

OBERON QUARRIES

Proposed Extended Life of Operations
and Modifications to Oberon Quarry –
Preliminary Environmental Assessment

November 2013

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Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Oberon Quarries Pty Limited

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1.0 Introduction

Since 1995 Oberon Quarries Pty Limited (OQ) has produced crushed aggregates from a high quality hard rock quarry at 'Langley Heights', approximately 4 kilometres south of Oberon, (refer to **Figure 1.1**).

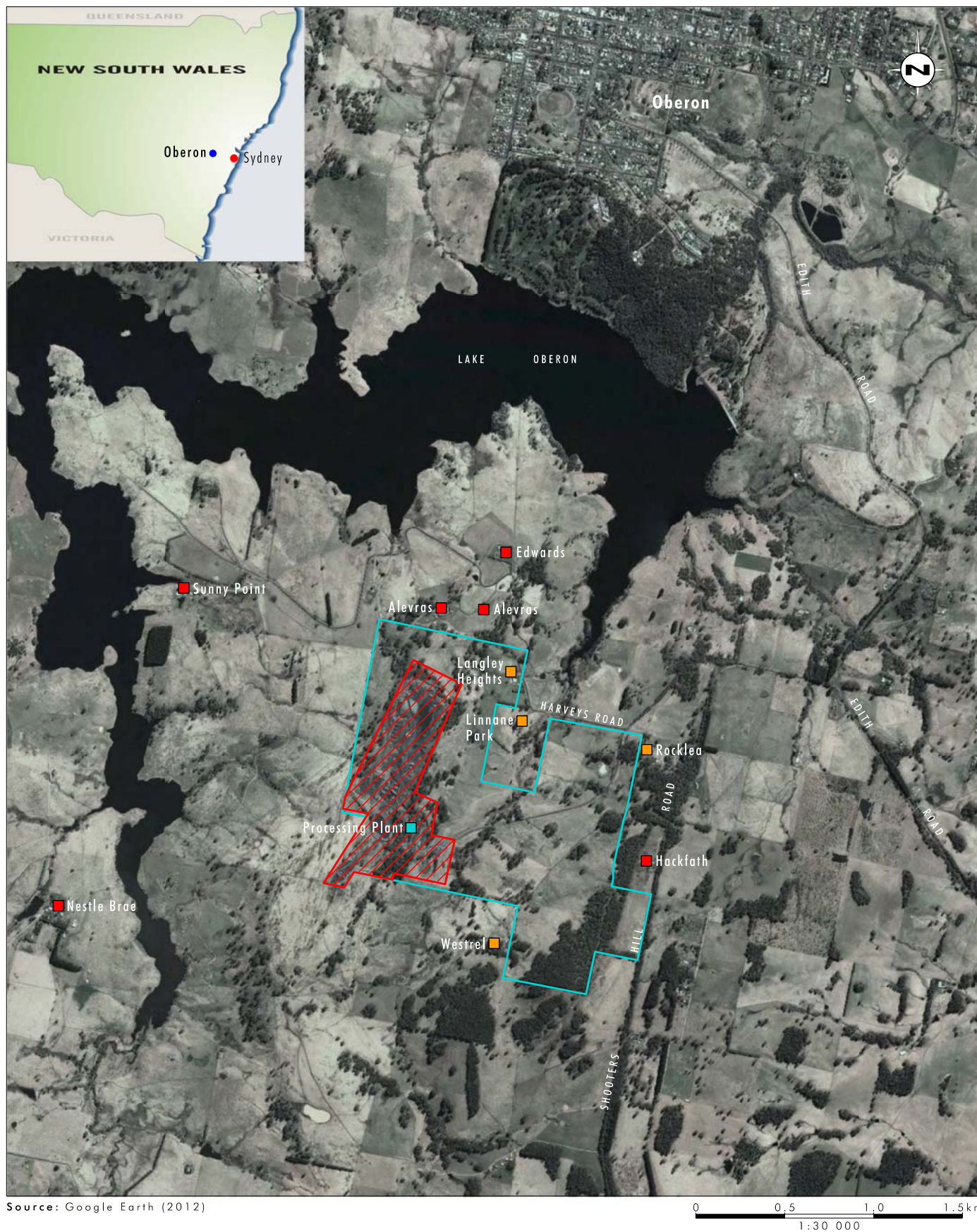
OQ has established roads, a crushing and processing plant, administration facilities and water management infrastructure and extracted 2.7 million tonnes (Mt) from a 12.7 Mt approved high quality basalt resource. OQ has been operating for the last 20 years with negligible environmental impact and no community complaints since 2010.

Development consent (DA 92/164) for the quarry was granted (subject to a range of conditions) on 1 October 1993 by the Minister for Planning, following a Commission of Inquiry, and has recently been modified to extend DA 92/164 to 13 May 2016 (MOD 5). In order to improve efficiency and environmental performance of the quarry operations, in addition to furthering the life of the quarry for extraction of proven reserves, OQ is seeking consent to extend the life of the quarry DA 92/164 under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for an additional 30 years. The Project is declared to be a State Significant Development under the provisions of the State Environmental Planning Policy (State and Regional Development) 2011, and the Minister for Planning will be the consent authority for the development. There are also several proposed modifications to operations at the site which are summarised as follows:

- removal of the ten year annual average production rate limitation from the consent allowing a maximum annual production rate of 400,000 tonnes per annum (tpa) each year;
- replacement of some of the existing screening plant, reconfiguration of the alignment of screens and the inclusion of an additional cone crusher;
- inclusion of a second diesel fuel storage tank of approximately 28,000 litre capacity;
- inclusion of a 1.0 hectare extension to the existing extraction area to avoid the sterilisation of approximately 500,000 tonne of high quality basalt resource;
- inclusion of a Finlay 750e Hydrasander (or equivalent) to separate silt and clay from sand size particles in the crusher fines;
- the duplication of approximately a 180 metre section of the internal haul road;
- the continued extraction of the high quality basalt from the existing extraction areas as required, with extraction at times occurring on the upper and lower benches; and
- removal of redundant development consent conditions.

All other aspects of the approved quarry remain unchanged from current operations and will continue to be managed in accordance with existing site practices. **Section 2.5** provides further details on each of the proposed modifications.

These changes will not result in any significant adverse impacts of quarry operations on the surrounding area or fundamentally change quarry operations from those approved under DA 92/164 and subsequent modifications. OQ will continue to undertake operations in accordance with DA 92/164 and Environmental Protection Licence (EPL) 4442, or as modified.



Legend

- Project Area
- Langley Heights Property
- Private Residence
- Residence Owned by Oberon Quarries or Associated with Quarry
- Processing Plant

FIGURE 1.1
Locality Map

Potential air quality, visual amenity, surface water, traffic and transport, ecology, Aboriginal archaeology, rehabilitation and closure, blasting, dangerous goods transport, European heritage and socio-economic impacts will be reviewed as part of the environmental impact assessment. No significant changes from those resulting from current operations are predicted to occur in regard to these matters.

1.1 Purpose of this Document

This Preliminary Environmental Assessment (PEA) has been prepared to brief relevant government agencies as part of the process of seeking Director-General's requirements (DGRs) for the Project Environmental Impact Statement (EIS). The document will also be available on the Department of Planning and Infrastructure (DP&I) and the OQ website for the community and other relevant stakeholders. The document provides an overview of the proposed Project and introduces the outcomes of environmental assessment and consultation conducted to date for the key issues addressed in the EIS for the Project.

2.0 Existing Environment and Quarry Operations

2.1 Existing Operations

Basalt from the high quality hard rock quarry at Langley Heights is won by drilling and blasting operations. Blasted rock is loaded into off-road rear dump trucks using an excavator, and is transported to the crushing and screening plant for processing. Product is stockpiled within the processing area and on the quarry floor for loading into highway trucks for transport to markets in the Oberon-Bathurst area, the Blue Mountains area, Western Sydney, and other areas. Transport is via a sealed haul road to Shooters Hill Road, Edith/Jenolan Caves Road, Titania Road and other sealed roads that form part of the State road system to the market areas.

2.1.1 Extraction Area

The approved extraction area is approximately 1000 metres long and 200 metres wide and occupies an area of approximately 21 hectares (refer to **Figure 2.1**).

Extraction is confined to the basalt plateau on top of Racecourse Hill. The quarry floor is located below the skyline and is bounded on all sides by natural topography, except for a narrow cutting on the eastern hillside above the processing area, which provides haul road access to the quarry floor.

