Multiquip Quarries

ABN: 44 101 930 714

Ardmore Park Quarry

Via Bungonia, NSW

Environmental Assessment

to support a

S75W Modification of PA 07_0155

June 2013

Prepared by:

R.W. CORKERY & CO. PTY. LIMITED

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EXECUTIVE SUMMARY

Project Approval (PA) 07_0155 was originally granted on 20 September 2009 for the development and operation of a quarry on the "Ardmore Park" property (the Ardmore Park Quarry), 4km south of the village of Bungonia and 25km southeast of Goulburn in the southern tablelands of New South Wales (see **Figure 1**). In May 2010, an application to modify PA 07_0155 under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act) was submitted to modify the location of the access to the Ardmore Park Quarry and was subsequently approved on 8 October 2010

This submission has been prepared to support an application to modify PA 07_0155 under Section 75W of the EP&A Act to allow for the delivery of up to 20 000tpa to local customers on the existing surrounding road network, i.e. on roads not included in the transport route approved by PA 07_0155.

An environmental assessment of the proposed modification to PA 07_0155 has been prepared to identify those issues likely to be of greatest significance to the local environment, surrounding and nearby land owners and the wider community, namely traffic, noise and amenity.

Specialist assessments of traffic and noise-related impacts were commissioned, with Christopher Hallam & Associates Pty Ltd and SLR Consulting Australia Pty Ltd preparing the respective assessments. Both assessments are reproduced in full as appendices to this report.

The assessment of traffic-related impacts confirmed that the additional traffic generated by the Proposal would be within acceptable traffic capacity limits and the current access to the Ardmore Park Quarry would not require any additional modifications.

The traffic noise and vibration assessment confirmed that in all cases, the predicted noise and vibration levels were below the respective criteria.

It is concluded that the proposed modification would result in minor changes to local traffic conditions but that these changes would meet relevant environmental criteria and meet reasonable community expectations.

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1. INTRODUCTION

1.1 OVERVIEW

Project Approval for extractive industry and processing operations at the Ardmore Park Quarry (hereafter "the quarry") was issued by the Minister for Planning on 20 September 2009. An application to modify the quarry under Section 75W, supported by an Environmental Assessment prepared by R.W. Corkery & Co Pty Limited (RWC, 2010), was submitted and approved on 8 October 2010 to remove the requirement to relocate the quarry's entrance. The quarry is located north of Oallen Ford Road, 4km south of the village of Bungonia and 25km southeast of Goulburn in the southern tablelands of New South Wales (see **Figure 1**).

This submission has been prepared to support an application for a further modification to PA 07_0155 under Section 75W of the EP&A Act. The proposed modification would allow for the transportation of up to 20 000tpa of products via the local surrounding road network. These deliveries would not be limited to the approved transport route between the quarry and the Hume Highway via Oallen Ford Road, the Bungonia by-pass, Mountain Ash Road and Jerrara Road (hereafter referred to as the "approved transport route"). The proposed alternative transport routes ("proposed local haul route") would allow for trucks to turn left from the quarry and travel south along Oallen Ford Road, before utilising roads such as Windellama Road, Brisbane Grove Road, Braidwood Road, as well as other smaller local roads to provide access to customers within areas such as southern Goulburn, Tarago and other southern destinations.

The proposed local haul route would not be defined by a single route, but rather be based upon main local roads while utilising smaller feeder roads for customer deliveries. Roads with a weight limit would be avoided where possible and only utilised for deliveries along that road if required, with trucks adhering to all weight limits at all times. It should be noted that the remaining 380 000tpa approved under PA 07_0155 would be transported along the approved transport route only. This approval would not necessarily reduce the amount of trucks that could potentially use the approved transport route as there may be some years that local deliveries do not occur.

No modifications to the approved quarry access intersection would be required to allow access to turn left onto Oallen Ford Road.

It is acknowledged that certain constraints and issues require consideration in determining this application. Accordingly, this *Environmental Assessment* has been completed to identify those issues likely to be of greatest significance to the local environment, surrounding and nearby land owners and the wider community. Impacts related to traffic, noise and amenity were identified as requiring further investigation to address the effect that the proposed modification to PA 07_0155 could have on the local environment.

