorily addressed through the additional mitigation measures proposed by Daracon.

158. Overall, the Department considers that residual noise associated with the Project can be managed through stringent conditions of consent, including:

- restricted hours of operation, product loading and dispatch until the public road upgrades, new access road and rail spur extension are commissioned;
- a requirement to validate the noise model using onsite monitoring during trials prior to formal commencement of evening and night-time train loading (i.e. following commissioning of the rail spur extension);
- stringent noise operating conditions, including a condition requiring Daracon to modify operations during noise-enhancing weather conditions;
- mitigation and voluntary acquisition provisions for relevant sensitive receivers in accordance with the VLAMP; and
- requirements to develop and implement construction and operational noise management plans.

159. The Department considers that the recommended conditions strike a fair balance between protecting the amenity of the local community and meeting operational demands regarding loading and dispatch times. They also provide Daracon and the community with an opportunity to draw a line under the history of unlawful operations and contemporise noise management requirements for the quarry. Subject to these conditions, the Department considers the noise impacts of the Project are acceptable.

## 6.3 Air quality

### Introduction

160. Concerns over the potential adverse air quality impacts of the Project were raised in 278 objecting submissions. These were related to the potential particulate matter emissions from operation of the quarry, diesel exhaust emissions and dust associated with the road haulage of quarry products and impacts to drinking water from deposited dust.

### Air quality environment

161. Key contributors to air quality in the vicinity of the Project site are particulate matter emissions from the existing quarry, combustion emissions from vehicles on local roads, and low intensity agricultural activities from the surrounding rural land. Sensitive receivers surrounding the quarry are consistent with those identified for the NIA, as shown in **Figure 6-6**.

### Assessment of air quality impacts

162. An Air Quality Impact Assessment (AQIA) was prepared by Jacobs mostly in accordance with the *EPA's Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (Approved Methods). The AQIA was then revised in response to stakeholder feedback received following exhibition of the Project and included in the Submissions Report.

163. Similar to the NIA, the AQIA accounted for both the historical operations of the quarry and the proposed expansion of operations. It also considered the Project's air quality impacts from traffic, blasting and construction activities.

164. Daracon's AQIA relied upon a CALPUFF air dispersion model to predict ground-level concentrations of particulate matter and deposited dust from identified emission sources. The predicted concentrations of pollutants were then compared to the air quality criteria identified in the EPA's Approved Methods. The main objective of the modelling was to predict the potential change in air quality because of the Project. This approach represented a 'Level 1' assessment according to the Approved Methods whereby the assumed maximum background levels were combined with the predicted Project increment. The AQIA considered scenarios representative of reasonable worst-case operational air quality emissions during existing operations and three future Project stages: Years 2, 10 and 20.

165. The Department recognises there were several aspects to Daracon's assessment approach that deviated from the Approved Methods. Firstly, the modelling relied on data collected at the quarry's existing High Volume Air Sampler (HVAS) to define background concentrations of PM10 and TSP. The HVAS monitoring does not provide data for every day of the year. The monitoring at the HVAS was also assumed to be representative of conditions at all properties along Station Street, however several properties (approximately seven) are located closer to the quarry. Monitoring at these properties (e.g. at R1) could reveal higher concentrations than at the current HVAS. The air dispersion modelling also relied on meteorological data collected on site. This data was supplemented with additional parameters to define conditions in the upper atmosphere using a prognostic model.

166. Following consideration of the AQIA methodology, the Department commissioned an independent peer review of the AQIA. The peer review was undertaken by Simon Welchman of Katestone Environmental Pty Ltd. Simon has expertise in air quality impact assessment for major industrial, infrastructure and mining projects and extensive experience undertaking peer reviews and preparing advice on air quality planning matters. He also regularly provides expert witness services for matters relating to air quality assessment. Mr Welchman's review concluded that the AQIA identified the significant matters in relation to emissions to air from the Project and assessed these matters against the relevant standards. After careful consideration of additional information provided by Daracon (including further analysis of the meteorological and HVAS data), it also concluded that the methodology adopted for the AQIA was appropriate.

167. The EPA also sought additional information regarding the AQIA assessment methodology and proposed mitigation measures. Following its review of the Submissions Report and the additional information provided by Daracon, the EPA advised that its concerns with the AQIA had been adequately addressed.

### Operational air quality

168. The AQIA found that there would be very little change in contribution from the Project beyond the quarry site, for all particulate matter classifications ($PM_{10}$, $PM_{2.5}$, TSP and deposited dust).

169. The maximum incremental 24-hour average $PM_{10}$ concentrations were predicted to increase from 39 µg/m$^3$ to 50 µg/m$^3$ at the most affected sensitive receiver location (R1) in the modelled worst-case operational year (Year 20). The maximum cumulative 24-hour average $PM_{10}$ concentrations were predicted to increase from 34 µg/m$^3$ to 51 µg/m$^3$ at R1 in Year 20 of operations. This would exceed the EPA's assessment criterion of 50 µg/m$^3$. However, Daracon has demonstrated to the satisfaction of the EPA and the Department's independent air quality expert that, with the implementation of its proposed proactive and reactive air quality management system, this exceedance could be avoided. No other exceedances of the EPA's assessment criteria are predicted at any sensitive receiver locations.

170. The maximum incremental annual average $PM_{10}$ concentrations were predicted to increase from 14.5 µg/m$^3$ to 19.1 µg/m$^3$ and on a cumulative basis from 13 µg/m$^3$ to 18 µg/m$^3$.

171. The maximum incremental and cumulative 24-hour average $PM_{2.5}$ concentrations of 8.1 µg/m$^3$ (up from 7.0 µg/m$^3$) and 15 µg/m$^3$ (up from 14 µg/m$^3$) respectively were predicted at R1 during Year 20. These concentrations are well below the EPA's assessment criterion of 25 µg/m$^3$. The maximum incremental and cumulative annual average $PM_{2.5}$ concentrations of 3.1 µg/m$^3$ and 6.1 µg/m$^3$ respectively were predicted at R1 during Year 20. Again, these predicted concentrations are well below the EPA's assessment criterion of 8 µg/m$^3$.

172. In all other modelled years, incremental and cumulative 24-hour and annual average $PM_{10}$ and $PM_{2.5}$ concentrations were predicted to be similar to those of the modelled existing operations.

173. The maximum incremental and cumulative annual average deposit dust concentrations of 2.3 g/m$^2$/month and 2.9 g/m$^2$/month respectively were predicted at R1 during Year 20. These are both less than the EPA's assessment criterion of 4 g/m$^2$/month.

174. The predicted maximum 1-hour average $NO^2$ concentration due to blast fume and diesel exhaust emissions was 20 µg/m$^3$ at the nearest sensitive receiver (R1), which is well below the EPA's

assessment criterion on 246 µg/m$^3$. Predicted annual average $NO^2$ concentrations at R1 were approximately 10 µg/m$^3$ or less. With the addition of background levels of 16 µg/m$^3$, the predicted levels comply with the EPA's criterion of 62 µg/m$^3$. All other surrounding private receivers are more distant and were predicted to have lower levels than those at the nearest residence.

175. The estimated maximum annual average respirable crystalline silica concentration at the site boundary was 2 µg/m$^3$, which is less than the 3 µg/m$^3$ criterion. Concentrations further from the site boundary, including at sensitive receptors, would be lower than 2 µg/m$^3$.

### Construction air quality

176. Temporary and localised air quality impacts during construction would largely result from dust generated during earthworks and other engineering activities associated with the quarry construction works. The Department considers these impacts would be temporary and localised and could be appropriately managed in accordance with Daracon's proposed mitigation and management measures, as set out below.

### Mitigation and management

177. Daracon proposes to implement best management practice air quality mitigation measures, including:

- **Operational controls**, including
    - using water sprays on drill rigs, fixed processing plant and stockpiles;
    - enclosing processing and screening operations;
    - using water carts for haul road dust suppression;
    - restricting vehicular speed within the quarry;
    - minimising haul distances and undertaking regular haul road maintenance; and
    - committing to no mobile crushing in the West Pit;
- **Monitoring, evaluation, and response**, including:
    - implementing a real-time air quality monitoring, alert and response system to modify operations in response to adverse air quality conditions;
    - implementing a daily site-specific meteorological forecast system which enables operations to be adjusted during adverse conditions;
    - reviewing air quality impact modelling and management procedures prior to implementing mobile crushing operations in the final phase of quarry operations in the East Pit; and
    - continuing to engage with near residents throughout the life of the Project regarding any air quality or other operational concerns and, where reasonable and feasible, altering management practices to reduce adverse impacts.

178. Following its review of the amended Project, EPA requested further consideration of proposed air quality mitigation and management measures to minimise air quality impacts. Daracon completed a detailed review of best practice dust control measures and documented the findings of the review

in the Submissions Report. EPA subsequently indicated that Daracon's proposed management and mitigation measures were appropriate and were recommended to be incorporated into conditions of consent. The Department has adopted EPA's recommendations and incorporated the proposed management and mitigation measures into the recommended conditions of consent. The Department has recommended that these measures form part of an Air Quality Management Plan, to be prepared and implemented prior to the commencement of construction. Subject to these conditions, the Department considers that the air quality aspects of the Project are acceptable.

### Summary

179. One exceedance of the EPA's cumulative 24-hour PM10 air quality assessment criterion is predicted at receptor R1 in Year 20 of operations. The Department and EPA accept that this exceedance could be eliminated through the implementation of Daracon's proposed proactive and reactive air quality management system.

180. No other exceedances have been predicted at any sensitive receiver locations. Daracon has also proposed a comprehensive suite of best practice mitigation and management measures to minimise the air quality impacts of the development. The Department's recommended conditions include a requirement for these measures to be incorporated into an Air Quality Management Plan for the Project. On this basis, the Department considers the air quality impacts of the Project are acceptable.

## 6.4 Social

### Introduction

181. Issues relating to social impacts were raised in 388 submissions. Submitters expressed concerns that the Project would impact the rural amenity and historical character of the local area, including within the village of Paterson and in Bolwarra Heights. They also raised issues related to the Project's impacts on the sense of community and social cohesion experienced by residents. The operation of heavy vehicles along the primary haulage route, and the resultant disruptions to daily living and movement patterns of residents, was a recurring issue raised in submissions.

182. Daracon commissioned a Social Impact Assessment (SIA) (Umwelt, 2021). The SIA was prepared in accordance with the Department's Social Impact Assessment Guideline for State Significant Mining, Petroleum Production and Extractive Industry Development (the SIA Guideline). It was informed by an SIA engagement program which involved approximately 285 stakeholders and employed a variety of engagement mechanisms, including personal interviews and telephone engagement, collaborative assessment forums, project briefings, online surveys, community information sheets, and an interactive online 'Social Pinpoint' page. These measures afforded Daracon the opportunity to identify perceived social issues, provide feedback on proposed Project refinements and assessment outcomes, and identify suitable mitigation and management strategies.

183. A review of the SIA was commissioned by the Martin's Creek Quarry Action Group. The review was undertaken by Dr Hedda Haugen Askland of the University of Newcastle's Centre for Social Research and Regional Futures and Dr Louise Askew, who has extensive experience working in social impact assessment for large scale developments. The review raised concerns about what

was used to predict social impacts and whether the 'lived experiences' of the local community during previous unlawful operation of the quarry had been properly considered. As a result, the social impacts may have underestimated the significance of the social impacts of the Project.

184. The Department acknowledges that social impacts are difficult to accurately predict the nature and scale of social impacts, particularly in relation to intangible aspects. Nevertheless, the Department's in-house social impact assessment experts completed a detailed review of the SIA and found that the SIA was based on a thorough, inclusive, and meaningful community and stakeholder engagement program, which represented leading practice in social impact assessment. It also found that it was completed with due consideration of the guiding principles set out in the SIA Guideline.

### Social impacts

185. The Department recognises that many of the social impacts from the Project are related to traffic, air quality, noise, and other environmental impacts that have been assessed separately in accordance with relevant legislation and government policy (see **Sections 6.1** – **6.3** and Section 6.8). Notwithstanding these separate assessments, the SIA identified the following, somewhat less tangible, residual social impacts as the most significant, following application of Daracon's proposed mitigation and management strategies:

- **Traffic:** loss of social amenity associated directly with trucks and other traffic movements, due largely to the existing and future volumes of trucks and other traffic movements and flow-on effects such as increases in noise, changes to air quality, impacts on local road infrastructure and potential for accidental interactions with residents (i.e. community safety). The people most affected live in the community of Paterson, as well as those living adjacent to the primary haulage route;
- **Amenity:** loss of social amenity due to air quality, noise and vibration and blasting from onsite quarrying operations. The people most affected are the near neighbours in Martins Creek;
- **Sense of community and character:** loss of sense of community, including the rural amenity and character of the locality due to truck movements and onsite activities. The people most affected are in the community of Paterson;
- **Community trust:** loss of trust in decision-making processes involving Daracon and associated engagement activities. The Project has galvanised and facilitated establishment of a number of community action groups with members who reside near the quarry and in the communities along the primary haulage route;
- **Property:** property damage and property price impacts as a result of blasting and vibration and other local amenity issues. The people most affected are the near neighbours as well as those who reside or have businesses along the primary haulage route; and
- **Health:** impacts to the health and wellbeing of some community members due to increased stress and anxiety.

### Mitigation and management

186. Daracon has proposed a range of mitigation and management strategies to address the identified social impacts of the Project. These measures are additional to those proposed to mitigate the traffic, air quality, noise, and other impacts, and include:

- **Financial and economic contributions**, including:
  - development and implementation of a Community Contributions and Sponsorship Program;
  - payment of financial contributions to DSC and MCC; and
  - continuing to employ and procure from local sources to enhance the local economic benefits of the Project;
- **Ongoing community engagement**, including:
  - development and implementation of a Community Engagement Strategy that improves accessibility to information and targets identified community concerns;
  - re-establishment of a Community Consultative Committee (CCC) for the Project; and
  - employing a dedicated Community Liaison Representative to manage ongoing community engagement associated with the Project and Daracon's monitoring and management commitments relating to social and environmental impacts.