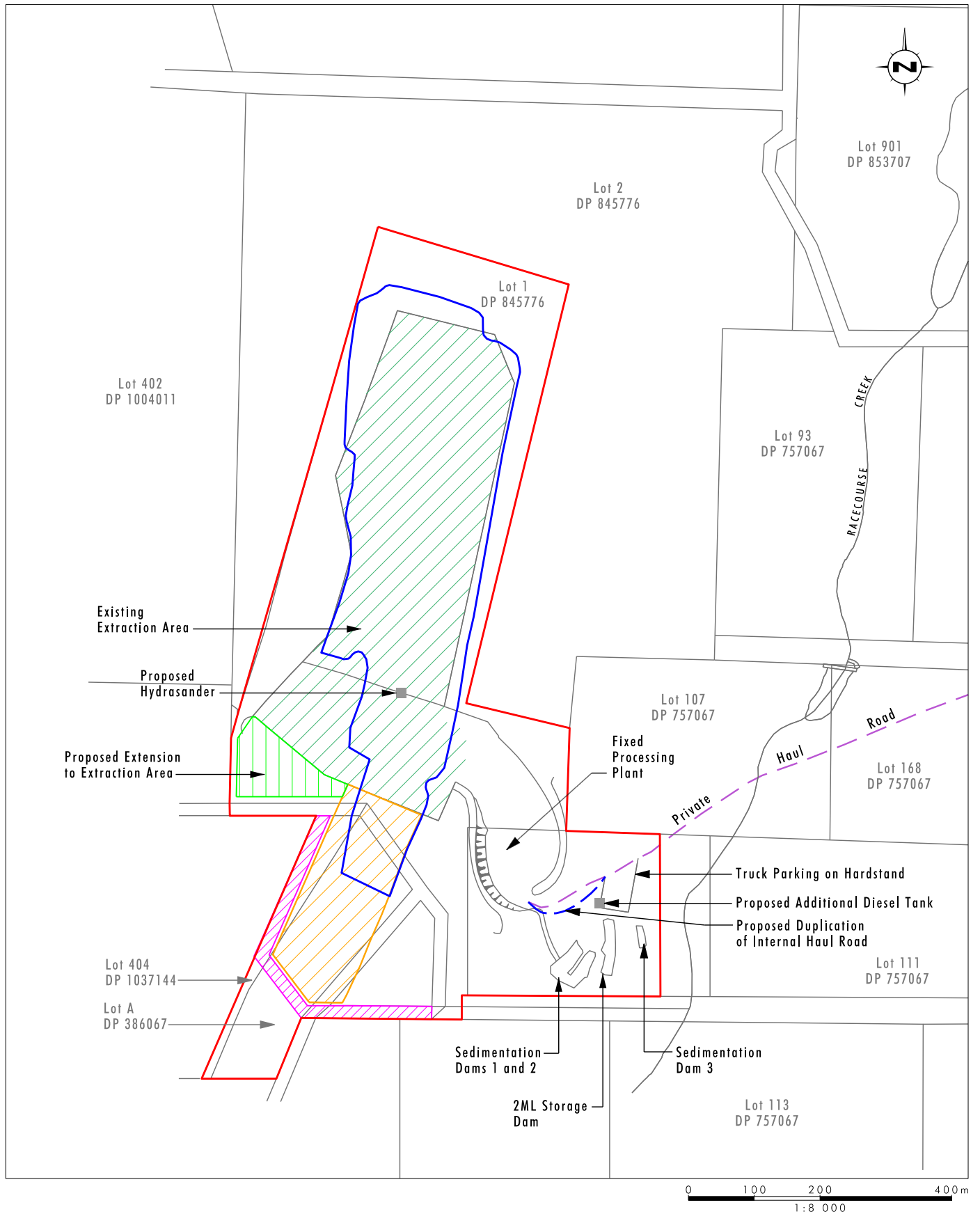
At present, approximately 65 per cent in the area of the first bench has been extracted. Extraction of the second bench has not commenced. The quarry floor is therefore approximately 8 to 10 metres below the top of Racecourse Hill. The final quarry floor will be approximately 20 metres below the top surface of the hill, when the two benches have been extracted.

A considerable quantity of reject material has been generated during the excavation of the first bench, due to the occurrence of overburden and the production of crusher fines. In the past this material has been stockpiled around the edge of the extraction area and on top of Racecourse Hill; however, the crusher fines are now stockpiled within the quarry extraction area.

OQ has approval to extract the basalt resource from two benches each having a depth of 8 to 10 metres. A layer of weathered basalt and clayey interburden is located between the upper and lower basalt flows that form the quarry resource. Following the extraction of each bench and when sufficient room is available, sections of the quarry floor are utilised for stockpiling product and for the construction of additional primary sedimentation dams. Interburden material, fines and overburden is placed around the rim of the quarry and on the quarry floor for later incorporation into the rehabilitated landform. In the interim, interburden material has been placed around the rim of the quarry and within the first bench of the quarry extraction area.

2.1.2 Crushing and Screening/Processing Area

The processing area is located to the east of the quarry pit (refer to **Figures 2.1** and **2.2**). The establishment of the processing area required removal of approximately 4 to 5 metres of soil and weathered rock to form a relatively level and acoustically shielded platform. Topsoil and overburden material stripped from the processing area was used to fill low sections adjacent to the processing area, to construct a hardstand area beside the quarry entrance which is used for truck parking and refuelling activities and to create an earth acoustic bund along the eastern side of the processing area to reduce noise levels in this direction.



Legend

- Project Area
- Extent of Extraction Undertaken as at April 2013
- Crown Road Reserve
- Extraction Area Approved in 1993
- Approved Southern Extension to Extraction Area
- Proposed Extension to Extraction Area
- Right of Carriageway 12m Wide
- Duplication of Internal Haul Road