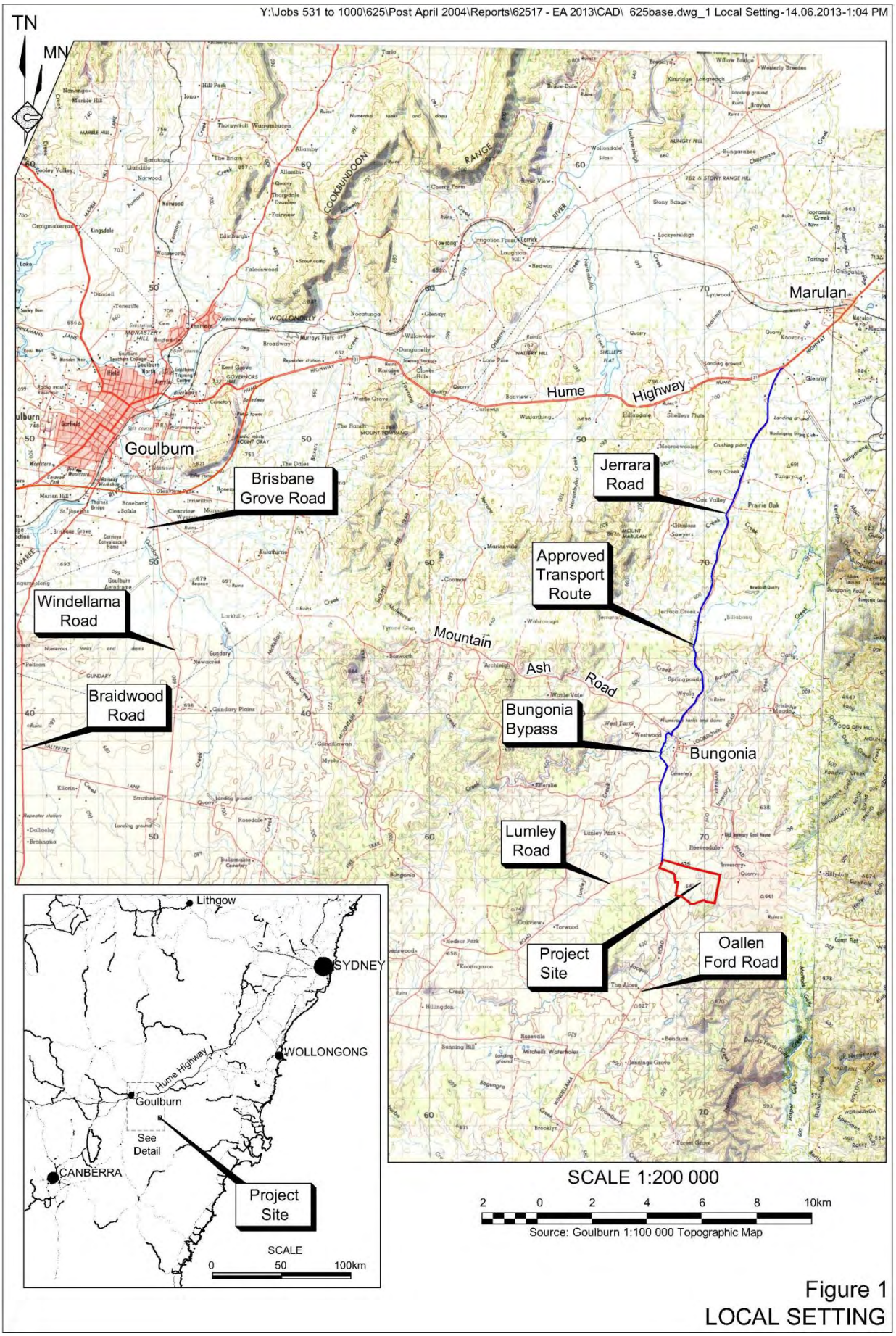

Figure 1
LOCAL SETTING

1.2 SCOPE

The purpose of this document is to:

- outline the proposed modification;
- document the likely impacts of the proposed modification on the environment;
- provide further information on the implications that the proposed modification would have on the local environment; and
- provide conclusions and recommendations to assist the Department of Planning and Infrastructure (DP&I) in considering the proposed modification.