187. The Department notes that Dr Askland and Dr Askew's review recommended that more targeted and measurable mitigation and management strategies be considered that directly address the identified social impacts and views of the community.

188. The Department agrees that ongoing monitoring of social impacts is warranted and has recommended a comprehensive set of conditions of consent requiring Daracon to prepare and implement a Social Impact Management Plan (SIMP) in consultation with DSC, local affected communities, and other key stakeholders. The Department's recommended conditions, developed in accordance with the SIA Guideline and representing leading practice in social impact management, would require the SIMP to include:

- measures to avoid, minimise and mitigate the negative social impacts associated with the Project, including specific measures to minimise stress-related impacts;
- measures to enhance the Project's positive impacts, by detailing opportunities to support community services and facilities; and
- a stakeholder engagement strategy to evaluate and implement social management and mitigation measures over the life of the Project.

189. Additionally, the Department has recommended the establishment of a CCC in accordance with the Department's *Community Consultative Committee Guidelines: State Significant Projects* (2019), as well as a requirement to regularly publish relevant documentation on Daracon's website, and a community hotline and complaints register.

190. The Department considers that with the implementation of the mitigation measures proposed by Daracon in respect of the various social impacts and the application of the Department's recommended conditions, the extent of actual and perceived social impacts could be appropriately

managed. Overall, the Department considers that with these measures in place (coupled with the management measures proposed in respect of traffic and transport impacts, noise impacts, blasting impacts and air quality impacts) the Project would not significantly impact the local community.

### Summary

191. The Department considers that the SIA has assessed the social costs and benefits of the Project in significant and sufficient detail and represents leading practice in social impact assessment. The Department has also proposed a comprehensive set of conditions developed with detailed consideration of the SIA Guideline to better manage residual social impacts.

## 6.5 Water resources

### Introduction

192. Impacts to water resources were raised as an issue in 27 objecting submissions. The Department considers that the key issues related to water resources are:

- **Surface water**: discharge of water from sediment dams to downstream waters and potential impacts on water quality and hydrology;
- **Groundwater:** groundwater inflows into the pit due to increasing extraction depth, with consequent requirements for management of excess pit water, water licensing and increased groundwater drawdown around the quarry; and
- **Final voids:** hydrological impacts associated with the formation of two final voids in the final rehabilitated landform (which is discussed in **Section 6.7** below).

### Surface water

193. Martins Creek Quarry is located within the catchment of the Paterson River downstream of its confluence with the Allyn River. The Paterson River has a catchment area of approximately 367 $km^2$ and flows in a generally south-easterly direction, before joining the Hunter River approximately 30 km downstream of the quarry. The existing quarry extends across two sub-catchments, both of which drain to the Paterson River via ephemeral streams. Surface water use in this area is regulated under the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*. Irrigators are the dominant surface water users in the vicinity of the quarry.

#### *Water management system*

194. The site's existing water management system comprises:

- three dirty water storage dams that capture runoff from disturbed areas. Water from these dams is either reused on site or discharged from site via licensed discharge points (LDPs);
- a water holding dam that is used to treat dirty water prior to discharge from the site; and
- a network of interconnected pipes, pumps and water treatment equipment.

195. Water is discharged from the site to one first and one third order stream via three LDPs (LDP6, LDP7 and LDP8). These LDPs are regulated under the site's EPL.

196. Water for the site's amenities purposes is supplied via a tank connected to Hunter Water's potable water supply and gravity fed to the amenity buildings. Amenities wastewater is collected in a tank and periodically removed from the site by a licensed contractor.

197. The existing water management system would be modified over the life of the Project to incorporate additional upslope catchment associated with the extended open cut pit, an additional pit sump in the East Pit and associated pumps and pipes. The expansion of the West Pit to the north would lead to additional pit inflows from previously undisturbed catchment during the life of the Project (see **Figure 6-7**). This would lead to changes in required dirty water storage capacity and the site's water balance. The capacity of dirty water storage dam SD2 would be expanded to meet the relevant design criteria set out in *Managing Urban Stormwater: Soils and construction – Volume 2E Mines and Quarries* (the Blue Book Volume 2E) (DECC 2008).

### *Site water balance*

198. Site water would be required for product processing, dust suppression, plant maintenance, vehicle, and machinery washdown and concrete batching. The predicted site water balance for the Project under wet, median and dry conditions is summarised in **Table 6-11**.

**Table 6-11 |** Predicted site water balance summary

| Operational Year | Site Water Balance (ML/year) | | |
|---|---|---|---|
| | Dry (10th percentile rainfall) | Median (50th percentile rainfall) | Wet (90th percentile rainfall) |
| Currently approved operations | 9.4 | 105.6 | 201.2 |
| Year 15 (first design stage with maximum production (1.1 Mtpa) and maximum water demands) | -22.7 | 95.5 | 218.4 |
| Year 20 (maximum extent of quarry water management system with production of 1.05 Mtpa) | -29.0 | 89.6 | 214.4 |

199. The Surface Water Impact Assessment (SWIA) predicts that the Project would operate with a water surplus in median and wet years and with a water deficit in dry years (see **Table 6-11**). The water surplus in median and wet years would be partially offset by increased operational demands for processing and dust suppression.

200. Potable water importation for site amenities use would also increase in response to increased operational demands. The predicted minimum, average and maximum potable water use for the approved operations, and Year 15 and Year 20 of the Project is presented in **Table 6-12**.

**Table 6-12 |** Predicted potable water use

| Operational Year | Potable Water Use (ML/year) | | |
|---|---|---|---|
| | Min | Avg | Max |
| Currently approved operations | 24.1 | 35.8 | 51.7 |

| Operational Year | Potable Water Use (ML/year) | | |
|---|---|---|---|
| | Min | Avg | Max |
| Year 15 (first design stage with maximum production (1.1 Mtpa) and maximum water demands) | 62.6 | 76.9 | 96.3 |
| Year 20 (maximum extent of quarry water management system with production of 1.05 Mtpa) | 58.9 | 76.1 | 99.4 |

201. The Department is satisfied that there would be sufficient water available for the proposed operations under most climatic conditions and that any shortfalls could be partially offset through either increased potable water importation or modified operations. Daracon has also committed to developing a potable water use reduction strategy within 12 months of consent. This would increase demand for stormwater captured in the quarry water management system to replace potable usage, thereby reducing the need for potable water importation under surplus conditions. The Department has also recommended its standard condition for extractive industry projects which requires Daracon to adjust the scale of quarrying operations to match its available water supply to ensure adequate environmental protection is achievable at all times.

202. The SWIA predicts that, during average and high rainfall years, the volume of controlled discharges and the average number of days when controlled discharges would be required would increase by 29% and 55% respectively, compared to currently approved operations. During Year 15 and Year 20, approximately 62% and 63% (respectively) of average additional runoff captured on site would be returned to the downstream environment via controlled discharges.

203. The SWIA predicts that, under median and high rainfall conditions, there would be uncontrolled discharges from Dam 1 and Dam 2, but that their frequency and magnitude would be slightly reduced when compared to the approved operations (refer to **Table 6-13**). The predicted frequency of uncontrolled discharges from Dam 1 and Dam 2 is consistent with the expected frequency indicated in the Blue Book Volume 2E for sediment basins sized for a 90$^{th}$ percentile 5-day rainfall event (i.e. 2 to 4 spills per year). The Department, EPA and BCD are satisfied that the proposed dirty water management system, including the sizing of dams, is consistent with the requirements set out in the Blue Book Volume 2E, and is therefore acceptable.

**Table 6-13 |** Predicted uncontrolled discharges

| Operational Year | Volume (ML/year) | | | Frequency (discharges/year) | | |
|---|---|---|---|---|---|---|
| | Min | Avg | Max | Min | Avg | Max |
| Currently approved operations | 0 | 7.9 | 62.0 | 0 | 2 | 6 |
| Year 15 | 0 | 6.4 | 59.6 | 0 | 1 | 4 |
| Year 20 | 0 | 6.4 | 59.7 | 0 | 1 | 4 |

### *Stream flow / hydrology*

204. The Project would capture additional runoff due to the interception of ephemeral streams and their associated catchments to the north and north-east of the existing West Pit (see **Figure 6-7**). This

would increase the volumes and frequencies of discharges from the quarry and decrease natural flows downstream of the intercepted waterways.

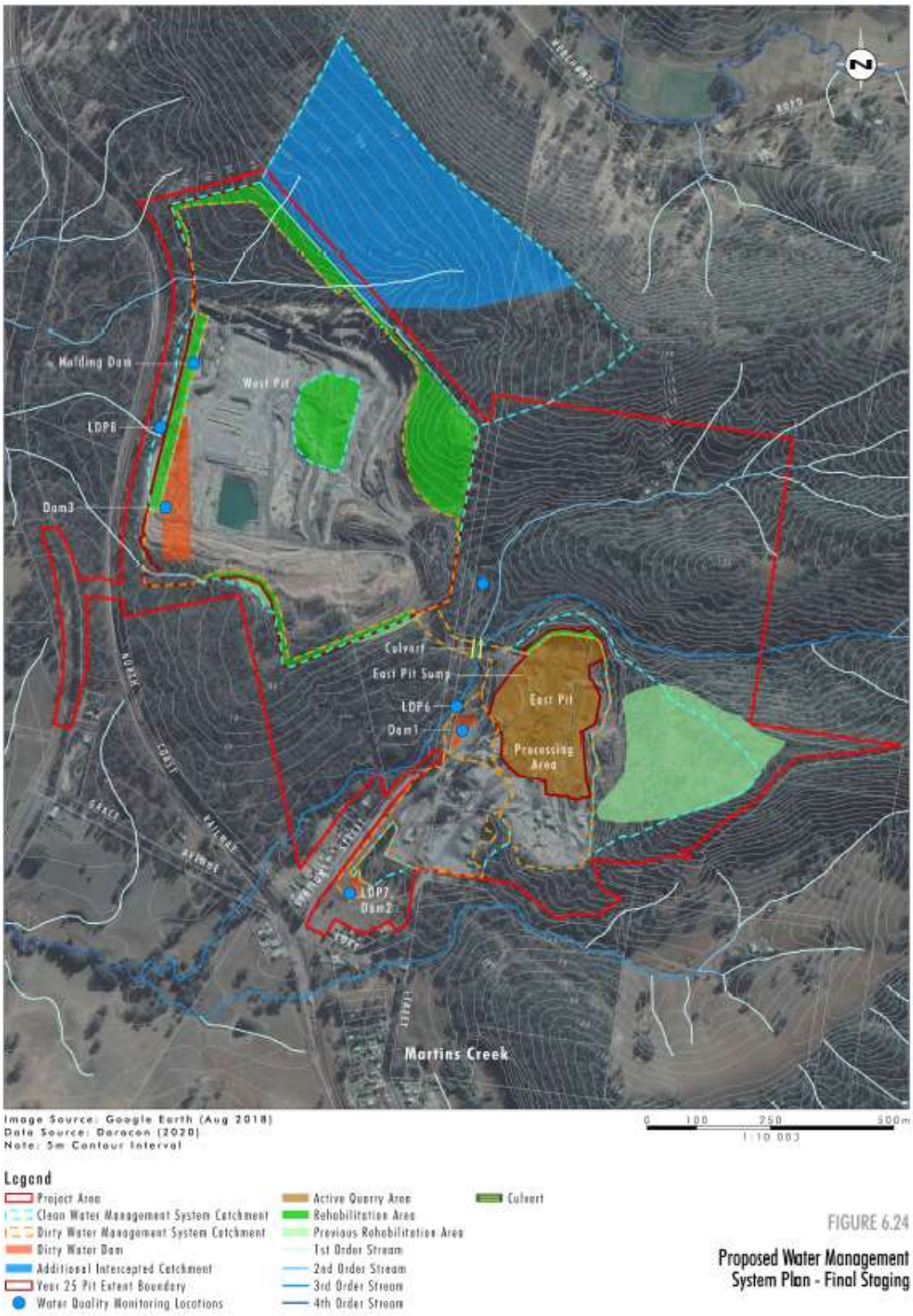


**Figure 6-7** Proposed site water management system

205. The SWIA predicts that the average number of discharge days would increase from approximately 60 to 93 days per year and the average discharged volume would increase from 140 ML to 170ML per year. The duration of discharges from LDP 8 would also increase due to the increase in catchment area draining to the West Pit. Discharges at LDP 8 exceeding 1 ML per day would

increase from approximately 22% to approximately 30% of the time at this location. Notwithstanding this increase in the frequency of flows, the instantaneous discharge flow rates would remain unchanged from existing operations, and well below the flow rates typically experienced during large rainfall events. Furthermore, the reaches of the watercourses downstream of the existing LDPs have been subject to altered flow regimes during the historical operations of the quarry. Consequently, the Department considers that discharges from the Project are unlikely to have a significant impact on downstream stream stability or riparian health.

206. The Department also acknowledges that Daracon's ability to divert upstream runoff around the West Pit is constrained by the topography of the area and the need to clear additional remnant vegetation to construct the necessary diversion drains. The Department also recognises that there may be some impacts to the riparian health of the ephemeral streams that would be intercepted by the northward expansion of the West Pit. However, any loss of downstream surface water flow would be limited due to the relatively small upstream catchments, which form the headwaters of relatively small first order streams. On this basis, the Department considers that impacts to stream flow due to the northward expansion of the West Pit are unlikely to result in a material impact to the flow regime of the receiving waterways and are acceptable.

207. At the request of BCD, Daracon has also undertaken a baseline survey of the riparian conditions and stream stability in the reaches of the streams receiving discharges from LDP 6 and LDP 8 as well as the unimpacted stream sections downstream of the West Pit. The Department's recommended conditions would also require the baseline stream conditions, together with an ongoing riparian monitoring and response plan to be documented in a Water Management Plan (WMP) for the Project. The WMP would need to be prepared in consultation with BCD and DPE Water and to the satisfaction of the Secretary prior to the commencement of operations. On this basis, the Department considers that impacts to stream flow and hydrology from the Project are acceptable, subject to the recommended conditions.