FIGURE 2.1

Proposed Site Modifications

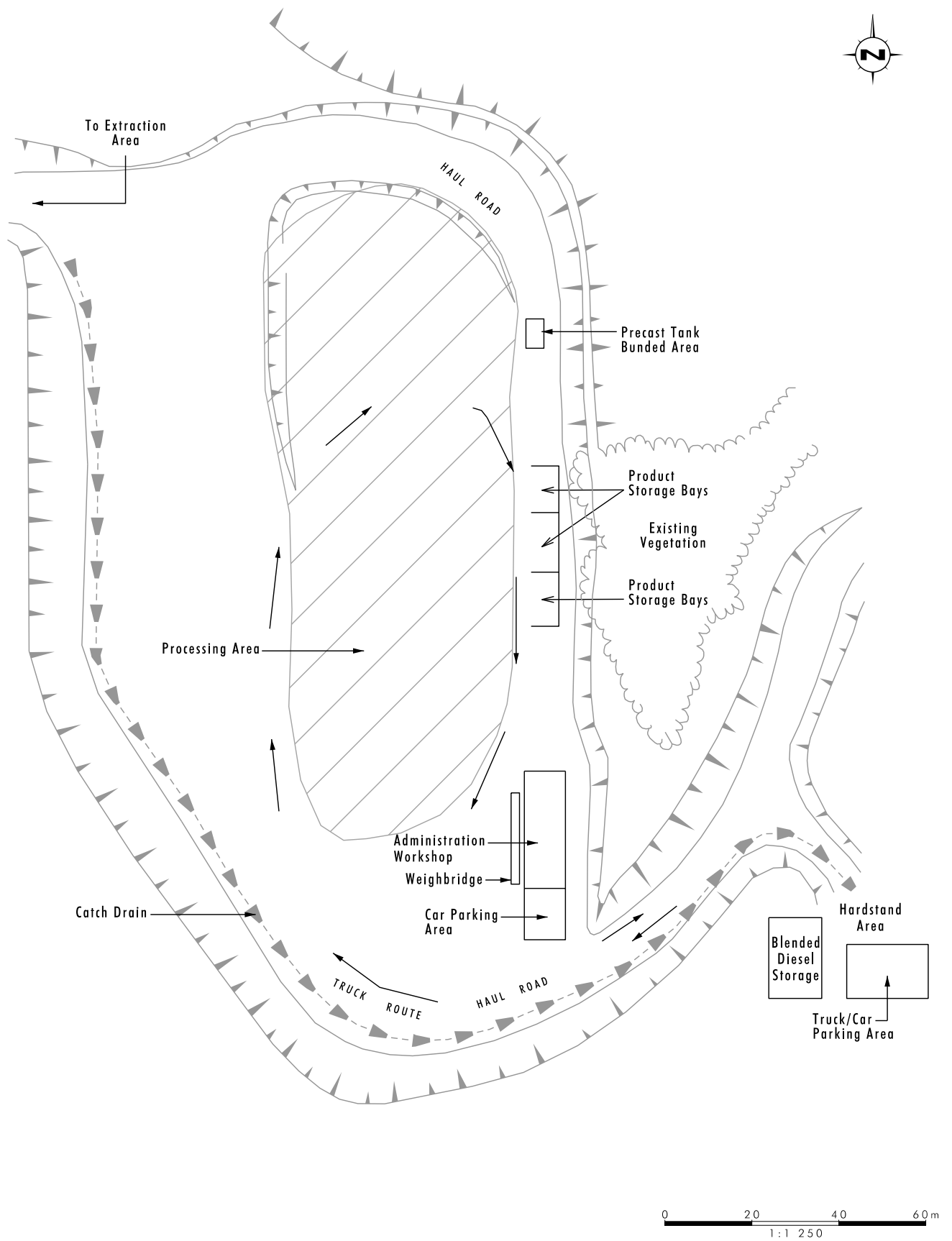


FIGURE 2.2
Schematic Layout of
Existing Processing Plant Area

2.1.3 Plant Layout and Components

The quarried basalt rock is taken from the extraction area to the processing area by dump trucks. The dump trucks unload the basalt into the hopper above the primary feeder. The feeder controls the rate of supply of rock to a primary jaw crusher, which reduces the size of the larger rock pieces. Material from the primary crusher then passes over a scalping screen, which removes the clay fraction from the finer sections of the raw feed before entering the 3 inch JTY crusher. The crushed rock then continues onto a Canica crusher and passes over screens to separate and stockpile the material into the required sizes. The processed crushed rock is delivered to small product stockpiles by conveyor, as shown on **Figure 2.3**.

2.1.4 Product Stockpiles

Stockpiles of finished product accumulate under each of the discharge conveyors. There are five live stockpiles, each with a capacity of approximately 600 to 1000 tonnes.

Material is transferred from the live stockpiles to product stockpile bays located in the processing area, with each bay having a stockpile capacity of approximately 3000 tonnes. Excess product which cannot be stockpiled within the processing area is stored on the quarry floor.

In the past, <5 millimetre material has been stored on the southern end of Racecourse Hill and on the quarry floor. OQ has developed markets for the <5 millimetre material (i.e. utilising the material in the production of roadbase material (DGB 20)) and has gradually reduced the quantity of <5 millimetre material stored on site, such that it is now only stored on the quarry floor within the extraction area.

2.1.5 Facilities

Administration and weighbridge facilities are also located within the processing area (refer to **Figure 2.2**). Toilets, washroom and a Council approved pump-out sewerage system are also located beside the administration centre.

Parking areas have been provided within the processing area and the hardstand area at the entrance to the quarry.

Fuel is stored in an above-ground storage tank which is bunded and covered in accordance with the Council approval. The tank has a capacity of approximately 28,000 litres and the bunded area has a capacity of approximately 120 per cent of the tank capacity.

2.1.6 Hours of Operation

The approved hours of operation at OQ are dependent on the activity being undertaken:

- quarrying and processing areas;
- loading haul trucks;
- product delivery;
- construction of haul road and quarry infrastructure; and
- maintenance.

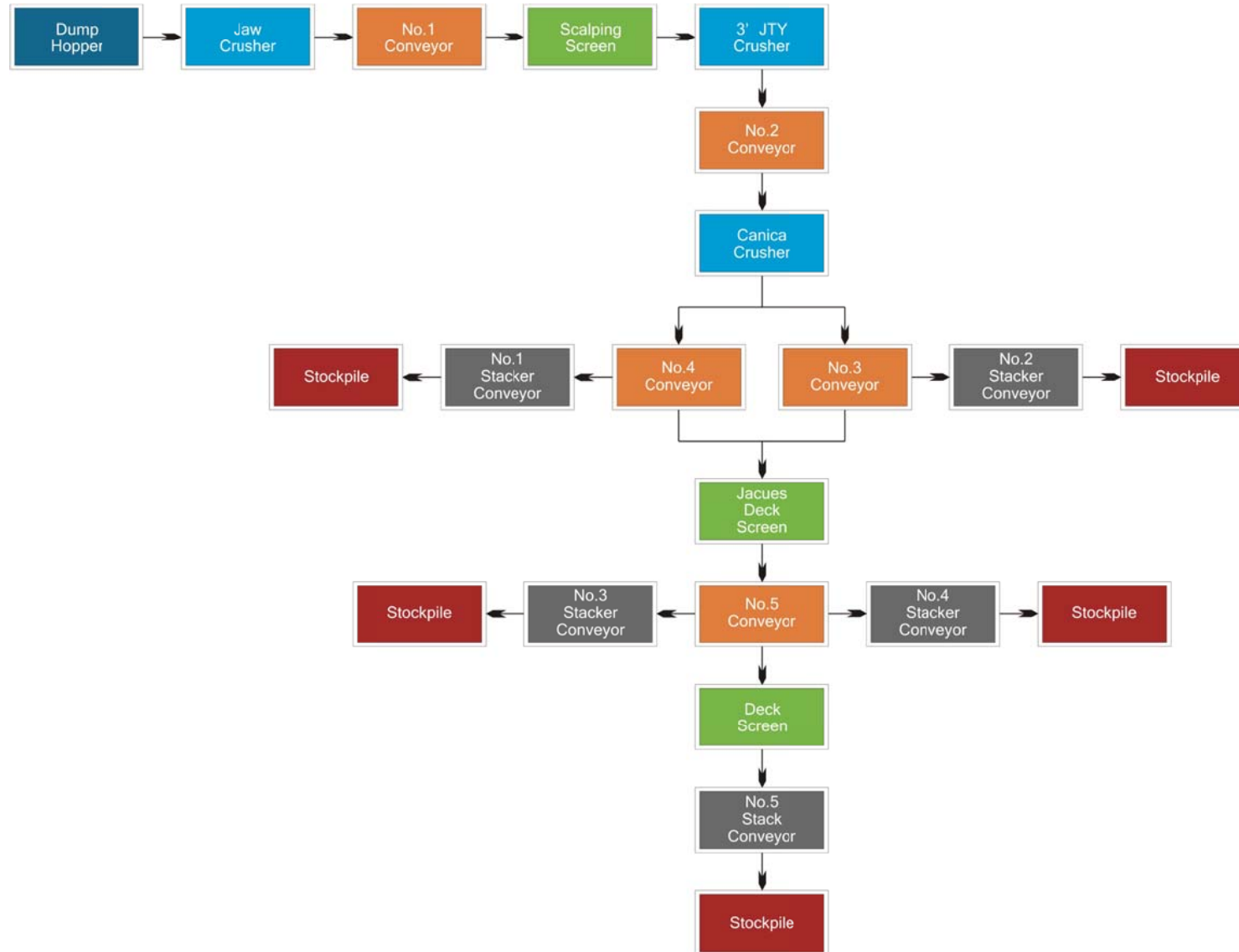


FIGURE 2.3

Schematic of Existing Processing Plant Layout

Note: Not to scale

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All operating hours are in accordance with current approvals.

2.2 Licensing and Approvals

2.2.1 Development Consent

OQ operates under development consent DA 92/164 which was originally granted on 1 October 1993 by the Minister for Planning. Subsequent modifications of the 1993 development consent have been approved in 1999, 2004, 2007 and September 2013. As outlined in **Section 1.0**, DA 92/164 provides for a ten year annual average production rate of 200,000 tonnes and a maximum annual production rate of 400,000 tpa. The approved project disturbance footprint covers an area of approximately 21 hectares. All quarrying operations (i.e. extraction, crushing, stockpiles, weighbridge, office, maintenance and administration buildings) are undertaken within this disturbance footprint. The development consent also required OQ to upgrade and seal Titania Road, upgrade three intersections between the quarry and Sydney Road, and pay a road maintenance levy. All of these requirements have been complied with. The development consent provides for the continuation of quarrying operations until 13 May 2016.

2.2.2 Environment Protection Licence

OQ holds EPL 4442 for the quarry operations which provides water discharge and blast monitoring criteria along with requirements for annual reporting.

2.3 Environmental Management and Monitoring

OQ has developed a range of management plans for operations at the quarry including:

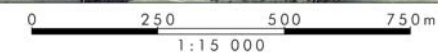
- Environmental Protection Plan;
- Water Management Plan;
- Erosion Control Plan;
- Haul Road Design and Sediment and Erosion Control Plan;
- Landscape and Rehabilitation Plan; and
- Bushfire Control Plan.

Each of these plans will be reviewed and updated as required to reflect any changes to approved operations at the quarry.

2.4 Land Use and Ownership

The quarry is located in cleared land that is used for sheep and cattle grazing. Pasture in the area is mainly improved.

Land Titles for properties surrounding the area of quarry operations are illustrated on **Figure 2.4**.