1.3 BACKGROUND

In January 2005, following the completion of exploratory drilling and resource analysis confirming the presence of commercially recoverable quantities of sand and basalt of a quality satisfactory for use in the manufacture of concrete and for road construction activities, a development application was lodged with the then Department of Infrastructure, Planning and Natural Resources to develop and operate a quarry at the "Ardmore Park" property.

The Minister for Planning refused that development application with the decision upheld in the NSW Land and Environment Court on 19 June 2007 by Justice Jagot (Hearing 10245 of 2006). Refusal was based on the argument that the environmental impacts associated with the proposed transport through Bungonia Village and the transport route generally were unacceptable and not adequately mitigated.

To ensure a modified application for the Ardmore Park Quarry adequately addressed these issues, Multiquip reviewed the transportation component of the proposal and provided for:

- a private by-pass road of Bungonia; and
- the upgrading of the public roads of the proposed local haul route to the desired road standard of Goulburn-Mulwaree Council.

An Environmental Assessment of the modified Ardmore Park Quarry proposal was prepared by R.W. Corkery & Co Pty Limited in 2008 (RWC, 2008). This addressed the issues highlighted by Justice Jagot and also took into consideration concerns raised by Goulburn-Mulwaree Council ("Council") with the respect to the location of the Quarry Access Road. Council requested that the access point to the quarry be relocated to avoid any possible conflict between traffic entering and exiting the quarry, and traffic entering Oallen Ford Road from Lumley Road (opposite the existing "Ardmore Park" property entrance). As a result of Council's concerns related to the current location of the property entrance, a revised alignment for the access road was presented in the *Environmental Assessment* with Project Approval (PA 07_0155) issued on 20 September 2009.

Following the receipt of PA 07_0155, the location of the relocated access point and intersection was discussed with road construction companies and designers with it being concluded that the existing property driveway location would be safer and more suitable than the approved access point. Subsequently, a Section 75W Modification under the EP&A Act was lodged by RWC in 2010 (RWC 2010) to the then Department of Planning (DoP), resulting in a successful modification in which the quarry entrance was upgraded to a suitable standard at its original location, rather than relocated.

Section 1.5 provides a description of the approved operations for which PA 07_0155 was granted by the Minister for Planning, as well as the modification granted by the Department of Planning and Infrastructure on 8 October 2010. Multiquip is working to fulfil all pre-operational conditional requirements outlined in PA 07_0155 and it is expected that quarry operations will commence in late 2013.

1.4 THE APPLICANT

The Proponent of the Ardmore Park Quarry and this proposed modification is Multiquip Quarries. Multiquip Quarries is the trading name of CEAL Limited (ABN 44 101 930 714). The Company directors of Multiquip Quarries, a publicly owned Company, are also directors of Multiquip Transport, a transport company, Multiquip Aggregates a construction material and mining services provider and Multiquip Pty Ltd, an engineering company. Multiquip Transport currently operate a fleet of over 40 heavy vehicles including semi-trailers and B-double semi-trailers for the transportation of stock feed, livestock, eggs, sand and other raw materials. Operating for approximately 29 years, Multiquip Transport operates in the Sydney area, north to Tamworth, south to Crookwell and west to Wellington. Multiquip Aggregates provide specialist equipment for the construction materials industry from bulk tipper trucks to dry bulk tankers along with heavy plant & equipment used for extraction of raw material and rock crushing & screening services. Services range from dry equipment hire to contract operation of quarries and other projects.

1.5 THE APPROVED DEVELOPMENT

1.5.1 General Operations

The sand resource targeted for extraction has been estimated as 6.3 million tonnes and the basalt (hard rock) resource estimated as 9 million tonnes (92% of which would be suitable for the production of quality construction or road building materials). The planned total area of disturbance over the life of the quarry would be 61ha, although the area of active disturbance would be much less given the progressive development of the extraction areas and rehabilitation of the disturbed area. **Figure 2** presents the layout of the Quarry Site and identifies the following components.