### *Surface water quality*

208. The Project has the potential to impact downstream receiving waters through increased sediment loads, salinity and other pollutants. Daracon proposes to manage surface water by capturing dirty water runoff in dirty water dams, treating the captured water to meet relevant water quality criteria, reusing captured water for quarry operations and discharging water surpluses via the existing LDPs in accordance with the site's EPL. All dirty water dams would be designed and constructed to the appropriate design criterion required by the Blue Book Volume 2E.

209. Water quality sampling undertaken by Daracon indicates that the risk of water quality impacts to downstream receiving waters from fluctuations in physico-chemical parameters or hydrocarbon contaminants within discharges would be negligible. While concentrations of several dissolved metal species were slightly above the ANZG 2018 default guideline values (DGVs) for 95% species protection (typically applied as DGVs for slightly to moderately disturbed ecosystems), the risk of adverse impacts to receiving waters remains very low. Notwithstanding this risk, Daracon has also committed to undertake additional monitoring of physico-chemical parameters and metals in site water and at upstream and downstream locations, in consultation with the EPA, to inform ongoing monitoring and management requirements.

210. The EPA has indicated that it considers water quality risks are low and that Daracon's proposed monitoring and management approach is appropriate. On this basis, the Department considers the proposed water quality impacts from the Project are acceptable.

### *Surface water licensing*

211. Under the *Water Management Act 2000* (WM Act), Daracon is required to hold a surface water access licence (WAL) for the interception of surface water flows within the Paterson/Allyn Rivers Water Source in accordance with the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*. The Project is expected to require up to 84.6 ML per year of licensed surface water entitlements. Daracon has committed to obtaining the required licensed surface water entitlements for the Project. The Department and DPE Water are satisfied that there is adequate capacity within the water market for the necessary entitlements to be obtained for the Project.

## Groundwater

212. A Groundwater Impact Assessment (GIA) was prepared by Australasian Groundwater and Environmental Consultants (AGE) in accordance with relevant NSW water planning policies and guidelines, including the *NSW Aquifer Interference Policy* (AIP) (NOW, 2012).

213. Groundwater resources at the site are regulated under the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources*. Under this water sharing plan, the quarry is located within the New England Fold Belt Coast Groundwater Source. Within a 5 km radius of the quarry, there are seven licensed groundwater bores, of which three are actively used for water supply. The nearest licensed groundwater bore is located approximately 1 km from the existing quarry.

214. A conceptual groundwater model for the quarry is presented in **Figure 6-8**. Groundwater levels across the extraction area range between approximately 80 metres Australian Height Datum (mAHD) in the north-east and approximately 35 mAHD in the south-west of the site, fluctuating in response to rainfall or discharge to the extraction area. Groundwater quality at the quarry is highly variable, ranging from fresh (849 µS/cm EC) to brackish (3,702 µS/cm EC), and with pH ranging from 6.93 to 7.36. Groundwater depth and flow direction generally reflects the surface topography, with flow generally to the south and south west towards the alluvium associated with the Paterson River. The aquifer underlying the quarry has limited use as a water supply source, evidenced by the variable water quality, low porosity of the igneous strata and lack of licensed bores in the vicinity of the quarry. The groundwater source is characterised as a 'less productive groundwater source'.

215. There are no 'high priority' Groundwater Dependent Ecosystems (GDEs, see **Section 6.6**) as identified in NSW Government water sharing plans in proximity to the quarry.

### *Groundwater licensing*

216. Daracon holds Licence 20BL173933, originally issued under Section 115 of the *Water Act* 1912, to extract up to 33 ML annually. This licence has not been converted to a water access licence under the WM Act and is not subject to a water sharing plan. The Department and DPE Water considers that, based on the GIA's predicted seepage rates, Daracon already holds adequate licensed groundwater entitlement for the Project.

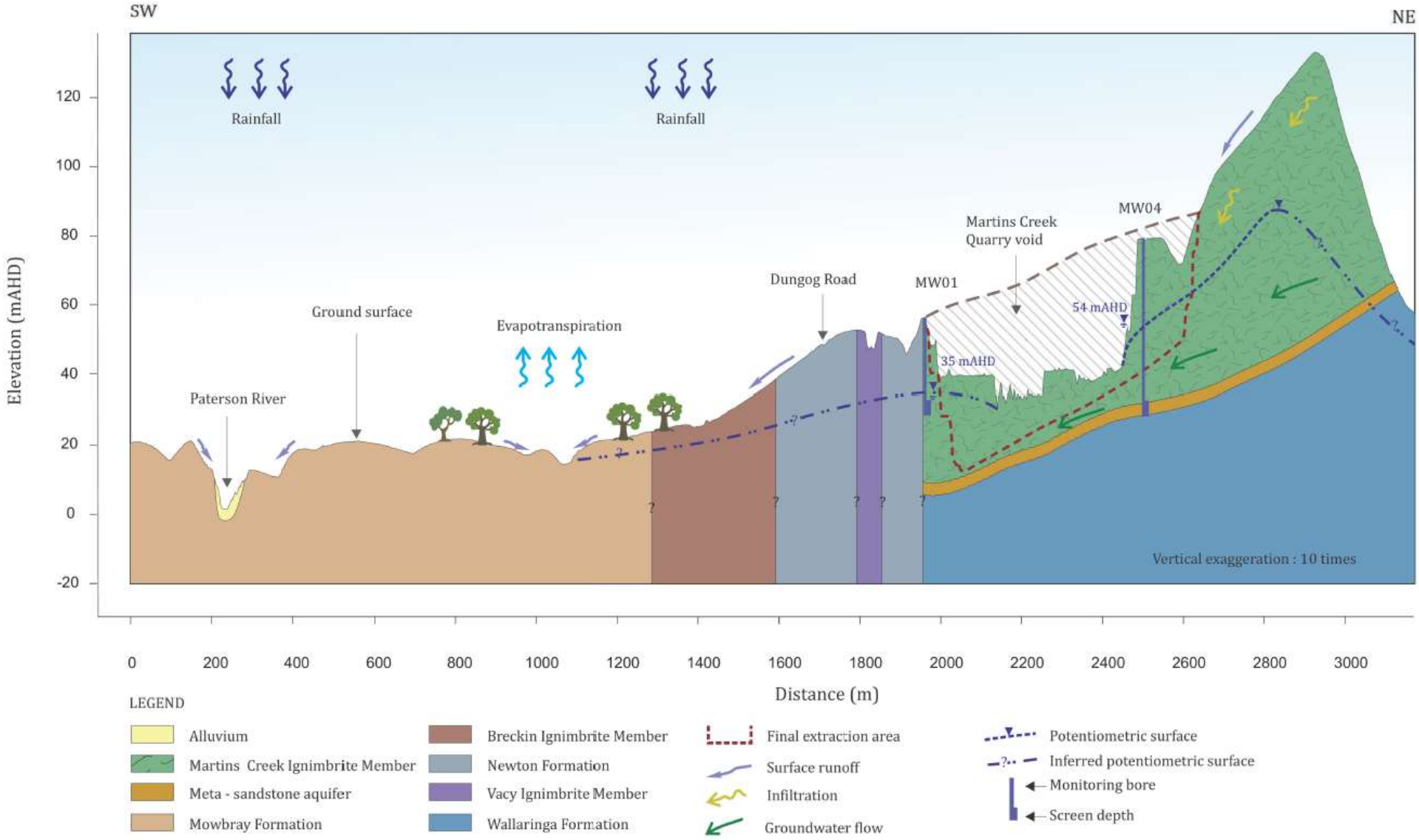


**Figure 6-8** Conceptual Groundwater Model

### *Predicted groundwater impacts*

217. The GIA estimates that groundwater seepage rates (assuming a dry year with a high gradient, or a wet year with a low gradient) range from 5.7 ML per year to 22.4 ML per year in the West Pit, and from 6.2 ML per year to 8.2 ML per year in the East Pit.

218. These estimates indicate that the Project is likely to cause localised groundwater drawdown only, with a magnitude of approximately 2 m/year, capped at the elevation of the deepest pit floor (about 13 mAHD), and extending for a lateral distance of approximately 250 m upgradient and 500 m downgradient of the quarry. More widespread drawdown impacts on the aquifer are not expected. Further, given that the elevation of the quarry is approximately 100 m higher than the Paterson River, potential drawdown impacts to the Paterson River alluvium are considered extremely unlikely.

219. No impacts on any registered bores or GDEs are expected from the Project.

220. An assessment of the Project's predicted groundwater impacts against the Level 1 minimal impact considerations specified for 'less productive' aquifers under the AIP is provided in **Table 6-14**. As shown, the predicted impacts are less than the Level 1 minimal impact considerations. Accordingly, the Department considers these impacts acceptable.

**Table 6-14 |** Assessment against Level 1 minimal impact considerations under the AIP

| Parameter | Minimal Impact Consideration | Assessment |
|---|---|---|
| Water Table | Less than or equal to a 10% cumulative variation in the water table, allowing for typical climatic 'post water sharing plan' variations, 40 m from any:<br>• high priority GDE; or<br>• high priority culturally significant site listed in the schedule of the relevant water sharing plan; or<br>• a maximum of a 2 m water table decline cumulative at any water supply work unless make good provisions apply. | No impact |
| Water Quality | Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity. No increase of more than 1% per activity in the long-term average salinity in a highly connected surface water source at the nearest point to the activity. | No impact |

## Monitoring and management

221. Daracon has proposed a series of measures to mitigate and manage the Project's impacts to water resources. These include:

- **Potable water reductions:** developing a potable water use reduction strategy within 12 months.
- **Surface water management improvements**: upgrading the surface water management system to meet all relevant design criteria set out in the Blue Book Volume 2E.
- **Water Management Plan:** preparing and implementing a WMP in consultation with BCD and DPE Water, which would include baseline data, performance criteria, triggers, monitoring requirements, and investigation, notification, reporting and review protocols for managing impacts to water resources. It would also include a riparian condition monitoring

program and TARP to manage potential impacts to stream stability and riparian condition immediately downstream of the quarry.

- **Water licensing**: ensuring adequate licensed surface water and groundwater entitlements are held for all stages of the Project, including following the completion of extraction.

### Summary

222. The Department notes that the predicted groundwater impacts of the Project are largely unavoidable due to the location of the resource within a hard rock aquifer. However, predicted impacts would be very localised and limited to a 'less productive' aquifer. The predicted impacts are less than the Level 1 minimal impact considerations set out in the AIP. Accordingly, the Department considers these impacts acceptable.

223. The Department considers that the Project would not lead to significant surface water impacts, beyond those already experienced during development of the current quarry, subject to the implementation of the mitigation and management measures that Daracon has proposed and the Department's recommended performance measures and other conditions. With the measures proposed by Daracon and the performance measures and conditions recommended by the Department, the Department considers that the risks of impact to surface water and groundwater resources are low and that the Project could be suitably managed.

## 6.6 Biodiversity

### Introduction

224. The existing quarry has a disturbance footprint of 48.6 hectares (ha). Approximately 21 ha of native vegetation would be cleared under the Project (including approximately 3.7 ha of regrowth in the existing disturbance footprint) leading to a total disturbance footprint of 66 ha.

225. Potential biodiversity impacts from the Project include loss of native vegetation and fauna habitats, habitat fragmentation or isolation, altered hydrology regimes and the potential incremental decline in quality and extent of habitat during construction and operation.

226. A total of 228 submissions raised impacts on biodiversity as a concern. Biodiversity-related issues were primarily focused on potential impacts to threatened flora and fauna from loss of habitat caused by the proposed removal of vegetation.

227. A Biodiversity Assessment Report (BAR; Conacher Consulting 2021) was prepared in accordance with the *NSW Framework for Biodiversity Assessment – NSW Biodiversity Offsets Policy for Major Projects* (FBA), and *the Commonwealth's Guidelines for preparing Assessment Documentation* relevant to the EPBC Act. A Biodiversity Offset Strategy was also prepared, which set out Daracon's proposed approach for offsetting the Project's identified biodiversity impacts.

228. BCD initially raised some issues regarding Daracon's assessment of biodiversity impacts and requested further information regarding the BAR. Daracon provided responses to BCD's requests in its final Submissions Report and additional information (see **Appendix C** and **Appendix D**). BCD subsequently confirmed that its comments on biodiversity issues had been adequately addressed and made recommendations for conditions of consent.

229. The Department and BCD are both satisfied that the BAR and additional information have been prepared in accordance with relevant guidelines and policies and are adequate for assessing the biodiversity impacts and offsetting requirements for the Project.

### Assessment of biodiversity impacts

230. Four Plant Community Types (PCTs) were identified within the proposed disturbance area (refer to **Figure 6-9**). One of these PCTs (HU 798) also meets the definition of the *Lower Hunter Valley Dry Rainforest in the Sydney Basin and NSW North Coast Bioregions ecological community*, which is listed as Vulnerable under the *Biodiversity Conservation Act* 2016 (BC Act). All four PCTs provide habitat for threatened species and generate ecosystem-credits that would require offsetting.

231. They also provide habitat for three species-credit threatened fauna species, being:

- Brush-Tailed Phascogale (*Phascogale tapoatafa*);
- Southern Myotis (*Myotis Macropus*); and
- Koala (*Phascolarctos cinereus*).

232. One species-credit threatened flora species, Slaty Red Gum (*Eucalyptus glaucina*), was also identified within the proposed disturbance area.

233. The extent of impacts from the Project on vegetation communities and the associated biodiversity credits required to offset these impacts in accordance with the FBA are presented in **Table 6-15**.