Legend

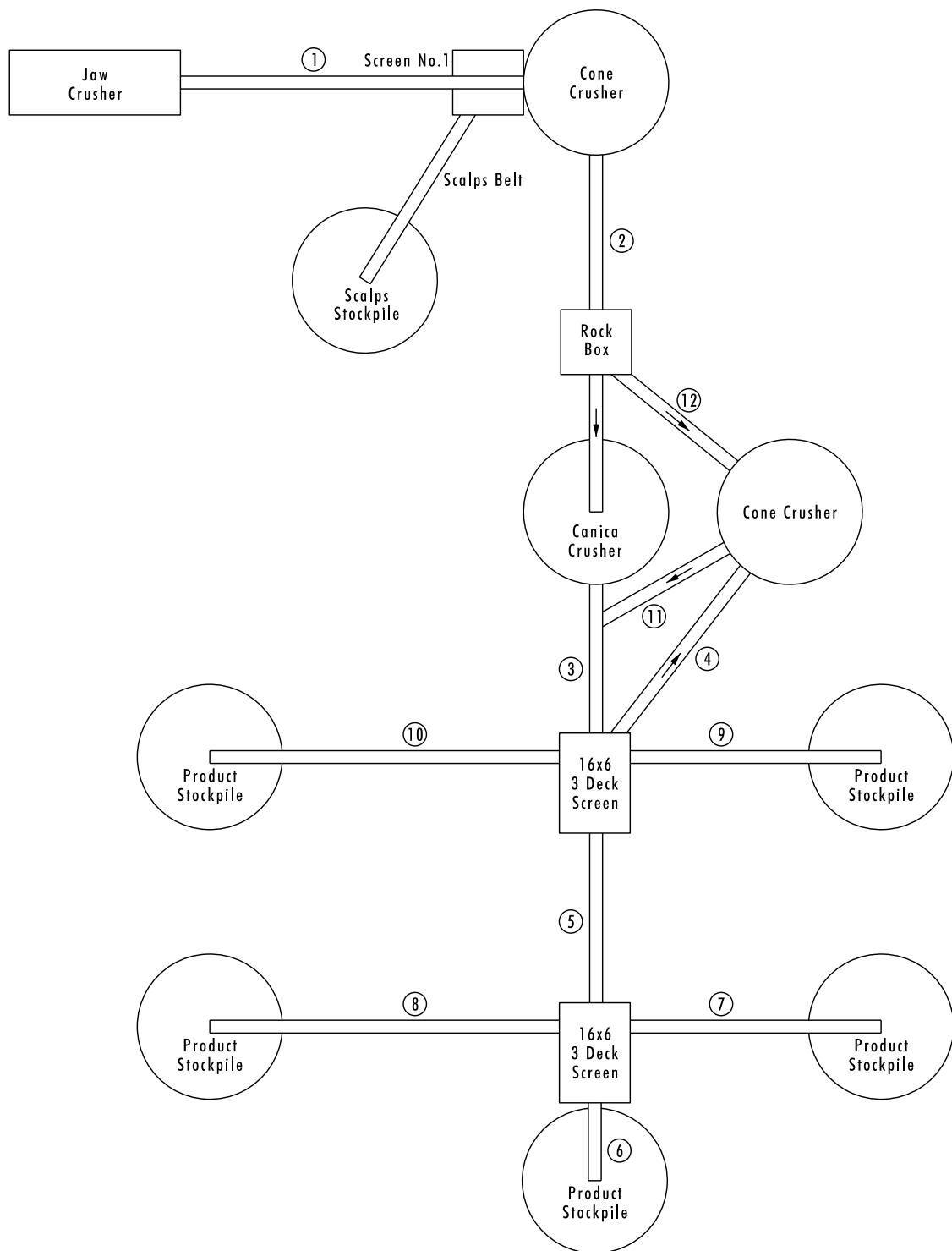
- Project Area
 Right of Carriageway 12m Wide

FIGURE 2.4
Land Ownership

2.5 Proposed Project Modifications

As discussed in **Section 1.0**, OQ is seeking to modify DA 92/164 under Part 4 of the EP&A Act to extend the life of the quarry for extraction of proven reserves. Proposed modifications are as follows:

- extend the life of the consent for a further 30 years to allow for the continued economic extraction of the remaining 10 Mt of basalt reserves within the area approved for extraction and subsequent rehabilitation of the site;
- removal of the ten year annual average production rate limitation (i.e. 200,000 tonne ten year annual average) from the consent allowing a maximum annual production rate of 400,000 tpa each year. The maximum annual production rate of 400,000 tonnes and maximum daily production rate limit of 2000 tonne will remain unchanged;
- remove redundant conditions from DA 92/164, i.e. landscaping and screening requirements associated with the 'Westrel', Linnane Park' and 'Rocklea' properties, as these properties are now owned by OQ;
- replacement of some of the existing screening plant, reconfiguration of the alignment of screens and the inclusion of an additional cone crusher. Modification of the crushing and screening plant is planned to consist of replacing the 3 inch JTY crusher with a Giro crusher and modifications to the conveyor and screen layouts as shown on **Figure 2.5**. This will be reviewed and may be revised as planning and equipment specifications are finalised. The equipment to be installed will be more energy efficient than the existing plant and result in reduced environmental impacts such as air quality due to production of less fines (a by-product of the crushing process), and estimated reduced noise impacts by 3 dB(A) (refer to **Section 5.2**);
- installation of a second diesel fuel storage tank with a capacity of approximately 28,000 litres (refer to **Figure 2.1**). The second tank will be located within the existing truck parking area and will comply with the requirements of the EPA's *Storage and Handling Liquids: Environmental Protection Participant's Manual* (EPA, 2007). The installation of a second tank minimises the operational risk associated with running out of fuel as each delivery can only be ordered when the existing 28,000 litre diesel tank is almost empty;
- a 1.0 hectare extension to the existing extraction area. This proposed extension is located adjacent to the middle of the western boundary of the Project Area. The resources in this area are bounded by Crown Road reserve along its southern and western boundaries would otherwise be sterilised if not extracted as part of the quarry operations. It is estimated there is approximately 500,000 tonnes of high quality hard rock resource in this area (refer to **Figure 2.1**). The proposed extension is within the project footprint that was considered as part of the 1992 EIS;
- produce and supply manufactured sand. The crusher fines will be put into the raw feed hopper by front-end loader. Material greater in diameter than 5 millimetres will be directed to a stockpile while material <5 millimetres will be directed to a Terex/Finlay 150e Hydrasander or equivalent screen and dewatering system (refer to **Figure 2.1**). The <5 millimetre material will be processed by the Hydrasander to separate the silt and clay fraction from the crusher fines and produce a clean washed manufactured sand product with a diameter of <5 millimetres. The process water from the Hydrasander will be continuously recycled and make up water will be provided from stormwater collected on site. The process will be designed and operated as a zero discharge system, i.e. there will be no water discharges offsite from the washing process. The process water will be



Legend

② Conveyor Belt Number

FIGURE 2.5

Schematic of Modified
Processing Plant Layout

Note: Not to scale

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managed in a multi-celled siltation pond. The multi-celled siltation pond will allow the silt and clay fraction to settle out and allow for the reuse of the water and for the recovery of the silt and clay material which will be blended with other on site materials to create a road base product (refer to **Figure 2.6**);

- construct approximately a 180 metre section of internal haul road between the weighbridge and the truck parking area to provide dedicated ingress and egress routes up the steep section of the existing haul road adjacent to the processing area. The existing haul road between the weighbridge and the truck parking area is steep, narrow and provides limited sight distance for vehicles and pedestrians entering and leaving the processing area. This presents a significant safety issue for simultaneous vehicle movements over this section of the internal haul road, with the likelihood/risk of an incident increased at a production rate of 400,000 tpa. The new internal haul road will be used for vehicles entering the quarry while the existing alignment will be used for vehicles departing the quarry (refer to **Figure 2.1**); and
- the continued extraction of the high quality basalt from the existing approved extraction areas as required. This will minimise double handling of interburden material and allow for variability in the quality of the rock and client requirements to be accommodated in the supply of the final product. It will also provide contingency for extraction during periods of prolonged rainfall when parts of the quarry floor may be flooded.

All other aspects of the approved quarry remain unchanged from current operations and will continue to be managed in accordance with existing site practices.

2.6 Alternatives

There are no identified feasible alternatives to extending the life of quarry as proposed. The 'do nothing' option is not considered feasible in relation to the life of the current development consent, which is due to lapse on 13 May 2016, given that there is approximately 10 Mt of reserves remaining in the current approval area and the necessary infrastructure to quarry this resource has been established and continues to be operational. Should the consent lapse, operations at the quarry will cease, with approximately 25 to 35 full-time jobs lost and the loss of a significant supply of high quality hard rock materials to the Sydney, Bathurst, Blue Mountains and local construction and infrastructure markets.