- The southern sand extraction area.
- The basalt and central sand extraction area (including a borrow area for basalt to be used in internal road construction).
- Sand and hard rock processing areas (including a borrow area for overburden to be used in the construction of bund walls).
- Water storage and sediment settling dams.
- Other water management structures.
- The Ardmore Park Quarry entrance and Quarry Access Road.
- Quarry Services Area.
- Site administration area.

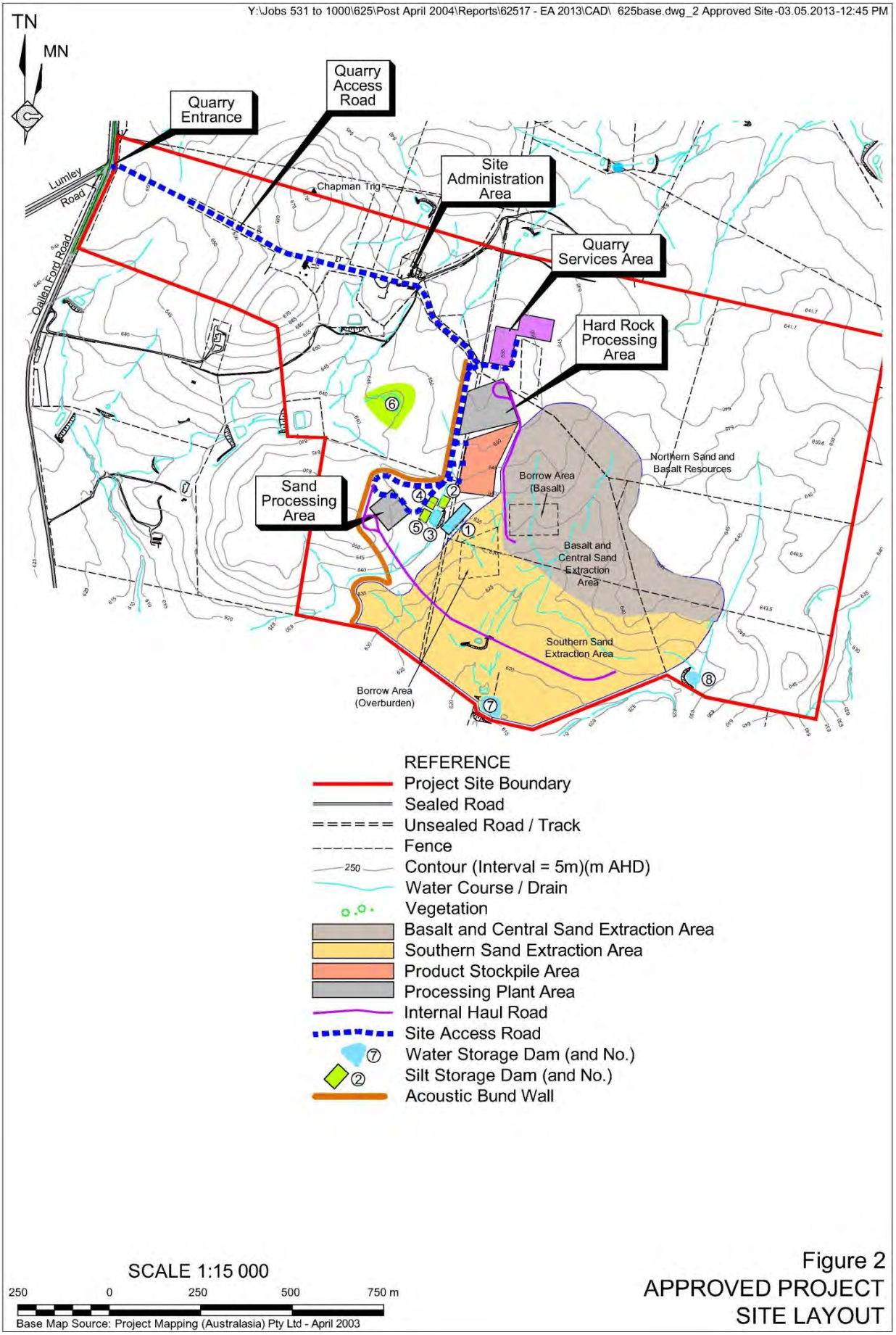

Figure 2
APPROVED PROJECT SITE LAYOUT

1.5.2 The Approved Transport Route and Quarry Entrance

Figure 1 presents the approved transport route for quarry products between the quarry and the Hume Highway at Marulan. The approved transport route incorporates approximately 3.7km of Oallen Ford Road, 0.15km of Mountain Ash Road and 14.7km of Jerrara Road, along with a 1.8km section of private road yet to be constructed to allow for the by-passing of the village of Bungonia.

Figure 2 presents the current approved quarry entrance and access road. As noted in Sections 1.1 and 1.3, the quarry entrance and access road displayed on **Figure 3** is as modified following RWC (2010) and is yet to be built.