**Table 6-15 |** Biodiversity impacts of the Project

| Ecological Feature | | Listing status | Area Impacted (ha) | Impact Credits Generated |
|---|---|---|---|---|
| **Plant Community Type** | **Corresponding EEC** | | | |
| HU 619 Slaty Red Gum grassy woodland on hinterland foothills of the southern North Coast | - | Not listed | 13.43 | 830 |
| HU 755 Whalebone Tree - Red Kamala dry subtropical rainforest of the lower Hunter | - | Not listed | 2.22 | 166 |
| HU 798 White Mahogany - Spotted Gum - Grey Myrtle semi mesic shrubby open forest of the central and lower Hunter Valley | Lower Hunter Valley Dry Rainforest in the Sydney Basin and NSW North Coast Bioregions | V - BC Act | 3.33 | 249 |
| HU 816 Spotted Gum - Narrow-leaved Ironbark shrub-grass open forest of the Central and Lower Hunter | - | Not listed | 2.15 | 166 |
| **Species Credit Species** | | | | |

| Ecological Feature | Listing status | Area Impacted (ha) | Impact Credits Generated |
|---|---|---|---|
| *Eucalyptus glaucina* (Slaty Red Gum) | V – BC Act<br>V – EPBC Act | 2887 individuals over 13.43 ha | 40,418 |
| *Myotis Macropus* (Southern Myotis) | V – BC Act | 13.80 | 304 |
| *Phascogale tapoatafa* (Brush-tailed Phascogale) | V – BC Act | 21.13 | 423 |
| *Phascolarctos cinereus* (Koala) | E - BC Act<br>E – EPBC Act | 21.13 | 549 |

Note: V = Vulnerable, E = Endangered

## Avoidance and mitigation

234. The Department considers that biodiversity impacts have been adequately avoided by minimising disturbance where practicable and maximising the use of existing disturbed areas. Through refinement of the project design, Daracon has reduced clearing of native vegetation by approximately 15.3 ha when compared with the original Project. The Department acknowledges further opportunities to avoid biodiversity impacts are limited due to the location of the rock resource beneath a forested landscape.

235. Daracon has also committed to mitigating impacts on biodiversity by:

- fencing adjoining areas of Koala habitat not approved for removal;
- staff training and site briefing to communicate environmental features to be protected and measures to be implemented;
- inspecting trees to ensure no Koalas are present prior to vegetation clearing;
- relocating fauna in hollow-bearing trees to adjoining habitat prior to vegetation clearing; and
- preparing and implementing a Biodiversity and Rehabilitation Management Plan (BRMP) that:
    - describes the proposed short, medium, and long-term objectives and measures to implement the Biodiversity Offset Strategy, retain and manage remnant vegetation and fauna habitat, and rehabilitate the site;
    - identifies potential risks to biodiversity and rehabilitation and contingency measures to mitigate the identified risks;
    - includes a monitoring and reporting program and detailed performance and completion criteria for evaluating the performance of biodiversity and rehabilitation management, including triggers for remedial action; and
    - includes a conceptual closure plan for the site.

236. The Department has recommended a condition requiring Daracon to prepare and implement a BRMP that incorporates these mitigation measures, as well as other contemporary biodiversity

management practices. These include a requirement to develop and implement a plan for managing impacts on the resident Koala population.

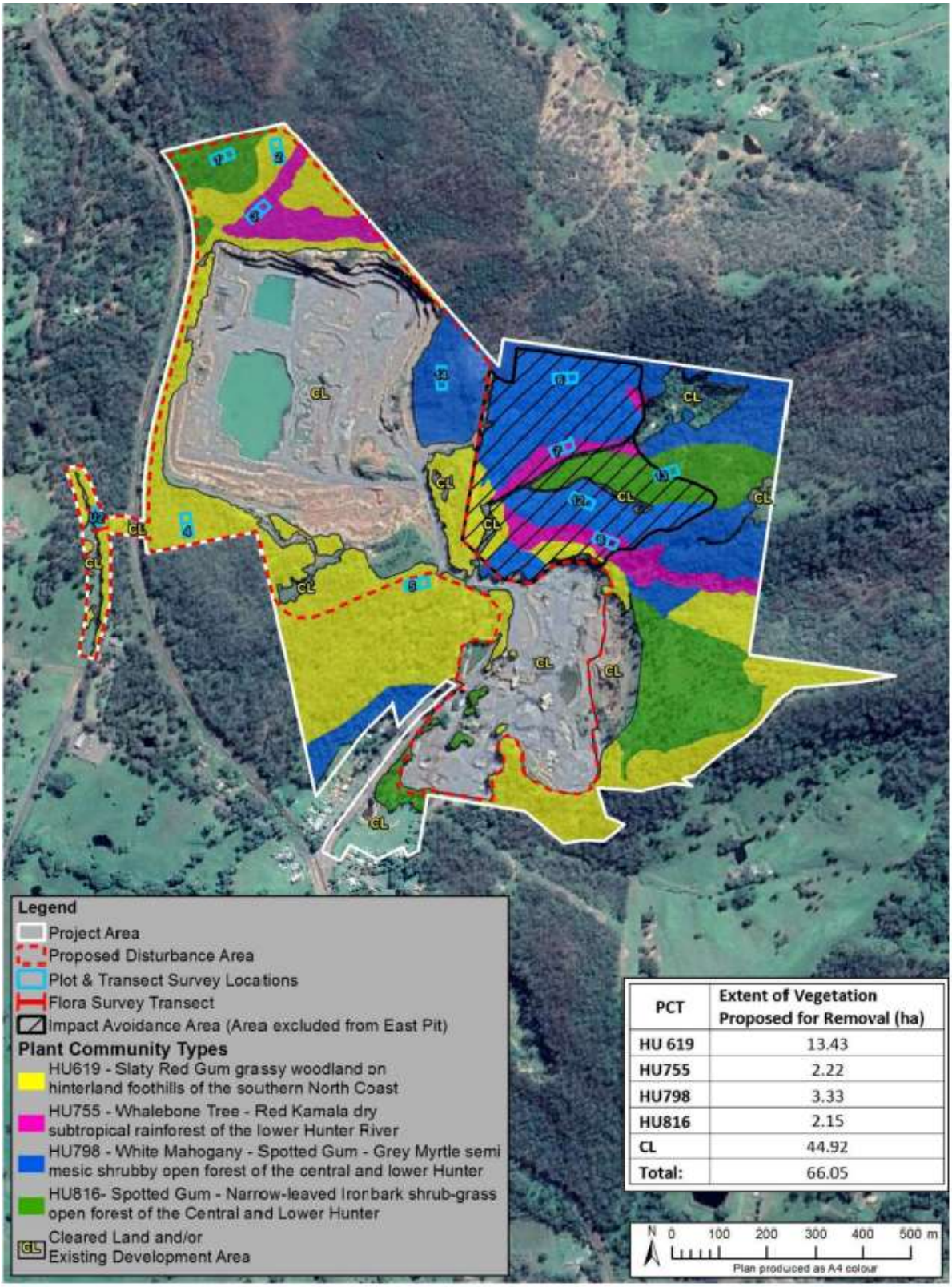


**Figure 6-9** Vegetation communities impacted by the Project

## Offsetting

237. To offset the residual biodiversity impacts of the Project, Daracon proposes to implement a Biodiversity Offset Strategy, including the retirement of:

- 1,411 ecosystem credits for four native plant community types;
- 40,418 *Eucalyptus glaucina* (Slaty Red Gum) species credits;
- 304 *Myotis macropus* (Southern Myotis) species credits;
- 423 *Phascogale tapoatafa* (Brush-tailed Phascogale) species credits; and
- 549 *Phascolarctos cinereus* (Koala) species credits.

238. The Biodiversity Offset Strategy would be further developed in consultation with the BCD, the Biodiversity Conservation Trust (BCT) and the Department and adopt one or more of the following offset options available under the BC Act:

- land-based offsets (determined in accordance with the BAR and the offset rules in the BC Act's regulations) through the establishment of new Biodiversity Stewardship Sites;
- purchasing credits from the market, and/or
- paying into the BCT's Biodiversity Conservation Fund.

239. Daracon has identified several potential land-based offset sites near the quarry site with similar habitat values to the impact areas. Establishing Biodiversity Stewardship Sites over these areas would likely achieve like-for-like offsetting outcomes.

240. The Department considers the proposed offset approach to the acceptable, so long as all credits associated with vegetation removal are retired prior to disturbance.

241. With the commencement of the BC Act on 25 August 2017, the NSW Government released a new Biodiversity Assessment Method (BAM) which replaces the FBA Methodology used for this Project. As a result, the credit requirements identified above may require a mathematical conversion to reasonably equivalent biodiversity credits under the BC Act, so as to facilitate retirement under the new legislation. The Department has included a note in the recommended conditions to reflect the policy arrangement.

## Groundwater dependent ecosystems (GDEs)

242. GDEs are ecosystems which require access to groundwater to meet all or some of their water requirements. The BAR identified several terrestrial GDEs of low, moderate and high potential in the vicinity of the quarry. None of these potential GDEs are 'high priority GDEs'. The BAR concluded, and the Department agrees, that the presence of these 'potential' GDEs in areas where the water table is well over 10 m below ground level indicates that they are unlikely to be dependent on groundwater. Further, there is little evidence to suggest that existing quarry operations have adversely affected the vegetation communities immediately surrounding the quarry area.

243. On this basis, the Department considers that adverse impacts to GDEs due to groundwater drawdown from the Project would be unlikely. Notwithstanding this, clearing of the potential

GDEs has been appropriately captured in the predicted biodiversity impacts shown in **Table 6-15**, and factored into the proposed biodiversity offsets for the Project.

### Biodiversity Matters of National Environmental Significance (MNES)

244. The Project has been declared a 'controlled action' under the EPBC Act due to potentially significant impacts on several EPBC-listed flora and fauna species and habitats. The BAR identified residual significant adverse impacts on two species, namely:

- *Eucalyptus glaucina* (Slaty Red Gum), listed as 'Vulnerable' under the EPBC Act; and
- *Phascolarctos cinereus* (Koala) combined populations of Qld, NSW and the ACT, listed as 'Endangered'[3] under the EPBC Act.

245. In accordance with the Commonwealth-NSW Bilateral Agreement relating to environmental assessment, the Department has assessed the Project's impacts on these species (below). Additional assessment of MNES is provided in **Appendix G**.

246. The BAR identified that the Project would remove 2287 Slaty Red Gum individuals across 13.43 ha. The Commonwealth's Approved Conservation Advice for Slaty Red Gum identifies the main threat to this species as clearing and fragmentation of habitat for development. The regional priority recovery and threat abatement actions for the mitigation of habitat loss, disturbance and modification (DEWHA, 2008) include investigation of formal conservation arrangements such as the use of covenants or conservation agreements. The relevant local priority actions for these impacts include minimisation of adverse impacts from land use at known sites and the protection of populations through development of conservation agreements or covenants.

247. The BAR identified that the Project would remove 21.13 ha of Koala habitat. The revised disturbance footprint for the amended Project has avoided direct impacts to 15.3 ha of Koala habitat when compared to the original Project. The Commonwealth's Approved Conservation Advice for the Koala identifies loss and fragmentation of habitat, vehicle strike and environmental stressors as key threats to the species. Relevant conservation and recovery actions include increased habitat protection, strategic habitat restoration and integration of Koala conservation in policy and statutory land use planning.

248. To offset the impacts to EPBC-listed species, Daracon has committed to investigating options for the establishment of Biodiversity Stewardship Sites over the residual lands surrounding and/or near the quarry, which contain known habitat for Koala and Slaty Red Gum. The credits generated from such Biodiversity Stewardship Sites would be retired to meet the biodiversity credit requirements for the Project. Alternatively, species credit requirements would be met through purchase of credits from the BCT or directly from the market.

249. The Department considers the proposed offset approach to the acceptable, so long as all credits associated with vegetation removal are retired prior to disturbance and 'like-for-like' direct offsets are delivered for impacts to MNES. The Department considers that the offsetting requirements for EPBC-listed species can be met through the proposed 'like-for-like' offsetting measures. The Department has recommended conditions requiring implementation of

[3] EPBC conservation status for Koala was changed from 'Vulnerable' to 'Endangered' on 12 February 2022.

Daracon's Biodiversity Offset Strategy, including a note that offsets for MNES must meet Commonwealth offset requirements.

### Summary

250. The Department considers that the Project has been designed to avoid, mitigate and manage biodiversity impacts where practicable. This has included maximising the use of the existing disturbed area for processing, loading and administrative operations. The revised disturbance footprint has reduced direct impacts to Koala habitat by 15.3 ha when compared to the original Project. However, the Project would result in a range of residual impacts on biodiversity through the disturbance of 21 ha of native vegetation, including one EEC and threatened flora and fauna species listed under either or both the BC Act and EPBC Act.

251. The Department has carefully considered these impacts on biodiversity values and considers that they would be suitability mitigated, managed and/or offset under the proposed Biodiversity Offset Strategy and retirement of ecosystem and species credits in accordance with the BC Act and the EPBC Act. Additionally, the recommended conditions of consent would provide for sound management of retained biodiversity values on the site and assurance to the community and regulatory agencies over the management of residual biodiversity impacts. Overall, the Department considers the impacts of the Project on biodiversity are acceptable, subject to the recommended conditions.

## 6.7 Rehabilitation and final landform

### Introduction

252. Several community members raised concerns regarding Daracon's proposed rehabilitation of the quarry. Key concerns included the apparent uncertainty regarding the timing of rehabilitation activities and the potential for insufficient funds being available to complete the rehabilitation following the completion of quarrying activities.

253. The amended DA included a conceptual rehabilitation and final landform strategy for the Project that described the proposed objectives and processes for rehabilitating the quarry site and the conceptual final landform. The strategy was developed in accordance with the principles of the *Strategic Framework for Mine Closure* (ANZMEC & MCA, 2000).

### Assessment of rehabilitation and final landform

254. Daracon's rehabilitation strategy is focused on creating a 'rural landscape' by progressively rehabilitating the site to create a safe, stable, and non-polluting landform. Revegetation would involve establishing native grassland or exotic pastures in low lying areas and endemic woodland species across the quarry benches above the maximum water level of the pit void lakes. The proposed final land use would be investigated further during detailed closure planning in consultation with DSC and the Project's CCC. The rehabilitation objectives for the Project are summarised in **Table 6-16**.