OQ has also identified that some of the traditional suppliers of high quality hard rock to the Sydney market have recently exhausted their reserves and ceased operations. Limiting the supply of high quality hard rock quarry products from OQ would further impose increased price pressures on the supply of quarry products to the Sydney, Bathurst, Blue Mountains and local hard rock markets. Removal of the 10 year annual average production limitation will assist with minimising price pressures on the supply of quarry products to the Sydney and the Central Tablelands hard rock markets and result in significant industry benefits through continuity of supply and increased competition.

As the PEA identifies, allowing the quarry to extract and process up to 400,000 tonnes of product per year is considered feasible without resulting in significant environmental impacts.

2.7 Justification

OQ operations provide economic benefits at Federal, State and local levels whilst being committed to maintaining a good working relationship with the community and solid environmental credentials and performance.

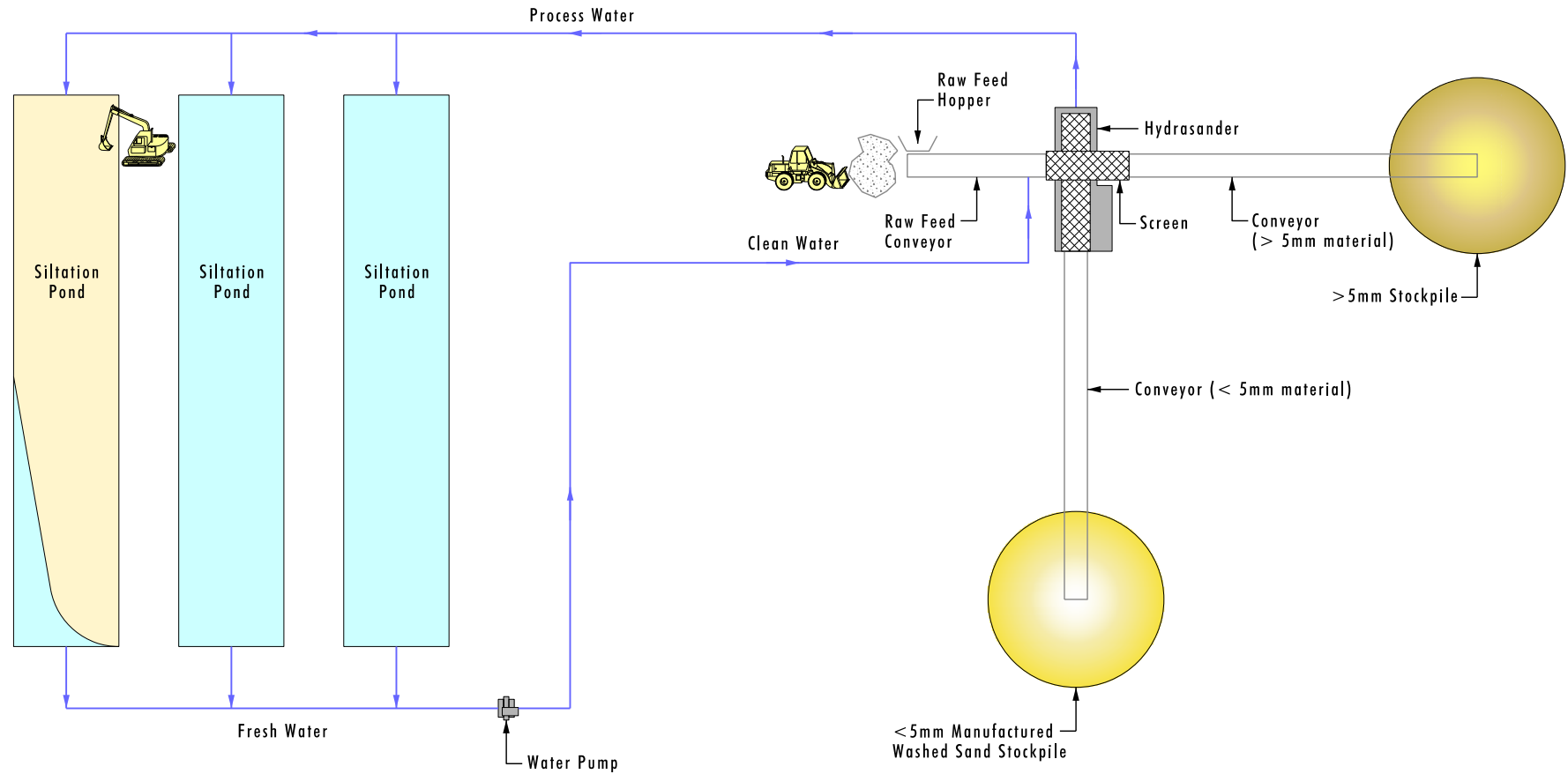


FIGURE 2.6
Manufactured Sand
Washing Process

Note: Not to Scale

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The proposed extension to the life of the quarry will not result in any substantial changes to the quarry operations or the environmental impacts associated with the current operations which were approved under DA 92/164. The proposed changes to quarry operations have been designed to result in improved overall environmental, social and economic performance of quarry operation and are consistent with that approved under DA 92/164.

The ongoing operation of the quarry will allow for the continued supply of high quality hard rock materials to the surrounding region and markets in Bathurst, Blue Mountains and Sydney from this regionally significant resource. This high quality hard rock quarry product is suitable for use in nearly all quarry product applications and has been used at the Opera House and Third Runway in Sydney.

The continued operation of the quarry and the beneficial reuse of the <5 millimetre material will provide a greater net return (i.e. better utilisation) on the capital, energy and resources which have already been invested as part of establishing the quarry (e.g. road upgrades, buildings, quarry infrastructure and water management infrastructure) when compared to establishment of a new quarry on a greenfield site.

OQ is an important contributor to local employment through the provision of direct and indirect employment. The ongoing operation of the quarry will maintain the existing employment of 25 full-time employment positions. This is envisaged to increase to 35 full-time employment positions at a production level of 400,000 tpa.

The ongoing operations will have limited if any substantial additional environmental impacts from that approved in 1993.

If modification to extend the life of the quarry operation is not granted, the opportunity to extract and supply in excess of 10 Mt of high quality basalt resource from this site to markets in Central Tablelands, Bathurst, Blue Mountains and Sydney areas will be lost as will the ability to use a fully established and environmentally sustainable quarry operation that will provide ongoing direct employment for 25 people increasing to approximately 35 people as the quarry reaches maximum production levels.

3.0 Planning Considerations

The Project requires development consent under Part 4 of the EP&A Act. As noted in **Section 1.0**, the Project is declared to be a State Significant Development under the provisions of the State Environmental Planning Policy (State and Regional Development) 2011 and the Minister for Planning will be the consent authority for the development. As State Significant Development, the Project is permissible provided it is not wholly prohibited by an environmental planning instrument. The quarry site and adjoining properties are currently zoned Rural 1a under the Oberon Local Environmental Plan (LEP) 1998, and zoned RU1 Primary Production under the provisions of the Draft Oberon LEP 2013. Extractive industries and subdivisions are permitted within land zoned, Rural 1a and RU 1 Primary Production with the consent of Oberon Council.

In addition to development consent under Part 4 of the EP&A Act, the Project will also require approvals under a number of additional Acts and consideration of factors under various State environmental planning policies (SEPPs). The additional Acts and policies relevant to this project are listed in **Table 3.1** below with an indication of any approvals likely to be required.

Table 3.1 – Other Potentially Relevant Acts and Environmental Planning Instruments

Planning Provision	Comments	Relevance Licences/ Approvals/Assessments
Commonwealth Legislation		
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Under the EPBC Act the approval of the Commonwealth Minister for the Environment (head of the Department of the Environment (DoE) is required for any action that may have a significant impact on Matters of National Environmental Significance (MNES), including: • World Heritage Properties; • National Heritage Places; • Ramsar wetlands; • cetaceans, migratory species, threatened species, critical habitats or ecological communities listed in the EPBC Act; • Commonwealth land; • marine areas or reserves; and • nuclear actions.	The proposed Project will result in the addition of 1.0 hectare to project disturbance area. This area is located in the Project Area assessed as part of the 1992 EIS and supports no native vegetation. A recent ecological assessment of this area has also been completed and no significant species, populations or communities were identified in the area. It also does not impact any other MNES, therefore, the Project is not considered to be a controlled action requiring approval under the EPBC Act. The Project will not require referral to the DoE.