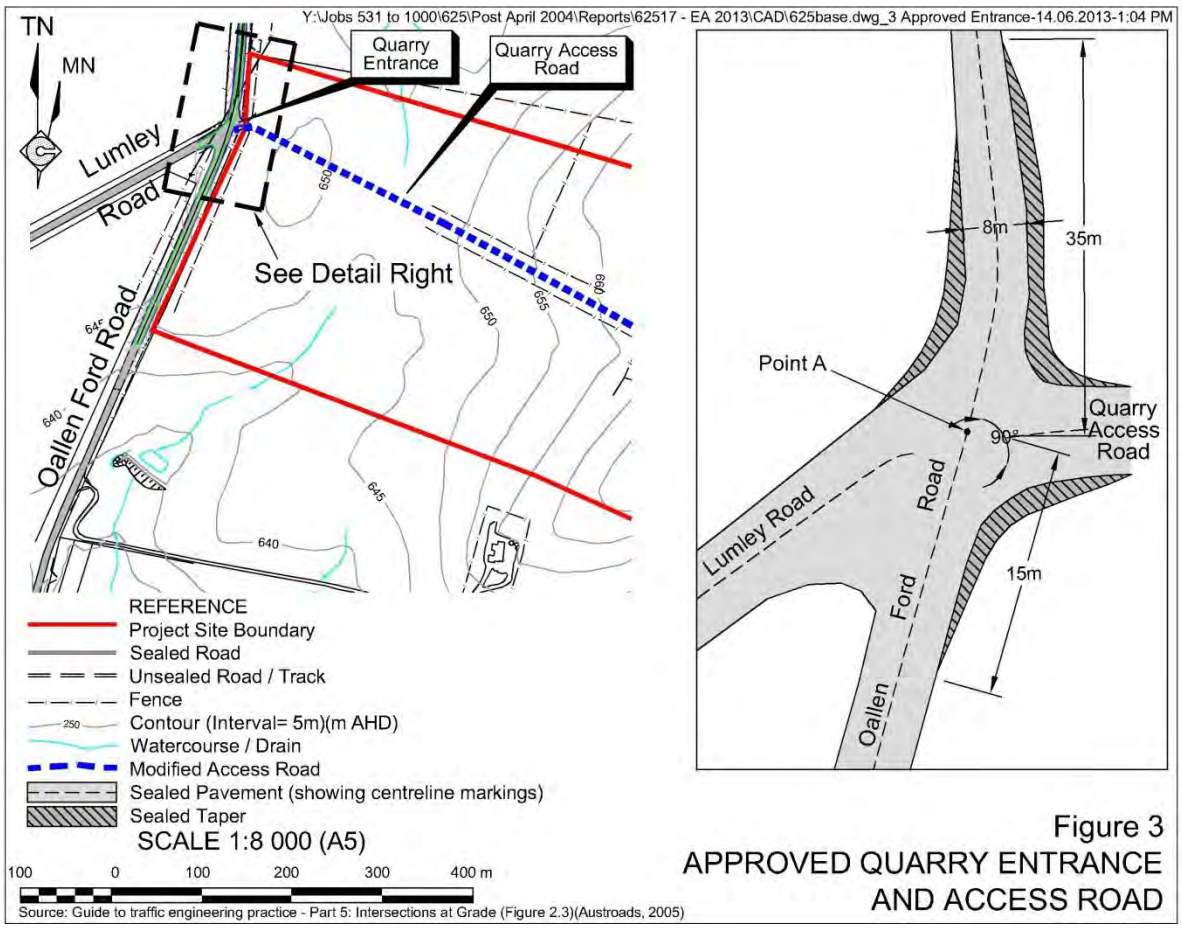

Figure 3
APPROVED QUARRY ENTRANCE AND ACCESS ROAD

1.6 MANAGEMENT OF INVESTIGATIONS

The preparation of this document has been coordinated by Mr Chris Dickson (B.Sc Phys. Geog), Environmental Consultant with R.W. Corkery & Co. Pty. Limited with assistance and peer review undertaken by Mr Alex Irwin (B.Sc. Hons), Senior Environmental Consultant with the same company.

Information within this document has been provided by Multiquip, specifically Mr Jason Mikosic, (B.Tech Mgt), General Manager of Multiquip Quarries and Mr Steve Mikosic, a Managing Director of the same company.

Mr Christopher Hallam (BE, MEngSc (Traffic and Transport) of Christopher Hallam & Associates Pty. Limited (CHA) also contributed information to this document and undertook a traffic impact assessment on the proposed local haul route. A summary of the report provided by CHA (2013) is included in Section 5.2 with a complete copy included as **Appendix 3.**

Mr Dick Godson, Technical Director of SLR Consulting Australia Pty Ltd (SLR), undertook a traffic noise assessment for the proposed local haul route operations. A summary of the report by SLR (2013) is included in Section 5.3 and the complete copy included as **Appendix 4.**

2. THE PROPOSED MODIFICATION

2.1 INTRODUCTION

The following sections outline the proposed modification to PA 07_0155 which would allow for the transportation of up to 20 000tpa of quarry products to local customers using roads not currently part of the approved transport route. These local destinations would generally be located to the west, northwest (including Goulburn) and south of the quarry, where access via the approved transport route, i.e. Oallen Ford Road to the Hume Highway near Marulan, is either not possible or practical.

2.2 THE PROPOSED ROUTES

2.2.1 Overview