**Table 6-16 |** Rehabilitation objectives

| Feature | Objective |
|---|---|
| Site (as a whole) | Safe, stable and non-polluting<br>Minimise visual impacts of final landform as far as is reasonable and feasible |
| Surface infrastructure | To be decommissioned and removed, unless relevant regulatory agencies approve as part of Detailed Closure Plan process |
| Bench Quarry Walls | Landscaped and revegetated utilising native tree and understorey species |
| Quarry Pit Floors | Landscaped and revegetated with native flora species and pasture species above the final pit void water levels |
| Rehabilitation and other vegetated land | Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of native endemic species and a landform generally consistent with **Figure 6-10** |
| Community | Ensure public safety<br>Minimise adverse socio-economic effects associated with closure |

255. The final landform would primarily consist of vertical batter face slopes, horizontal benches, flat or gently sloping quarry floor areas, two pit void lakes (the West Pit Void and East Pit Void) and water areas retained for sediment control and hydrological balance purposes (refer to **Figure 6-10** and **Figure 6-11**).

256. The West Pit Void and East Pit Void would eventually fill and spill to the receiving environment. The West Pit Void would have a capacity of approximately 2,890 ML and spill at an elevation of 45 mAHD, while the East Pit Void would have a capacity of approximately 290 ML and spill at 50 mAHD.

257. The West Pit Void would take approximately 22 years to fill after closure before spilling and the East Pit Void would take approximately eight years to fill after closure before spilling. Runoff to the final voids would be from upstream undisturbed catchments and rehabilitated disturbed areas and hard rock surfaces. As such, final void water quality is expected to be similar to that of runoff from the surrounding catchment.

258. Downstream flows would be reduced during the post closure period due to the lack of controlled discharges from the voids. However, given the voids would be in the upstream reaches of small ephemeral streams, any loss of flows and associated impacts to riparian health would be negligible. Further, loss of downstream flows associated with reduced discharges would also occur in the absence of the Project due to the recovery processes associated with the existing voids. While the recovery period associated with the Project would be longer due to the increased void size, the practical effects of reduced discharges over several years would be the same as for the existing operations.

259. Potential adverse impacts on flooding downstream of the pit voids are not expected as the voids would effectively act as on-site detention systems, delaying peak flows to the downstream watercourses. However, once the voids fill, downstream flows during high or prolonged rainfall events are likely to exceed those that would have occurred prior to disturbance of the catchment. Daracon has committed to undertaking a detailed assessment of the likely flows to the receiving streams during design storm events to inform the design of the void spillways and downstream erosion protection measures as part of detailed closure planning.

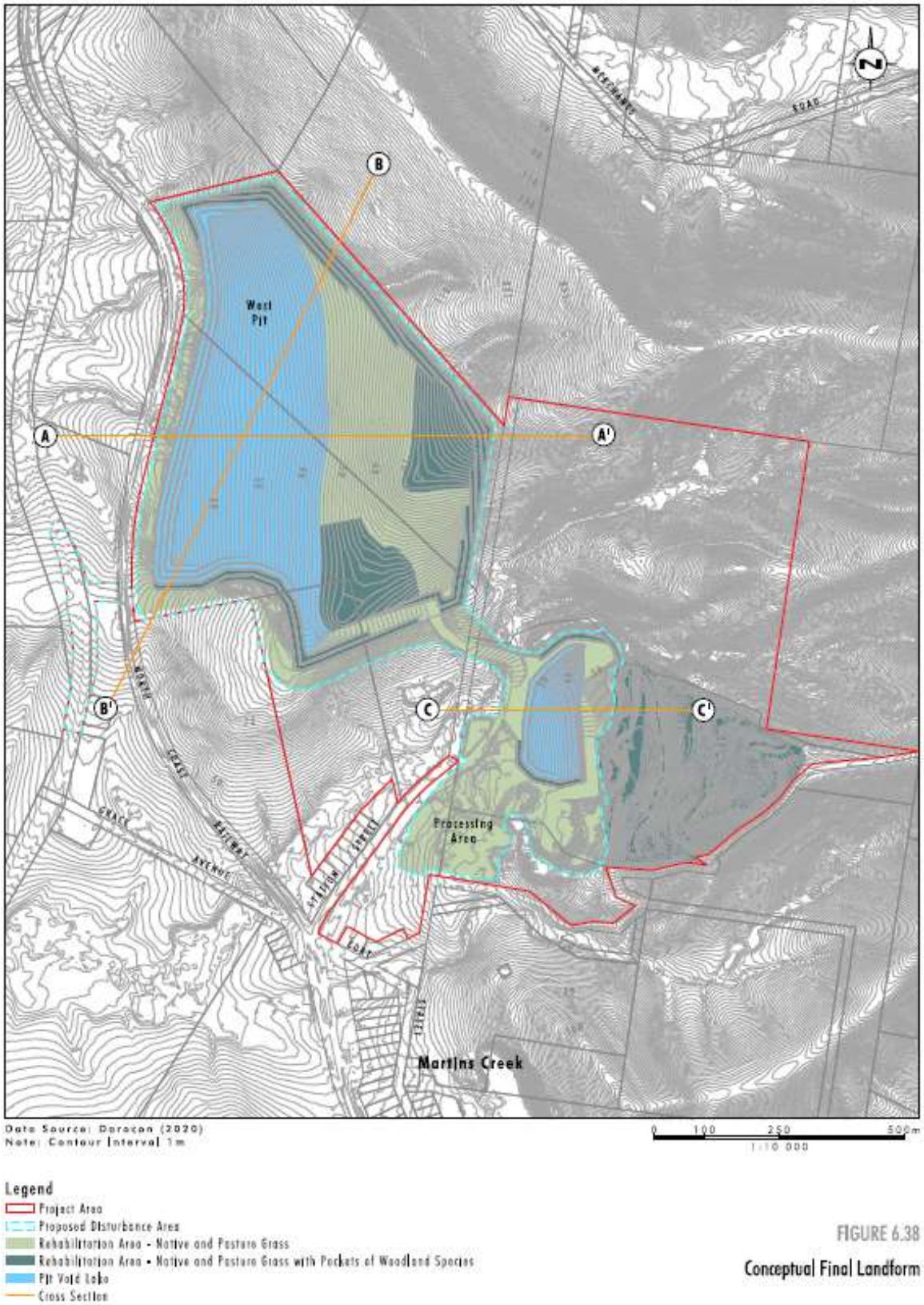


**Figure 6-10** Conceptual final landform

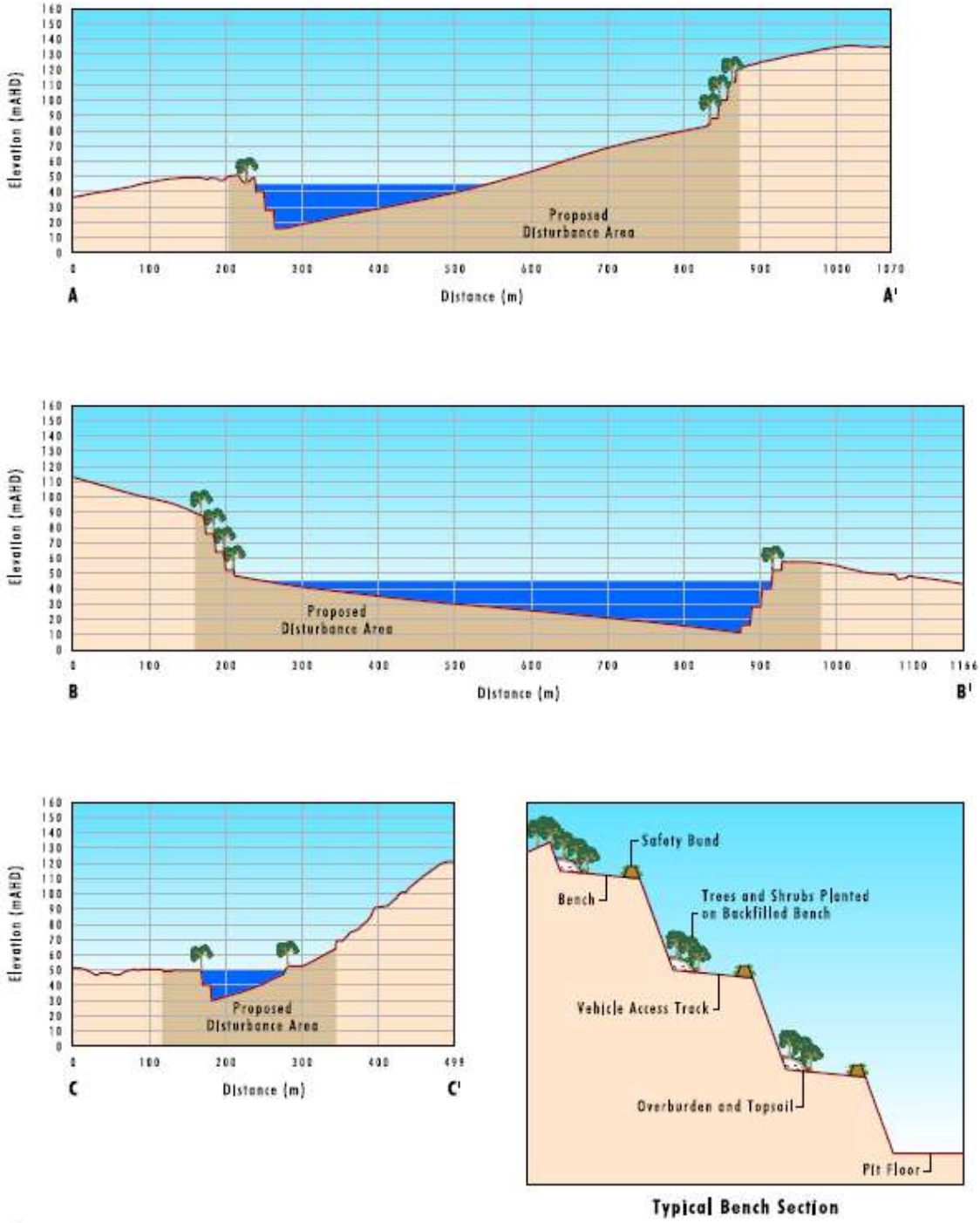


**Figure 6-11** Conceptual final landform cross sections

260. Short to medium term (within approximately two years of any consent) progressive rehabilitation would be undertaken in several areas around the periphery of the currently active quarrying areas in the West Pit and along the bench on the northern side of the rail siding extension in the East Pit. This progressive rehabilitation would continue along the upper benches and other

peripheral areas of the West Pit throughout the life of the Project. Temporary rehabilitation works would also be undertaken within active extraction areas to minimise potential for windblown dust until pit lake levels begin to fill post closure. The Department acknowledges that the timing of rehabilitation would be dependent on the rate of resource extraction in each area and the final levels of the quarry floor.

### Mitigation and management

261. Daracon has committed to developing a conceptual closure plan that would be incorporated into its BRMP for the Project. It has also committed to:

- continuing to investigate potentially feasible final void options as part of preparing a detailed final landform and final void strategy for the Project; and
- developing a Final Void Management Plan as part of a Detailed Closure Plan for the Project, which would be finalised at least two years prior to the cessation of quarrying.

262. In its final advice, BCD recommended that a preliminary rehabilitation design should be developed as a condition of consent. BCD also requested that the rehabilitation design considers the hydrological and hydraulic impacts of including permanent voids in the landscape and includes proposed actions to respond to any decline in riparian health. The Department's recommended conditions require Daracon to develop a conceptual closure plan that includes a preliminary rehabilitation design and TARP for managing downstream riparian impacts, in consultation with BCD, within 12 months of consent.

263. The Department has recommended that Daracon prepare a BRMP that includes a conceptual closure plan and details specific rehabilitation performance and completion criteria, measures to meet these criteria and a program to monitor, review and report on the effectiveness of these measures. This plan would have to be prepared in consultation with BCD, DPE Water and DSC and be submitted to the Department for approval within 12 months of consent. The Department notes that this approach is adopted for other large-scale quarries across the State.

264. Additionally, the Department has recommended conditions requiring Daracon to lodge a rehabilitation bond to ensure accumulated and anticipated costs of rehabilitation are available until rehabilitation (including achievement of all completion criteria) has been completed to the satisfaction of the Secretary.

### Summary

265. Overall, the Department notes that, even if the Project did not proceed, several changes to the landscape would remain as a result of existing operations, including a final void. The Department recognises that the Project would increase the size and depth of the remaining void, however, subject to the recommended conditions, the Department considers that the Project area could be rehabilitated to achieve a sustainable final landform and appropriate rehabilitation outcomes. An SSD consent would also provide greater certainty for the final land use and enable contemporary rehabilitation performance standards and management practices to the applied to the operation. On this basis, the Department considers the proposed rehabilitation and final landform to be acceptable.

## 6.8 Other issues

266. Other issues associated with the Project include economic, greenhouse gas, visual amenity, Aboriginal cultural heritage, historic heritage, blasting, hazard and waste, and cumulative impacts. The Department's assessment of these issues is summarised in **Table 6-17**.