Table 3.1 – Other Potentially Relevant Acts and Environmental Planning Instruments (cont)

Planning Provision	Comments	Relevance Licences/ Approvals/Assessments
<i>Native Title Act 1993</i>	The Native Title Act is administered by the National Native Title Tribunal (NNTT). The NNTT is responsible for maintaining a register of native title claimants and bodies to whom native title rights have been granted. These native title holders and claimants must be consulted prior to the granting of a mining lease over land to which the native title claim or right applies. This Act prescribes that native title can be extinguished under certain circumstances, including the granting of freehold land.	A search was undertaken of the NNTT's National Native Title Register, Register of Native Title Claims, Unregistered Claimant Applications and Register of Indigenous Land Use Agreements on 25 January 2013. The search revealed one active claimant application for the project area (i.e. Gundungurra Tribal Council Aboriginal Corporation #6). This claim applies to the whole of the Oberon Local Government Area (LGA), in which the quarry is located. As there is a Crown land road reserve within the Project Area (refer to Figure 2.1), native title is still active. However, the quarrying operations do not extend into these Crown land areas and as such native title does not apply to the Project.
NSW Legislation – Environmental Planning Instruments		
Oberon Local Environmental Plan 1998/Draft Oberon Local Environmental Plan 2013	Regulates permissibility and planning considerations in the Oberon LGA.	Project is permissible as discussed above.
State Environmental Planning Policy 33 (SEPP 33)	SEPP No. 33 requires the consent authority to consider whether an industrial proposal is a potentially hazardous industry or a potentially offensive industry.	The Project will not result in any changes to the existing operations which would alter this classification. Therefore, no further consideration of SEPP 33 will be required.
State Environmental Planning Policy (State and Regional Development) 2011	The project is of a class of development listed in the SEPP. The project is therefore identified as being State Significant Development.	Assessment under Part 4 of the EP&A Act as State Significant Development. An EIS must accompany the development application.
State Environmental Planning Policy 44 (SEPP 44)	SEPP No. 44 restricts a Council from granting development consent for proposals on land identified as core koala habitat without preparation of a plan of management.	The ecological assessment of the Project Area has determined that the area does not provide core koala habitat; consequently the requirement for preparation of a koala plan of management does not apply.

Table 3.1 – Other Potentially Relevant Acts and Environmental Planning Instruments (cont)

Planning Provision	Comments	Relevance Licences/ Approvals/Assessments
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007	Regulates the permissibility of extractive industries and related development and specifies matters that must be considered in assessing extractive industry developments requiring consent under Part 4 of the EP&A Act.	Part 3 requires consideration of specific issues related to extractive industry development including compatibility of Project with surrounding land uses.
NSW Legislation – Acts		
<i>Protection of the Environment Operations Act 1997</i> (POEO Act)	The POEO Act is administered by OEH and requires licences for environmental protection including waste, air, water and noise pollution control.	OQ currently holds EPL 4442 which provides for an extractive activity with a production rate of between 100,000 and 500,000 tpa. New noise limits have been identified as part of the noise assessment for the ongoing operations and it is envisaged these will be incorporated into the EPL. No other changes to the EPL are required as a result of ongoing operations.
<i>Roads Act 1993</i>	The Roads Act 1993 is administered by the Roads and Maritime Services (RMS), local council or the Department of Lands (DoL). RMS has jurisdiction over major roads, the local council over minor roads, and the DoL over road reserves. Under the Act applications are required to be made to the Minister for the closure of Crown roads and for works on public roads.	There are no known Crown Roads within the quarry's extraction area. Access to the quarry will be via Quarry Road which connects to Shooters Hill Road. No upgrades or modifications to the existing roads are proposed and as such no approval under the Roads Act will be required.
<i>Dams Safety Act 1978</i>	This Act requires that the NSW Dams Safety Committee periodically review large dams that may constitute a hazard to human life and property. These dams are known as prescribed dams and are listed in Schedule 1 of the Act. Any new prescribed dams are to be designed to the satisfaction of the Dams Safety Committee.	The proposed modifications do not require the construction of any new or additional dams that would require approval under the Dams Safety Act. The provisions of the Dams Safety Act do not apply to this project.
<i>Water Management Act 2000</i>	This Act regulates the taking, interception, storage and use of surface water and groundwater within areas subject to water sharing plans.	There will be no changes to impacts on water as a result of the proposed modifications. The provisions of the Water Management Act do not apply to the proposed modifications.

Table 3.1 – Other Potentially Relevant Acts and Environmental Planning Instruments (cont)

Planning Provision	Comments	Relevance Licences/ Approvals/Assessments
<i>Water Act 1912</i>	This Act has been repealed by the Water Management Act 2000; however, certain licensing provisions of the Water Act administered by the NSW Office of Water (NOW) still apply. The licensing provisions of the Water Act apply to water sources that are not subject to a water sharing plan gazetted under the WM Act. The Water Act is administered by the NSW Office of Water (NOW). A permit and/or licence must be obtained to extract surface water and/or groundwater not covered by a water sharing plan under the WM Act (i.e. Part 2 and Part 5 of the Act respectively).	OQ currently holds a Part 2 surface water licence under the Water Act for the extraction of water from Racecourse Creek.
<i>Threatened Species Conservation Act 1995 (TSC Act)</i>	Under the EP&A Act, impacts on threatened species listed under the TSC Act are required to be assessed.	The proposed modifications will result in an additional 1.0 hectare of disturbance. This area is located in the Project Area assessed as part of the 1992 EIS and has been cleared of native vegetation. The area supports improved pasture and exotic cypress species. A recent ecological assessment of this area has also been completed which has not resulted in finding any significant species, populations or communities. No further assessment or approvals under the TSC Act is therefore required.

3.1 Approvals Legislation Which Does Not Apply

Under section 89J of the EP&A Act, if development consent is granted for the Project under Part 4 of the EP&A Act, the following authorisations, which may otherwise have been relevant, will not be required to carry out the Project (refer to **Table 3.2**).

Table 3.2 – Authorisations Which Do Not Apply

Act	Approval
<i>Coastal Protection Act 1979</i>	Concurrence under Part 3 of the Act (use of coastal zone).
<i>Fisheries Management Act 1994</i>	A permit under section 201 (dredging or reclamation work), s. 205 (harming marine vegetation) or s. 219 (blocking of fish passage).
<i>Heritage Act 1977</i>	An approval under Part 4 (effect on interim heritage orders and listing on State Heritage Register), or an excavation permit under section 139 (disturbance or excavation of relic) and Division 8 Part 6 of the Act.
<i>National Parks and Wildlife Act 1974</i>	An Aboriginal heritage impact permit under s. 90 (Aboriginal Heritage Impact Permit).
<i>Native Vegetation Act 2003</i>	An authorisation referred to in section 12 (to clear native vegetation or State protected land).
<i>Rural Fires Act 1997</i>	A bushfire safety authority under section 100B (bushfire safety authority).
<i>Water Management Act 2000</i>	A water use approval under section 89; a water management work approval under section 90; an activity approval (other than an aquifer interference approval) under section 91.

4.0 Stakeholder Engagement

Community and agency consultation is a fundamental element of the preparation of an EIS and necessary to assist in the determination of the relevant issues to be addressed. OQ's approach to consultation has been to identify and then consult with the key agencies, stakeholders and community regarding the proposed modification to assist in appropriately defining the scope of the EIS and to enable the ongoing operations to be responsive to community concerns. Issues raised during the consultation process will be considered during the preparation of the EIS.

The consultation program to date has consisted of briefings and discussions with key government agencies to discuss key issues and proposed management measures. These agencies included the DP&I, Oberon Council, the Environmental Protection Authority (EPA)/ Office of Environment and Heritage (OEH), and NSW Office of Water (NOW). Key stakeholders and the community (i.e. the surrounding landholders within the vicinity of the quarry) have been engaged via individual meetings. During the meetings the ongoing operations and the potential impact on the community and environment were outlined and feedback was sought on the proposed ongoing operations for incorporation in the EIS as appropriate. A summary of the consultation undertaken is contained in **Table 4.1**.

Table 4.1 – Summary of Agency and Community Stakeholder Consultation

Agency/ stakeholder	Date	Form of Consultation	Outcomes/Comments
DP&I	15 January 2013	Email	DP&I confirmed that the modification will be assessed under Section 75W of the EP&A Act.
DP&I	July/August 2013	Phone conversations	DP&I confirmed the project should be assessed in two stages – initial modification for extension of quarry life for 2 years; and then assess 30 year extension and other associated modifications as a State Significant Development under Part 4 of the EP&A Act.
EPA/ OEH	21 June 2013	Phone conversation	The EPA raised a number of concerns relating to the on-site diesel fuel storage facility it identified as part of a site inspection undertaken a number of years ago (i.e. the location of the filling point outside of the bund wall and the absence of a concrete apron). Since the EPA's inspection OQ has undertaken rectification works to address both of the above issues. No other issues of concern were raised.
NOW	27 June 2013 and 1 August 2013	Phone conversation and email	Attention drawn to NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011 Water Sharing Plan. No specific requirements identified.
Oberon Council	21 June 2013	Meeting	Council overall supported the ongoing operation of the quarry. Council however was concerned about the refuelling of trucks in Oberon. As part of this modification, OQ is seeking approval to construct a second 28,000 litre diesel tank to minimise the risk of running out of fuel and therefore the need to undertake refuelling in Oberon. No other issues of concern were raised.