**Table 6-17 |** Other issues considered

| Issue | Recommended Conditions |
|---|---|
| **Economic** | |
| Issues relating to adverse economic impacts were raised in 283 objecting submissions. Several submitters raised concerns that the local community would be subject to all the adverse environmental impacts but relatively minimal economic benefits. Impacts on the local tourism industry and local businesses due to access and parking issues and loss of amenity, mostly from road-haulage-related impacts, were key issues of concern for the community.<br><br>Notwithstanding this, the proposed maximum annual road haulage rate of 500,000 tpa is less than the historical average rate of annual road haulage undertaken for a period of approximately 18 years, dating back to 2002-03. The Department considers that local tourism and other businesses that have operated during this timeframe have been subject to impacts beyond those predicted to be experienced under the Project. Daracon has also responded to community concerns through Project design changes and mitigation measures, including limiting the speed, timing, duration, and rate of road haulage activities, and committing to undertaking several road upgrades along the primary haulage route. With implementation of the proposed mitigation measures, the Department considers that any economic impacts to local tourism and local businesses from the Project are acceptable.<br><br>The Project would provide for approximately 120 construction jobs and approximately 22 full time equivalent employees when the quarry is operating at full capacity.<br><br>The Project is estimated to provide a potential net benefit to NSW of $58 million in net present value (NPV) terms. This net benefit is comprised of $19 and $39 million in direct and indirect benefits respectively. Direct benefits would be realised through direct employment opportunities during construction, operation, decommissioning and closure of the quarry, while indirect benefits would largely be driven by benefits to local suppliers. The Department also recognises that a key economic benefit of the Project would be the continued supply of high-quality construction materials to facilitate housing and infrastructure development in the Hunter, Central Coast and Sydney Regions. | No conditions are recommended. |
| **Greenhouse Gas Emissions (GHGEs)** | |
| The Project would result in the generation of GHGEs through the use of purchased electricity and combustion of fuels associated with machinery, processing equipment and transportation. The Greenhouse Gas Emission Assessment estimated that the Project would generate Scope 1 emissions of approximately 1,600 t CO2-e[4] annually and approximately 39,000 t CO2-e over the life of the quarry. The predicted emissions would contribute approximately 0.0000030% to global emissions annually.<br><br>Over the life of the quarry, the Project would contribute up to approximately 33,000 t CO2-e and 162,000 t CO2-e of Scope 2 and 3 emissions | The Department has recommended conditions requiring Daracon to take all reasonable steps to minimise GHGEs associated with the Project. |

[4] t CO2-e is tonnes of carbon dioxide – equivalent.

| Issue | Recommended Conditions |
|---|---|
| respectively. Most Scope 3 emissions would be associated with product transport.<br><br>Daracon proposes to minimise GHGEs by implementing energy efficiency initiatives, optimising productivity, undertaking effective maintenance of plant and equipment and considering new technologies as they become available. The Department considers that the GHGE impacts of the Project are minor and can be managed to acceptable standards. | |
| **Visual amenity** | |
| Daracon provided a visual analysis as part of the amended DA (Umwelt, 2021) that built on the findings of the Landscape and Visual Impact Assessment (LVIA) prepared for the original Project (Moir, 2016). The LVIA and subsequent updated visual analysis assessed the likely impacts of the development on private landowners in the vicinity of the quarry site and key vantage points in the public domain. These studies assessed the visual impacts through digital terrain modelling, view shed analysis and photomontages. They considered 16 viewpoints surrounding the quarry.<br><br>The visual assessment found that views of the existing quarry are limited to the west, from residential properties along Station Street and from elevated locations along Gresford Road. These views are typically filtered by vegetation or undulating topography.<br><br>The primary visual impact of the Project was considered likely to be exposed or filtered views of the proposed new extraction area from elevated locations to the west, on Gresford Road. These locations currently have limited views of the existing extraction area in the West Pit. However, due to the progressive nature of the development, and topographic and vegetative screening, it was considered likely that visual changes would occur overtime and remain limited.<br><br>Additional visual impacts included views of the proposed noise control bunding along Station Street, although these would largely be mitigated by vegetation screen planting and would not be inconsistent with the existing visual landscape in the area, which is dominated by quarry processing plant and infrastructure. They also included impacts from the new access road off Dungog Road, which would be visible to road users and nearby private residences. The new access road would be in keeping with the existing road infrastructure and was not expected to have a significant impact on the visual amenity of the area.<br><br>Lighting impacts were also considered, although these would largely be mitigated by directing lighting away from surrounding residences and undertaking maintenance in accordance with the relevant Australian Standard (*AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*).<br><br>Overall, the Department considers the visual amenity impacts of the Project to be acceptable, subject to the recommended conditions. | The Department has recommended conditions requiring Daracon to:<br>• minimise the visual impacts of the development;<br>• detail the proposed visual mitigation measures in the BRMP; and<br>• integrate the final landform with surrounding natural landforms as far as is reasonable and feasible. |
| **Aboriginal cultural heritage** | |
| The EIS for the original Project included an Aboriginal Cultural Heritage Assessment Report (ACHAR; Niche, 2016), prepared in consultation with Registered Aboriginal Parties (RAPs) and knowledge holder groups, assessed the Aboriginal cultural heritage values of the Project area and surrounds. The ACHAR concluded that the quarry is in an area of low Aboriginal archaeological potential and the proposed expansion of the quarry would be unlikely to harm any known Aboriginal objects or cultural heritage values. Daracon has committed to: | The Department has recommended conditions requiring Daracon to prepare an Aboriginal Cultural Heritage Management Plan in consultation with |

| Issue | Recommended Conditions |
|---|---|
| • preparing an Aboriginal Cultural Heritage Management Plan in consultation with Heritage NSW and the RAPs within twelve months of project approval; and<br>• undertaking further consultation with RAPs and surveys to inform any further mitigation measures required as part of the final design and construction of the new access road prior to commencement of clearing.<br><br>Heritage NSW raised no concerns over impacts to Aboriginal cultural heritage and supported Daracon's proposed management measures. On this basis, the Department considers there is a low potential for adverse impacts to Aboriginal cultural heritage from the Project. | the RAPs and Heritage NSW. |
| **Historic heritage** | |
| Concerns over the Project's potential for impacting historic heritage items were raised in 48 community and interest group submissions. Submitters were mostly concerned over vibration from blasting and road haulage of quarry products damaging historical buildings in Paterson and the Gostwyck Bridge.<br><br>Daracon's Heritage Impact Statement concluded that the Project would not impact any local or State listed heritage items. The Heritage Council of NSW also commented that the Project is not expected to have any adverse physical or visual impacts to items on the State Heritage Register. On this basis, the Department considers there is low potential for adverse impacts to historic heritage from the Project. | The Department has recommended a condition requiring appropriate procedures to be implemented if unexpected historic relics are discovered. |
| **Blasting** | |
| Blasting was raised as an issue of concern in 102 community and interest group submissions. This was primarily related to potential blast vibration impacts on residences and other buildings.<br><br>Daracon's blasting assessment (Peter Bellairs, 2021) found that the quarry is predicted to meet relevant ground vibration and airblast overpressure objectives at all sensitive receivers, throughout the life of the Project.<br><br>Daracon has also committed to implementing a range of measures to mitigate blast impacts on surrounding sensitive receivers, including:<br>• undertaking blasting only between 11:00 am and 3:00 pm Monday to Friday, with no blasting on weekends or public holidays;<br>• designing blasts with consideration of operational, geological and environmental constraints to achieve compliance with blast performance criteria;<br>• commissioning independent blast monitoring in consultation with the EPA for three blasts within the first year of the Project and three times per year every five years thereafter;<br>• continuing to undertake blast monitoring at three locations representative of sensitive receivers surrounding the quarry site;<br>• developing and implementing a blast management plan in consultation with the EPA; and<br>• consulting with residents via letter-box drop to inform them of the following day's planned blast time, as well as a follow-up SMS or email on the day of the blast, providing notification of the time of day the blast is to occur.<br><br>Overall, the Department considers the blasting impacts of the Project to be acceptable, subject to the recommended conditions. | The Department has recommended operating conditions requiring Daracon to manage blasting impacts from the Project. |
| **Hazards and Waste** | |

| Issue | Recommended Conditions |
|---|---|
| The amended DA included an assessment of hazards and risks associated with the Project, including dangerous goods storage, bushfires and waste.<br><br>The Project would generate multiple waste streams including domestic waste, sewage, oil and grease, sediment and concrete washout. Daracon also proposes to receive and process solid concrete waste material, which is classified as General Solid Waste (non-putrescible) under the EPA's *Waste Classification Guidelines*.<br><br>The assessments indicate that these and other hazards would not present significant risk, subject to implementation of standard best practice risk and waste management measures. All waste streams would be managed in accordance with the quarry's existing waste management system which aims to re-use, recycle and reprocess waste in accordance with the *Waste Avoidance and Resource Recovery Act 2001.*<br><br>The Department considers that hazards and waste associated with the Project can be effectively managed. | The Department has recommended conditions requiring Daracon to ensure the Project is suitably equipped to respond to fires and assist the NSW RFS and emergency services if there is a fire in the vicinity of the site. |

# 7 Evaluation

267. The Department has carried out a detailed assessment of the merits of the Project, having regard to all of Daracon's project documentation, advice from NSW government agencies and independent experts, and all public submissions. The Department considered the objects of the EP&A Act and relevant considerations under Section 4.15(1) of the EP&A Act.

268. The Department acknowledges that there is a high degree of public interest in the Project and the range of community concerns is also broad, including impacts on the local road network, noise, air quality, socio-economic, water resources and biodiversity impacts.

269. Daracon has sought to maximise the use of rail transport, wherever feasible. Traffic volumes generated by the Project would not result in a change to the existing levels of service for roads along the primary haulage route. The Department considers that an appropriate mix of road and rail transport options has been incorporated into the Project design in order to balance impacts on the community with the viability of the quarry. The Department has also recommended strict conditions requiring several road upgrades and a comprehensive set of mitigation and management measures to minimise the Project's traffic and transport impacts.

270. The Department acknowledges that noise impacts have been a key concern for the community. It is also evident that the community has been subject to noise and other amenity impacts for a very long time. The existing quarry is subject to several legacy noise issues, and the Project offers an opportunity to significantly improve several noise management aspects of the existing operation, particularly daytime noise amenity in the vicinity of Martins Creek.

271. Daracon has responded to community concerns through project design changes and a variety of leading or best practice mitigation measures, including the use of a physical noise barrier and low noise emitting plant, a proactive and reactive noise management system, restricted operating hours, and new and upgraded infrastructure, to minimise noise impacts on nearby sensitive receptors. The Department considers that the recommended noise management

conditions strike a fair balance between protecting the amenity of the local community and meeting operational demands of the quarry.

272. While one exceedance of the EPA's cumulative 24-hour PM10 air quality assessment criterion is predicted, both the Department and EPA accept that this exceedance could be eliminated through the implementation of Daracon's proposed proactive and reactive air quality management system. Daracon has proposed a comprehensive suite of best practice mitigation and management measures to minimise the air quality impacts of the development. The Department's recommended conditions require these measures to be incorporated into an Air Quality Management Plan for the Project.

273. Daracon has committed to implement leading practice mitigation and management measures to limit, manage and monitor the social impacts of the Project. The Department considers that, with the implementation these measures (coupled with the management measures proposed in respect of traffic and transport, noise blasting, air quality, and other impacts), the extent of actual and perceived social impacts would be appropriately managed.

274. The Department has assessed the impacts of the Project on other values including water resources, biodiversity, rehabilitation and final landform, economic, greenhouse gas, visual amenity, Aboriginal cultural heritage, historic heritage, blasting, and hazards and waste impacts. The Department considers that the residual impacts of the Project can be suitable mitigated, managed and/or offset.

275. The Department recognises that the existing quarry has operated in various capacities for over 100 years and that the activities undertaken during this time have caused varying degrees of impact to the environment and the community. It is also clear from the history of operations, including the relatively recent Court proceedings, that there have been high levels of community concern over aspects of the quarry's past activities, particularly amenity impacts associated with the road haulage of quarry products.

276. It is also evident that there has been some uncertainty regarding the scale and nature of the activities deemed to be permissible under the existing consents, licences and other approvals for the quarry. The Department considers that a contemporary SSD consent for the quarry would provide an opportunity to address this uncertainty by clearly defining the Project's operating parameters and enabling holistic, contemporary environmental performance standards and management practices to be applied to the operation.

277. The Department has recommended a comprehensive and precautionary suite of conditions to ensure that the Project complies with contemporary criteria and standards, and that residual impacts are effectively minimised, managed, offset and/or compensated for. The recommended conditions were provided to key NSW Government agencies and their comments taken into account in finalising the conditions. Daracon has reviewed and accepted the recommended conditions. The Department considers that the conditions reflect current best practice for the regulation of hard rock quarrying projects. A copy of the recommended consent is provided at **Appendix H**.

278. The Department recognises that the proposed quarry extension would contribute a broad range of affordable, high-quality construction materials to local and regional markets. It would contribute to the supply of materials for the construction of housing and major regional infrastructure projects. The Department recognises the proximity between the Project's hard

rock resource and the existing approved operations, and the synergies this presents for utilising existing infrastructure and reducing capital costs. The Department accepts there is a strategic need for hard rock quarry materials in the Lower Hunter Region and considers the site to be well-suited for the Project.

279. The Department also considers that the Project would result in significant economic benefits to the region and to the State of NSW through the supply of materials critical to the construction industry and is therefore justified from an economic efficiency perspective.

280. The Department has carefully weighed the environmental impacts of the Project against the significance of the Project's identified hard rock resource and the wider socio-economic benefits associated with extending the operation of the quarry for a further 25 years under a contemporary development consent. On balance, the Department considers that the benefits of the Project outweigh its residual costs and that the Project is in the public interest and is approvable, subject to the strict conditions of consent.

**Prepared by:**

5/10/2022

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**Recommended by:**

5/10/2022

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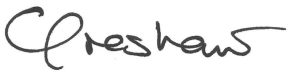

5/10/2022

Clay Preshaw
**Executive Director**
**Energy, Resources and Industry**

5/10/2022

David Gainsford
**Deputy Secretary**
**Development Assessment**

# Appendices

### Appendix A – Amended DA

https://www.planningportal.nsw.gov.au/major-projects/projects/martins-creek-quarry-project

### Appendix B – Submissions

https://www.planningportal.nsw.gov.au/major-projects/projects/martins-creek-quarry-project

### Appendix C – Submissions Report

https://www.planningportal.nsw.gov.au/major-projects/projects/martins-creek-quarry-project

### Appendix D – Additional information

https://www.planningportal.nsw.gov.au/major-projects/projects/martins-creek-quarry-project

### Appendix E – Agency advice on the assessment

https://www.planningportal.nsw.gov.au/major-projects/projects/martins-creek-quarry-project

# Appendix F – Consideration of Statutory Requirements, Policies and Strategies

## F1 Objects of the EP&A Act

The objects of the EP&A Act are the underpinning principles for all decision-making under the Act. They must be considered by the consent authority when determining a development application under the Act. **Table F1** summarises how the relevant objects of the EP&A Act have been considered in the Department's assessment of the Project.

**Table F1 |** Consideration of objects of the EP&A Act

| Objects of the EP&A Act (section 1.3) | Consideration |
|---|---|
| (a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources; | • The Project would provide significant economic benefits to the region and to the State of NSW.<br>• While the Project has the potential to result in both positive and negative social impacts; overall, the Department considers that any negative social impacts can be appropriately managed under recommended conditions.<br>• Social and economic impacts are discussed further in **Section 6.3** and **Section 6.8**. |
| (b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment; | • The Department's assessment (see **Section 6**) has sought to integrate all significant environmental, social and economic considerations.<br>• The Department considers that the Project can be carried out in a manner that is consistent with the principles of ESD. |
| (c) to promote the orderly and economic use and development of land; | • The Project involves a brownfield expansion of an existing hard rock quarry, which can be largely carried out using existing infrastructure and an adjacent hard rock resource. The Department considers that this represents an orderly and economic use of land. |
| (e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats; | • The Department has assessed the biodiversity impacts of the Project in accordance with relevant State and Commonwealth legislation, policies and guidelines.<br>• The Department considers that the Project avoids and minimises, to the greatest extent practicable, impacts on threatened species and communities and key habitats.<br>• The Department has recommended conditions to ensure that the residual biodiversity impacts of the Project would be appropriately managed and offset (see **Section 6.6**). |
| (f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage); | • The Department has assessed the likely impacts of the Project on Aboriginal cultural heritage and historic heritage.<br>• The Department considers impacts to Aboriginal cultural heritage and historic heritage from the Project would be negligible. These matters are discussed further in **Section 6.8.** |
| (i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State; | • The Department has led a whole-of-government assessment of the Project in consultation with other NSW Government agencies. This consultation process is discussed further in **Section 5**. |

| Objects of the EP&A Act (section 1.3) | Consideration |
|---|---|
| (j) to provide increased opportunity for community participation in environmental planning and assessment. | • The Department has carefully considered issues raised by the community during the public exhibition period in its assessment of the Project. These issues are discussed further in **Section 5** and **Section 6**. |

## F2 Environmental Planning Instruments

### F2.1 *Mining SEPP*

**Table F2 |** Mandatory matters for consideration under Part 3 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP)

| Clause | Matters for Consideration | Consideration |
|---|---|---|
| 12AB | Non-discretionary development standards for mining | • The Project is predicted to comply and has been assessed as complying with non-discretionary standards with respect to noise, air quality and blasting.<br>• The Project is predicted to comply and has been assessed as complying with the Level 1 minimal impact considerations under the AIP at all privately-owned groundwater bores. |
| 12 | Compatibility of proposed mine, petroleum production or extractive industry with other land uses | • The Department has carefully considered the merits of the Project, having regard to existing and approved land uses in the vicinity of the site. The Department has also considered what it understands to be the preferred uses of land in the area, having regard to relevant EPIs and strategic plans.<br>• The Department is of the view that, subject to the recommended conditions of consent, the Project can be carried out in a manner that is compatible with surrounding rural-residential and rural land uses. |
| 12A | Consideration of the *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) | • The Department has considered the VLAMP in its assessment of noise and air quality impacts. Voluntary acquisition and voluntary mitigation rights apply in respect of the Project at several residential receptor locations surrounding the quarry. |
| 13 | Compatibility of proposed development with mining, petroleum production or extractive industry | • The Project would not conflict with existing extractive industry in the locality. |
| 14 | Natural resource management and environmental management | • The Department has recommended a robust suite of conditions to ensure that the Project is undertaken in an environmentally responsible manner. These include conditions to avoid or minimise, to the greatest extent practicable, impacts on significant water resources and impacts on biodiversity (including threatened species). |
| 15 | Resource recovery | • The Department is of the view that the Project represents an efficient recovery of hard rock extractive resources and no specific conditions in this regard are considered necessary. |
| 16 | Transport | • The Department consulted with DSC and TfNSW during its assessment of the Project.<br>• The Project would not significantly affect the safety and efficiency of the local road network.<br>• The Department has recommended conditions requiring improvements to the primary haulage route, construction of a new access road, the payment of contributions for ongoing |

| Clause | Matters for Consideration | Consideration |
|---|---|---|
| | | maintenance, and the preparation of a Traffic Management Plan for the Project, in consultation with DSC and TfNSW. |
| 17 | Rehabilitation | • The Department has recommended strict conditions to ensure that the site is rehabilitated in a progressive and timely manner and that the final landform is safe, stable and non-polluting. |

### F2.3 *SEPP (Koala Habitat Protection) 2020*

The BAR indicates that Potential Koala Habitat and Core Koala Habitat under *SEPP (Koala Habitat Protection) 2020* occur within the Project area. Accordingly, the Department's recommended conditions would require Daracon to prepare a Koala Management Plan to manage impacts to the resident Koala population.

### F2.4 *SEPP No. 33 – Hazardous and Offensive Development (SEPP 33)*

All hazardous substances that would be used in carrying out the Project fall below relevant screening thresholds under SEPP 33. Subject to Daracon's existing and proposed management measures, the Project is unlikely to constitute an offensive industry for the purposes of SEPP 33.

The Department accepts this assessment and considers that the hazards and risks associated with the Project can be appropriately managed under the recommended conditions.

### F2.5 *SEPP No. 55– Remediation of Land*

There are no contaminated sites currently recorded within the Project site, however activities carried out at the quarry have the potential to cause contamination if not properly managed.

The Department's recommended conditions would require Daracon to prepare and implement a Contaminated Materials Protocol. This protocol would include procedures for the testing, removal and disposal of potentially contaminated material (including asbestos) in accordance with the requirements of SafeWork NSW and other relevant guidelines.

Overall, the Department considers that the land within the Project area is suitable for the intended use and the Project is generally consistent with the aims, objectives and provisions of SEPP 55.

### F2.6 *Dungog LEP*

The Department considers that the Project is generally consistent with the aims, objectives and provisions of the Dungog LEP.

The Project area is primarily zoned RU1 Primary Production, with a small portion zoned RE1 Public Recreation, under the Dungog LEP. Extractive industry development is permissible with consent in the RU1 zone but prohibited in the RE1 zone. Extractive industry development is not proposed within the RE1 zone. Proposed activities within the RE1 zone are limited to surface water management and environmental monitoring.

The Department is satisfied that the proposed activities within the RE1 zone would not preclude the area from future land uses consistent with the objectives of the zone under the Dungog LEP. Further, Section 4.38(3) of the EP&A provides that development consent for SSD may be granted despite the development being partly prohibited by an EPI. Accordingly, the Department is satisfied that, despite a

small portion of the Project area being zoned RE1 Public Recreation, the development is permissible with consent.

### F3 Regional Plans and Strategies

The Department has considered several relevant policies and strategies in its assessment of the Project, including the *Strategic Regional Land Use Policy*, and *Hunter Regional Plan 2036* (see **Sections 3.1, 3.2**).

The Department considers that the Project is consistent with the aims and objectives of these documents.

## Appendix G – Matters of National Environmental Significance (MNES)

The Project was declared to be a 'controlled action' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to its potential impacts on listed threatened species and communities.

In its determination, the DCCEEW agreed that the proposal may be assessed by the NSW Government, in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments.

The Department provides the following additional information for the Commonwealth Minister to take into account when deciding whether or not to approve the Project under the EPBC Act.

The Department's assessment has been prepared based on the information contained in:

- the amended DA, particularly its Appendix J (see **Appendix A**);
- Daracon's final Submissions Report (see **Appendix C**);
- environmental assessment requirements issued by DCCEEW;
- advice provided by BCD, in particular its assessment of impacts on MNES (see **Appendix E**); and
- additional information provided by Umwelt on behalf of the Applicant (Daracon) during the assessment process, in particular the supplementary response regarding MNES (received 24 May 2022), included in **Appendix D**.

This Appendix is supplementary to, and should be read in conjunction with, **Section 6.6** of the Department's Assessment Report.

### G1 – Potential impacts to EPBC Act listed threatened species and communities

In its referral decision, the Commonwealth determined that the Project is a controlled action in that the proposed action is likely to have a significant impact on four EPBC Act-listed threatened fauna species (Koala, Regent Honeyeater, Swift Parrot and Spotted-Tailed Quoll), and one listed threatened flora species (Slaty Red Gum). The Commonwealth also considered that there may be some risk of significant impact to a wetland of international importance (Hunter Estuary Wetlands).

The Commonwealth also required that evidence be provided to demonstrate why other EPBC Act-listed threatened species and communities likely to be located in the Project area or in the vicinity would not be significantly impacted by the Project.

The revised BAR and supplementary information provided by the Applicant provided consideration of the impacts of the Project on these species and the Wetlands, including completion of significant impact tests in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (DoE, 2013). BCD has confirmed that it is satisfied with the information contained in the BAR and supplementary information. Further consideration by the Department is provided below.

***Threatened fauna***

Koala

The BAR (Conacher Consulting, 2021) indicated that, while the Koala was not recorded within the Project area during the targeted surveys, previous sightings had been recorded at the site within the preceding two years, and it was accepted that the Koala may use the habitat features of the Project area. Koala activity within the proposed disturbance area was therefore considered to be in the low activity category, in accordance with the Spot Assessment Technique method of Phillips and Callaghan (2011).

The Commonwealth's Approved Conservation Advice for the Koala identifies loss and fragmentation of habitat, vehicle strike and environmental stressors as key threats to the species. Relevant conservation and recovery actions include increased habitat protection, strategic habitat restoration and integration of Koala conservation in policy and statutory land use planning. Conacher's Assessment of Significance considered that the Project would result in a significant impact on the Koala due to the direct impact of clearing of 21.13 ha of Koala habitat, including core Koala habitat.

The BAR also considered that indirect impacts to Koala, such as a decline in quality and extent in adjacent habitat to the Project area due to weeds and pest species, are unlikely due to the proposed mitigation measures (see below).

BCD advised that the revised BDAR adequately addressed impacts on MNES. The Department agrees with this assessment and considers that indirect impacts to Koala populations can be controlled by the proposed mitigation measures. As discussed below, the residual impacts to Koalas would be adequately offset through the retirement of species credits (see below). On this basis, the Department considers the Project's impacts on Koalas are acceptable.

Grey-headed Flying Fox, Regent Honeyeater, Swift Parrot, Spotted-tailed Quoll, Large-eared Pied Bat, Greater Glider, Black-faced Monarch

Neither the Grey-headed Flying Fox, Regent Honeyeater, Swift Parrot, Spotted-tailed Quoll, Large-eared Pied Bat, Greater Glider, nor Black-faced Monarch were observed during surveys, and Conacher's assessments of significance, undertaken in accordance with the *EPBC Act Significant Impact Guidelines* (DEWHA 2013), concluded that these species are not likely to be significantly impacted by the Project. BCD advised that the revised BDAR adequately addressed impacts on MNES. The Department agrees with this assessment and considers that, subject to implementation of the impact mitigation measures set out below, the Project is unlikely to significantly impact these species. Biodiversity offsets are not required under the *EPBC Act Environmental Offsets Policy* (DSEWPAC, 2012) as significant residual impacts for these species are not considered likely to occur.

***Threatened Flora:*** *Slaty Red Gum*

The BAR identified that the Project would remove 2287 Slaty Red Gum individuals over a total area of 13.43 ha. The Commonwealth's Conservation Advice for Slaty Red Gum identifies the main threat to this species as clearing and fragmentation of habitat for development. The regional priority recovery

and threat abatement actions for the mitigation of habitat loss, disturbance and modification (DEWHA, 2008) include investigation of formal conservation arrangements such as the use of covenants or conservation agreements. The relevant local priority actions for these impacts include minimisation of adverse impacts from land use at known sites and the protection of populations through development of conservation agreements or covenants.

Conacher's Assessment of Significance considered that the Project would result in a significant impact on the Slaty Red Gum due to the direct removal of 2287 Slaty Red Gum individuals over 13.43 ha.

BCD advised that the revised BDAR adequately addressed impacts on MNES. The Department agrees and considers that indirect impacts to Slaty Red Gum populations can be controlled by the proposed mitigation measures. As discussed below, the direct impacts to Slaty Red Gum would be adequately offset through the retirement of species credits. On this basis, the Department considers the Project's impacts on Slaty Red Gum are acceptable.

***Migratory species:*** *Rufous Fantail*

The Rufous Fantail was observed within the Project area during surveys for the BAR. However, Conacher's assessment of significance, undertaken in accordance with the *EPBC Act Significant Impact Guidelines* (DEWHA 2013), concluded that this species is not likely to be significantly impacted by the Project. BCD advised that the revised BDAR adequately addresses impacts on MNES and the Department agrees that the Project would not result in unacceptable impacts on migratory species, such as Rufous Fantail.

***Wetlands of international importance:*** *Hunter Estuary Wetlands*

The BAR identified that there is no potential for the Project to directly impact the Hunter Estuary Wetlands as this wetland is located approximately 32 km (in a direct line) and approximately 61 km downstream (via watercourses) from the Project area.

The BAR identified potential indirect impacts to the Hunter Estuary Wetlands such as degradation of habitat through a reduction in water quality and alteration in water quantity. However, it found that the Project would not have any measurable or appreciable indirect impact on the Hunter Estuary Wetlands.

Daracon proposes to manage potential water quality and quantity associated impacts by preparing and implementing a Water Management Plan (WMP) in consultation with BCD and DPE Water. The WMP would include relevant baseline data, performance criteria, triggers, monitoring requirements, and investigation, notification, reporting and review protocols for managing impacts to water resources from the Project. It would also include a riparian condition monitoring program and associated TARP to manage potential impacts to stream stability and riparian condition immediately downstream of the quarry.

BCD advised that the revised BDAR adequately addressed impacts on MNES. The Department agrees and considers that there would be nil or negligible indirect impacts to the Hunter Estuary Wetlands from the Project.

## G2 – Demonstration of 'Avoid, Mitigate, Offset' for MNES

### *Avoidance and mitigation measures*

**Impact avoidance measures**

Changes to the Project have resulted in the avoidance of potential direct impacts to approximately 15 ha of suitable habitat for the Koala, Grey-headed Flying Fox, Regent Honeyeater, Swift Parrot, Spotted-tailed Quoll, Large-eared Pied Bat, Greater Glider, Rufous Fantail and Black-faced Monarch. Notwithstanding that this area is considered to be 'suitable habitat', none of these species have been observed within either this area or the area that would be cleared by the Project.