Table 4.1 – Summary of Agency and Community Stakeholder Consultation (cont)

Agency/ stakeholder	Date	Form of Consultation	Outcomes/Comments
Key stakeholders and Community (Tony Alevras, John Hackfath, Graham Bell and Stan Edwards)	21 June 2013	Meeting and phone conversations	Individual meetings with surrounding landholders within the vicinity of the quarry. All of the community stakeholders that the project was discussed with on 21 June 2013 supported the ongoing operation of the quarry and raised no objections.
Warrick, Mark and Ian Mawhood	31 July and 1 August 2013	Phone conversations	Identified no issues with quarry operation of past 18 years.

4.1 Aboriginal Heritage Consultation

On 4 September 2013, a letter was sent to Gundungurra Aboriginal Heritage Association Inc. (GAHAI) and Gundungurra Tribal Council Aboriginal Corporation (GTCAC) requesting information regarding the Aboriginal cultural values associated with the proposed Oberon Quarry extraction area extension. It was requested that this advice be provided by 2 October 2013.

On 19 September 2013, Sharyn Halls (GAHAI) was contacted by phone and she provided the following information:

- it was understood that the proposal was for a 1.0 hectare extension to the existing quarry; and
- no specific cultural information was provided for Racecourse Hill. However, it was noted that the general Oberon area was significant because their families had lived in the area and Oberon formed part of a song line through the region.

An attempt was also made to phone Sharon Brown (GTCAC) on 19 September and 4 October 2013. However, she was not able to be contacted.

5.0 Environment and Community

5.1 Geology

5.1.1 Regional Geology

The quarry is located on a basalt cap which was once part of a larger lava sheet which covered most of the Oberon area. Through weathering and erosional processes, most of the lava flow has been removed to expose the underlying older rock units of Silurian and Ordovician (460 million years old) and Carboniferous (320 million years old) ages.

Regionally the younger Carboniferous material has intruded through the older rocks to form major units like the Bathurst Granite and Oberon Granite.

5.1.2 Site Basalt Reserves

The 1992 EIS notes the probable high quality hard rock reserves within the Racecourse Hill deposit of approximately 39.7 Mt based on three drill cores and field mapping. It is estimated that was approximately 12.7 Mt within the approved 21 hectare extraction area. Since 1995 OQ has extracted approximately 2.7 Mt of basalt leaving approximately 10 Mt of resource in the approved extraction area and an additional approximately 27 Mt of basalt reserves within the remainder of the Racecourse Hill deposit.

The annual average product sale tonnage has ranged from approximately 138,000 to 237,000 tpa, with an annual average product sales tonnage of approximately 159,000 tonnes.

OQ propose to disturb an additional 1.0 hectare of the Project Area for the extraction of resources (refer to **Figure 2.1**). The pit design will be altered to include extraction in this area if approval is granted.

5.2 Noise

A detailed noise assessment has been undertaken which includes the direct noise impacts associated with the ongoing operations and the cumulative noise impacts.

As illustrated on **Figure 5.1**, there are four private residences located between 400 metres and 1.3 kilometres from the extraction area. The 'Langley Heights' property is located approximately 400 metres east of the northern limit of the approved extraction area; this property is associated with the quarry. Two residences are located approximately 365 and 403 metres due north of the extraction area and are shielded from quarry activities by intervening topography, including Racecourse Hill. The fourth residence is located adjacent to Shooters Hill Road, approximately 1.3 kilometres to the east of the extraction area.

Modelling of predicted noise impacts indicates, that after implementing all practical and feasible noise control measures, during the day time period, three private residences (including Langley Heights now owned by OQ) will experience noise levels up to 4 dB(A) above the EPA noise criteria once the new crushing and screening plan is installed. During the evening and night-time periods, one private residence will experience noise levels up to 3 dB(A) above the EPA noise criteria. Discussions with this resident and the land owner indicate that neither have concerns in regard to noise levels from the quarry. It is noted that the quarry has been operating without noise complaints for many years and that the inclusion



Source: Resource Planning (1992)

0 0.5 1.0 2.0 km
1:45 000

Legend

- Project Area
- Private Residences
- Residence Owned by Oberon Quarries or Associated with Quarry

FIGURE 5.1

Residences in the Vicinity
of the Quarry Site as at 2013

of new crushing and screening plant is estimated to reduce the existing noise at the nearby residential receivers by up to 3 dB(A), when compared to the current operations.

OQ is committed to mitigating and minimising the noise impacts from its operations and will continue to implement noise impact mitigation and management measures.

5.3 Blasting

Blasting operations (i.e. overpressure and vibration limits) at OQ are undertaken generally in accordance with DA 92/164.

The blast monitoring results for the 2010 and 2011 calendar years show that none of the blasts monitored were above the overpressure and vibration limits. The blast monitoring results for the 2012 calendar year show that there had been two exceedances of 120 dB and no exceedances of the 5 mm/s vibration limit of the blasts that were monitored. OQ has advised that overpressure exceedances were due to irregularities along the blasting face, which when combined with the drill hole angle reduced the distance to face for some holes which has resulted in overpressure levels being recorded above 120 dB.

These exceedances occurred when blasting was being undertaken on the upper level at the very northern end of the extraction area approximately 360 metres from NM2 (Alevras cottage) where the blasts were monitored. In the future, blasting at the northern end of the extraction area will be at least 400 metres from Alevras cottage and will be undertaken on the lower bench which is approximately 10 metres below ground level.

Blast monitoring has been a requirement of the blasting contract between Oberon Quarries and the blasting contractor for many years. There have been some problems with the implementation of this component of the contract in the past and as a result of the November and December 2012 blast exceedances, OQ has purchased its own blast monitoring equipment and has been undertaking blast monitoring in parallel with the blasting contractor to ensure that all blasts are accurately monitored.

In addition the Quarry Manager has undertaken blasting training so that all blasts configurations and delays used can be thoroughly checked before the blasts are detonated. In conjunction with this OQ has reduced the maximum number of holes to be detonated in a blast from 300 to 150.

OQ has committed to ensuring that sufficient distance is maintained between the blast hole and the quarry face, that appropriate delays are used and that all blasts are monitored and recorded to avoid any further exceedances in the future.

OQ has and will continue to manage its blasting impacts through ongoing monitoring and review of the blast design, so that the overpressure and vibration criteria are not exceeded at private residences unless agreed with the resident. No adverse impacts from blasting are predicted to occur as a result of the proposed ongoing operations.

5.4 Air Quality

Dust levels are a typically key community concern associated with quarrying activities. The existing air quality in the area immediately surrounding the site is influenced by a number of factors, including the quarry's dust management practices, the prevailing meteorological conditions, topography and agricultural activities.

Emissions from the operation of the quarry consist mainly of particulate emissions (dust). Emissions of pollutants from vehicle exhaust are of an insignificant nature.

To assess the potential air quality impacts associated with the proposed ongoing operations, a detailed air quality assessment has been undertaken. The assessment includes the direct air quality impacts associated with the operations and the predicted cumulative air quality impacts.

Modelling of predicted dust emissions from the ongoing operations has shown that the contribution from the ongoing operations will be less than the dust goals and criteria set by EPA.

The cumulative impact assessment found that there would be no residences where the EPA's annual depositional dust criteria are expected to be exceeded. The annual cumulative PM₁₀ and TSP goals will also not be exceeded at any residence.

It should be noted that OQ operates a network of four depositional dust gauges. Monitoring results from the gauges demonstrate that the recorded dust levels have been consistently well below the relevant EPA air quality criteria between 2008 and 2011.

Based on the current dust management practices at the site, depositional dust monitoring results for the past nine years and that the proposed modifications will not result in any changes to the approved disturbance area or production rates, it is considered that ongoing operations at the quarry will result in air quality impacts below the relevant EPA air quality criteria.

To ensure air quality impacts are mitigated and minimised OQ will continue to implement suitable air quality mitigation and management measures.

5.5 Visual Impact

An assessment, which includes visiting vantage points surrounding the quarry, has been undertaken of the ongoing operations to identify the potential visual amenity impacts. The assessment concluded that the natural topography, existing bunds, existing vegetation and distance of the quarry from surrounding residences and vantage points, heavily restrict the visibility of the quarry and its operations. The ongoing operations will not result in visual amenity impacts above those considered as part of the 1993 development consent.

5.6 Surface Water

The ongoing quarrying operations and proposed modifications are located within the quarry's existing dirty water management system. Water within the quarry's existing water management system is captured within a series of onsite dams that provide four levels of control. Water from the dams is utilised onsite. The existing water management system includes diversion drains, catch drains, sedimentation dams and a 2 ML Storage Dam. Diversion drains have been constructed around the disturbance area and are vegetated. Catch drains have been constructed with rock weirs and convey sediment-laden water to a series of sedimentation ponds. These ponds are located within the southern extent of the site and are designed to manage runoff from a Probable Maximum Precipitation rainfall event from the 21 hectare water management system. This system can be readily augmented to accommodate additional runoff from the proposed 1.0 hectare extension area.

In addition to the diversion drains and sedimentation dams, OQ implements additional localised sediment and erosion controls in accordance with *Managing Urban Stormwater – Soils and Construction* (Landcom, 2001) to reduce the impacts on the water quality in the quarry's dirty water management system, as required. No additional surface water impacts are therefore anticipated due to the ongoing operations.

Results from monitoring of Racecourse Creek downstream of the quarry since 1995 demonstrate that the quarry is not having any adverse impact on water quality in the creek.

During an average rainfall year it is estimated that runoff from the quarry area will be approximately 150 ML/year.

5.7 Traffic and Transport

The ongoing distribution of product will be via the approved haul roads and the public road network. It is noted that sections of these roads and a number of intersections were upgraded by OQ in accordance with DA 92/164. It is also noted that Titania Road was upgraded, at Council's request, to a higher standard than the consent required. The cost of this upgrade was \$1.3 million as opposed to the estimated \$790,000.

No issues in regard to traffic congestion, flow capacity or site distance have been identified at any of the intersections that were upgraded by OQ. Traffic volumes on these roads have not increased significantly since consent for the quarry was granted in 1993. As the ongoing operation does not change the maximum production limits from the quarry (i.e. 400,000 tpa and 2000 tonne per day), no increase in peak traffic impacts are predicted to occur as a result of the ongoing operations. No additional traffic flow or intersection capacity impacts are anticipated due to the ongoing operations.

OQ pays and will continue to pay Oberon Council a tonnage based road maintenance contribution to help maintain the public roads used by the quarry.

5.8 Ecology

The proposed 1.0 hectare extension is located within the Project Area as defined in the 1992 EIS. A survey of the area has recently been completed (September 2013) which found the area remains cleared of native vegetation and comprises improved pasture for grazing and a short windbreak of exotic cypress. The surrounding land was also consistently disturbed with active quarry land occurring to the north, north-east and east, whilst paddocks to the south and west supported improved pastures for stock grazing.

The proposed continued operations and 1.0 hectare extension to the extraction area will have a similar low impact on the flora and fauna to that described in the 1992 EIS and is consistent with that approved under the current development consent.

5.9 Heritage

The proposed 1.0 hectare extension is confined to the Project Area as defined in the 1992 EIS and no heritage impacts are anticipated as a result of the proposed extension.

5.10 Aboriginal Archaeology

The proposed 1.0 hectare extension is located within the Project Area as defined in the 1992 EIS. No archaeological sites were identified in this area which has been heavily disturbed, ploughed and planted with improved pastures since the 1950s. No additional Aboriginal archaeological impacts are anticipated as a result of the proposed extension. The 1.0 hectare area has been extensively disturbed in the past and currently supports improved pasture and exotic trees. Based on previous survey of the project area in 1992, it is considered unlikely that the proposed 1.0 hectare extension area will contain any Aboriginal artefacts. The representatives of the local aboriginal community have been consulted in regard to cultural significance of the area with no significance noted (refer to **Section 4.0**).

5.11 Rehabilitation and Closure

Progressive construction of the final landform will be undertaken once the extraction of the first and second benches has been completed within sections of the quarry pit and as space within the pit floor allows. The final landform will be created by pushing the overburden bund that has been constructed around the rim of the extraction area over the quarry face and onto the quarry floor. In addition, interburden material removed during ongoing operations will be placed against the wall of the quarry and on the quarry floor. Benches will also be covered with overburden material. The rehabilitated quarry floor will then be seeded with improved pasture and woodlots of native trees established to provide shelter for stock and habitat for native fauna. Benches will be planted with native trees.

As the lower bench still needs to be extracted to a sufficient extent to enable rehabilitation of the benches and quarry floor to be undertaken, it is envisaged that it will be approximately 10 years before any significant rehabilitation works can be undertaken without interfering with quarrying operations and without quarrying operations interfering with rehabilitation activities.

The ongoing operation of the quarry will not result in any changes to the final landform from that approved by the 1993 development consent. The 1.0 hectare area will be incorporated into the Landscape and Rehabilitation Plan for the quarry which will be revised to reflect changes to quarry extent and extraction sequence which have occurred since the plan was developed.

Infrastructure will be removed following completion of quarrying of all hard rock resources at the site.

5.12 Greenhouse Gas and Energy

Greenhouse gas emissions including those from extractive industries are a growing concern for the wider community. The approved quarry operations will result in the ongoing emission of greenhouse gases through the combustion of fuel used in diesel powered equipment and indirectly through the use of electricity to power quarrying equipment. Diesel consumption by plant, equipment and the transport fleet is predominantly driven by the quantity of quarry materials extracted and delivered respectively. Similarly, liquid fuel consumption by employee transport is also driven by the quantity of quarry materials extracted.

Greenhouse gas emissions originating from business travel and HFCs are likely to be very small and immaterial in an assessment context based on the size of the operation.

A detailed greenhouse gas and energy assessment has been undertaken to consider emissions from the Project over the next 30 years. The operation of the quarry is estimated

to contribute approximately 0.000008% to the global emissions per annum (based on its projected Scope 1 emissions).

OQ recognises the future will be a carbon constrained world and is committed to reducing the greenhouse gas emissions from its operations and has identified a number of mitigation measures it proposes to implement as part of the Project to minimise its greenhouse gas emissions and energy usage (e.g. the new cone crusher proposed to be installed is more energy efficient than the existing plant).

Greenhouse gas emissions will be significantly lower than would result if a greenfields development was established to provide the quarry product.

5.13 Groundwater

Several small springs are located towards the base of Racecourse Hill in Tertiary gravels that are located between the basalt and the underlying less pervious granitic material. The Tertiary gravel groundwater aquifer is considered as part of the Lachlan Fold Belt water source. Springs to the north and west of the quarry are located approximately 40 m below the top of Racecourse Hill at 1100 m AHD and are thought to be fed by water infiltrating to the underlying alluvial Tertiary gravels that occur between the basalt and granite. The tertiary gravel is elevated above the surrounding valley landforms and is confined to Racecourse Hill.

Ongoing operations at the quarry will not disturb the gravel layer that underlies the basalt resource but will remove the basalt from within the approved extraction area. Groundwater springs that are located around the northern perimeter of Racecourse Hill which are fed by groundwater flows from gravel layer are below the ultimate quarry floor and will not be directly impacted by quarry operations.

Other than the proposed 1.0 ha extension area, the ongoing operation of the quarry does not seek to change the extent or the depth of extraction from that currently approved. Extraction of the approved basalt resource will remove the fractured rock aquifer within the extraction area. As extraction progresses, surface runoff ponded on the quarry floor will infiltrate the underlying fractured basalt. Extraction of the lower bench of basalt material which is expected to commence in the later part of 2013 will not impact on the Tertiary gravel layer.

No additional regional groundwater impacts are predicted to occur as a result of the ongoing operations and therefore the groundwater impacts are considered negligible and consistent with that approved by the 1993 development consent.

5.14 Socio-Economic Impact

OQ supports the local economy through the supply of rock products for road, building and other construction activities in the region. OQ is also a valuable source of employment through the provision of 15 jobs at the quarry and 10 jobs for truck drivers, as well as associated indirect jobs and regular engagement of local service contractors. At a production level of 400,000 tpa, it is envisaged that the quarry will provide fulltime employment for 20 people at the quarry and 15 truck drivers (i.e. 35 people).

The ongoing operations will not result in any significant changes to the potential socio-economic impacts of the quarry. The continued operation of OQ will provide ongoing employment for those currently employed by the quarry and see new employment opportunities as production increases to 400,000 tpa. It will also provide ongoing

opportunities for contractors and others servicing the quarry. In addition the ongoing operations will ensure a continued supply of high quality construction materials to the region and will continue to contribute to employment opportunities in the Oberon area.

Consultation with surrounding landholders indicates that quarry operations are not adversely impacting on land use or amenity of the surrounding area.

6.0 References

EPA, 2007. *Storage and Handling Liquids: Environmental Protection Participant's Manual*.

Landcom, 2001. *Managing Urban Stormwater – Soils and Construction*



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