**Impact minimisation measures**

Daracon has minimised impacts to these species through implementation of the following measures:

- reducing the area of native vegetation to be cleared through the proposed quarry extension from 36.8 ha to 21.13 ha;
- limiting the extent of clearing required to extract the targeted hard rock resource and provide infrastructure to support the proposal; and
- locating roads and new infrastructure within existing cleared areas and the proposed resource extraction footprint wherever possible.

**Impact mitigation measures**

Daracon's proposed impact mitigation measures include:

- fencing the development footprint in locations adjoining areas of Koala habitat not approved for removal;
- staff training and site briefing to communicate environmental features to be protected and measures to be implemented;
- inspecting trees to ensure no Koalas are present prior to vegetation clearing;
- relocating arboreal fauna in hollow-bearing trees to adjoining habitat areas prior to vegetation clearing; and
- preparing and implementing a Biodiversity and Rehabilitation Management Plan (BRMP) that:
    - describes the proposed short, medium, and long-term objectives and measures to implement the Biodiversity Offset Strategy, retain and manage remnant vegetation and fauna habitat, and rehabilitate the site;
    - identifies potential risks to biodiversity and rehabilitation and contingency measures to mitigate the identified risks;
    - includes a monitoring and reporting program and detailed performance and completion criteria for evaluating the performance of biodiversity and rehabilitation management, including triggers for remedial action; and
    - includes a conceptual closure plan for the site.

The Department and BCD are satisfied with the avoidance and mitigation measures proposed by Daracon to minimise impacts on MNES. The Department understands that, to some extent, the location of disturbance areas is dictated by the availability of the hard rock resource and the boundaries of Daracon-controlled land. The Department considers that the Project has been designed to avoid, minimise and mitigate impacts on EPBC Act-listed threatened species and communities to the greatest extent practicable. The Department also notes that the Project would have a considerably smaller disturbance footprint than a comparable greenfield quarry project.

The Department has recommended a condition requiring Daracon to prepare and implement a BRMP that incorporates the mitigation measures outlined above, as well as other contemporary biodiversity management practices. These include a requirement to develop and implement a Koala Management Plan for managing impacts on the resident Koala population.

**Offsetting significant residual adverse impacts**

The Department's recommended conditions would require Daracon to develop a Biodiversity Offset Strategy to account for the residual impacts of the Project which cannot be addressed through the proposed avoidance and mitigation measures. The offset liabilities for impacts to MNES are shown in **Table G1**.

**Table G1** | Summary of biodiversity credit requirements for MNES

| Offset Liability | Area Impacted (ha) | Biodiversity Credits Required |
|---|---|---|
| **Species Credits** | | |
| Koala | 21.13 | 549 |
| Slaty Red Gum | 2887 individuals over 13.43 ha | 40,418 |

To offset the impacts to EPBC-listed species, Daracon has committed to investigating options for the establishment of Biodiversity Stewardship Sites over the residual lands surrounding and/or in close proximity to the quarry, which contain known habitat for Koala and Slaty Red Gum. The credits generated from such Biodiversity Stewardship Sites would be retired to meet biodiversity credit requirements for the Project. Alternatively, species credit requirements could be met through purchase of credits from the Biodiversity Conservation Trust (BCT) or directly from the market. The Department considers that all offsetting requirements for these EPBC Act-listed species can be met through these 'like-for-like' offsetting measures.

The Department considers the proposed offsetting approach to be acceptable and has recommended a condition requiring all credits to be retired prior to the commencement of construction, unless otherwise agreed by the Planning Secretary.

## G3 - Requirements for Decisions About Threatened Species and Endangered Ecological Communities

In accordance with Section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of either Section 18 or Section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, or Commonwealth Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved Conservation Advice.

### G3.1 Australia's International Obligations

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The recommendations of this report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (as has been undertaken for this proposal) to avoid and minimise adverse impacts on biological diversity. The Department's recommended conditions require avoidance, mitigation and management measures for listed threatened species and communities and all information related to the proposed action is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (the Apia Convention) include encouraging the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using best endeavours to protect fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006. Nonetheless, Australia's obligations under the Convention have been taken into consideration. The recommended approval is not inconsistent with the Convention which generally aims to promote the conservation of biodiversity.

The *Convention on International Trade in Endangered Species of Wild Flora and Fauna* (CITES) is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommended approval is not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

### G3.2 Recovery Plans and Approved Conservation Advices

The Department has undertaken a detailed and comprehensive assessment of the potential impacts of the Project on listed threatened species and communities under the BC Act and the EPBC Act. The Department has taken into consideration approved Commonwealth Conservation Advices and Recovery Plans for the species and communities which may be impacted by the Project, including the:

- National Recovery Plan for the Large-eared Pied Bat (*Chalinolobus dwyeri*);
- National Recovery Plan for the Regent Honeyeater (*Anthochaera Phrygia*);
- National Recovery Plan for the Swift Parrot (*Lathamas discolor*);
- National Recovery Plan for the Spotted-tailed Quoll (*Dasyurus maculatus*);
- Approved Conservation Advice *Phascolarctos cinereus* (Koala);
- Approved Conservation Advice *Anthochaera phrygia* (Regent Honeyeater);
- Approved Conservation Advice *Lathamas discolor* (Swift Parrot);
- Approved Conservation Advice *Dasyurus maculatus maculatus* (Spotted-tailed Quoll) – south eastern mainland population;
- Approved Conservation Advice *Petaroides Volans* (Greater Glider); and
- Approved Conservation Advice *Eucalyptus glaucina* (Slaty Red Gum).

As discussed above, the Project is not predicted to significantly impact any of these threatened species and communities, with the exception of the Koala and Slaty Red Gum.

The BAR identified that the Project would remove 21.13 ha of Koala habitat. The revised disturbance footprint for the Amended Project has avoided direct impacts to 15.3 ha of Koala habitat when compared to the Original Project. The Approved Conservation Advice for the Koala identifies loss and fragmentation of habitat, vehicle strike and environmental stressors as key threats to the species. Relevant conservation and recovery actions include increased habitat protection, strategic habitat restoration and integration of koala conservation in policy and statutory land use planning.

The Department has recommended that mitigation and recovery measures are implemented via a BRMP and a Koala Management Plan for managing impacts on the resident Koala population.

Additionally, Daracon would be required to retire species credits to offset the loss of Koala habitat, which would result in conservation of Koala habitat in perpetuity. On this basis, the Department considers the Project would not be inconsistent with the Approved Conservation Advice for Koala.

The BAR identified that the Project would remove 2287 Slaty Red Gum individuals over 13.43 hectares. The Approved Conservation Advice for Slaty Red Gum identifies the main threat to this species as clearing and fragmentation of habitat for development. The regional priority recovery and threat abatement actions for the mitigation of habitat loss, disturbance and modification (DEWHA,2008) include investigation of formal conservation arrangements such as the use of covenants or conservation agreements. The relevant local priority actions for these impacts include minimisation of adverse impacts from land use at known sites and the protection of populations through development of conservation agreements or covenants.

The Department has recommended that mitigation and recovery measures are implemented via a BRMP. Additionally, Daracon would be required to retire species credits to offset the loss of the 2287 Slaty Red Gum individuals, which would result in conservation of Slaty Red Gum habitat in perpetuity. On this basis, the Department considers the Project would not be inconsistent with the Approved Conservation Advice for Slaty Red Gum.

### G3.3 Threat Abatement Plans (TAPs)

There are no TAPs made or adopted under the EPBC Act which are of direct relevance to the Project. It is acknowledged however that opportunities to implement management actions in accordance with several TAPs are likely to occur at the candidate biodiversity offset sites if a Biodiversity Stewardship Agreement is secured by Daracon with BCT. These actions include monitoring and management of feral goats, rabbits, and feral pigs which have potential to degrade habitat for the affected species.

## G4 - Additional EPBC Act considerations

**Table G2** contains a range of further mandatory considerations to be taken into account and factors to have regard to under the provisions of the EPBC Act.

**Table G2** | Additional Considerations for the Commonwealth Minister under the EPBC Act

| EPBC Act Section | Consideration | Conclusion |
|---|---|---|
| ***Mandatory considerations*** | | |
| 136(1)(b) | Social and economic matters are discussed in the ADA and in **Section 6.3** and **Section 6.8**. | The Department considers that the proposed development would result in a |

| EPBC Act Section | Consideration | Conclusion |
|---|---|---|
| | | range of benefits for the regional economy and would allow for the continued supply of hard rock material for construction of housing and infrastructure within nearby regions. |
| ***Factors to be taken into account*** | | |
| 136(2)(a) | Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular in:<br>• long and short-term economic, environmental, social and equity considerations relevant to this decision;<br>• conditions that restrict environmental impacts, impose monitoring and adaptive management requirements and reduce uncertainty concerning the potential impacts of the Project;<br>• conditions requiring the Project to be operated in a sustainable way that protects the environment for future generations and conserves MNES;<br>• advice provided within this report which reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for this Project; and<br>• mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms that promote a financial cost to the applicant to mitigate the environmental impacts of the Project. | The Department considers that, subject to the recommended conditions of consent, the Project could be undertaken in a manner that is consistent with the principles of ESD. |
| 136(2)(e) | Other information on the relevant impacts of the action. | The Department considers that all information relevant to the impacts of the Project has been taken into account. |
| ***Factors to have regard to*** | | |
| 176(5) | Bioregional plans | The Project is located in the NSW North Coast IBRA Bioregion and within the Upper Hunter IBRA Subregion. The Project would result in the clearing of some vegetation in these bioregions, however it would involve an offset that would contribute to in-perpetuity managed conservation areas in the bioregions. The Project is unlikely to significantly impact the water resources in these bioregions. |
| ***Considerations on deciding conditions*** | | |
| 134(4) | Must consider:<br>• information provided by the person proposing to undertake the action or by the designated applicant of the action; and<br>• desirability of ensuring as far as practicable that the condition is a cost-effective means for the Commonwealth | • Documents provided by Daracon are provided at **Appendices A, C and D** of this report.<br>• The Department considers that the recommended conditions of consent in **Appendix H** are a practicable and cost-effective means to achieve their purposes. |

| | | |
|---|---|---|
| | and the person taking the action to achieve the object of the condition. | • These conditions have been prepared following careful considerations of all material provided by Daracon and following consultation with DCCEEW. |

## G5 - Conclusions on Controlling Provisions

### G5.1 Threatened Species and Communities (sections 18 and 18A of the EPBC Act)

The information provided identifies that the Project has the potential to result in significant impacts on the following threatened species listed under the EPBC Act:

- Koala; and
- Slaty Red Gum.

The Department considers that the impacts of the proposed action on these threatened species would be acceptable, subject to the avoidance, mitigation, offsetting and management measures described in Daracon's environmental assessment documents and the requirements of the Department's recommended conditions of consent (see **Appendix H**).

The Applicant has committed to offset the impacts of the Project on threatened species, as outlined in **Table G1**, in accordance with the requirements of the NSW *Biodiversity Offsets Scheme*.

To offset the impacts to EPBC-listed species, Daracon has committed to investigating options for the establishment of Biodiversity Stewardship Sites over the residual lands surrounding and/or in close proximity to the quarry, which contain known habitat for Koala and Slaty Red Gum. The credits generated from such Biodiversity Stewardship Sites would be retired to meet the biodiversity credit requirements for the Project. Alternatively, species credit requirements would be met through purchase of credits from the BCT or directly from the market. The Department considers that the offsetting requirements for these EPBC-listed species can be met through these 'like-for-like' offsetting measures.

The Department considers the proposed offsetting approach to be acceptable and has recommended a condition requiring all credits to be retired prior to the commencement of construction, unless otherwise agreed by the Planning Secretary.

The Department has also recommended a condition requiring the Applicant to prepare a detailed BRMP. This plan would:

- describe the proposed short, medium, and long-term objectives and measures to implement the Biodiversity Offset Strategy, retain and manage remnant vegetation and fauna habitat, and rehabilitate the site;
- identify potential risks to biodiversity and rehabilitation and contingency measures to mitigate the identified risks;
- include a monitoring and reporting program and detailed performance and completion criteria for evaluating the performance of biodiversity and rehabilitation management, including triggers for remedial action; and
- include a conceptual closure plan for the site.

The Department and BCD are satisfied with the avoidance and mitigation measures proposed by Daracon to minimise impacts on MNES. The Department understands that, to some extent, the location of disturbance areas is dictated by the availability of the hard rock resource and boundaries of Daracon-

controlled land. The Department considers that the Project has been designed to avoid impacts on EPBC Act-listed threatened species and communities to the greatest extent practicable. The Department also notes that the Project would have a considerably smaller disturbance footprint than a comparable greenfield quarry project.

The Department has recommended a condition requiring Daracon to prepare and implement a BRMP that incorporates the mitigation measures outlined above, as well as other contemporary biodiversity management practices. These include a requirement to develop and implement a Koala Management Plan for managing impacts on the resident Koala population.

The Department recommends that the Commonwealth Minister require the Applicant to implement the State's conditions, where they relate to the management of impacts on threatened species and communities listed under the EPBC Act.

### G6 - Other Protected Matters

DCCEEW has determined that other matters regulated under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage places, National Heritage places, migratory species, the Commonwealth marine environment, Commonwealth land, Commonwealth actions, nuclear actions, the Great Barrier Reef Marine Park and Commonwealth Heritage places located overseas.

### G7 - Conclusions

The Department considers that the recommended conditions would provide suitable protection for all MNES listed under the EPBC Act that may be significantly impacted by the Project. The Department notes that, if approved by the Independent Planning Commission of NSW, the Project would be referred by the Department to the Commonwealth Minister for the Environment for determination under the EPBC Act.

## Appendix H – Recommended Instrument of Consent

https://www.planningportal.nsw.gov.au/major-projects/projects/martins-creek-quarry-project