Due to recent building and infrastructure developments within the southern Goulburn and southern highlands areas, a number of enquiries have been received by Multiquip for the delivery of quarry products to the southern outskirts of Goulburn, as well as destinations to the west and south of the quarry. Currently, Multiquip is restricted in its ability to supply these customers as PA 07_0155 only approves the transport of quarry products to the north of the quarry to the Hume Highway via Oallen Ford Road, a private by-pass around the village of Bungonia, a restricted section of Mountain Ash Road and Jerrara Road. Therefore, the necessity for an alternative transport route to the south of the quarry was deemed appropriate with **Figure 4** providing an illustration of the road network which would provide the most direct and appropriate route to both current and future customers within the local region.

Figure 4 presents both the approved transport route under PA 07_0155, surrounding road network, and highlights the proposed local haul routes (refer to Section 2.2.2) which would provide the primary delivery routes to the southern Goulburn area and other destinations to the west and south of the quarry. The transport and delivery of quarry products to destinations where there is not a practical impediment to use of the approved transport route would continue to follow this route in accordance with the staged production levels nominated in RWC (2008) for the quarry. These deliveries via the approved transport route would only be made after the Bungonia Bypass has been constructed, so that at no time would any quarry trucks pass along King Street Bungonia.

2.2.2 Local Haul Routes

The transport of quarry products to local destinations would utilise main local roads as local haul routes to areas such as, but not limited to Goulburn and Tarago and destinations in between (see **Figure 4**). These local haul routes would provide access to customers along these roads, as well as providing access to customers located on other roads which divert from these local haul routes.

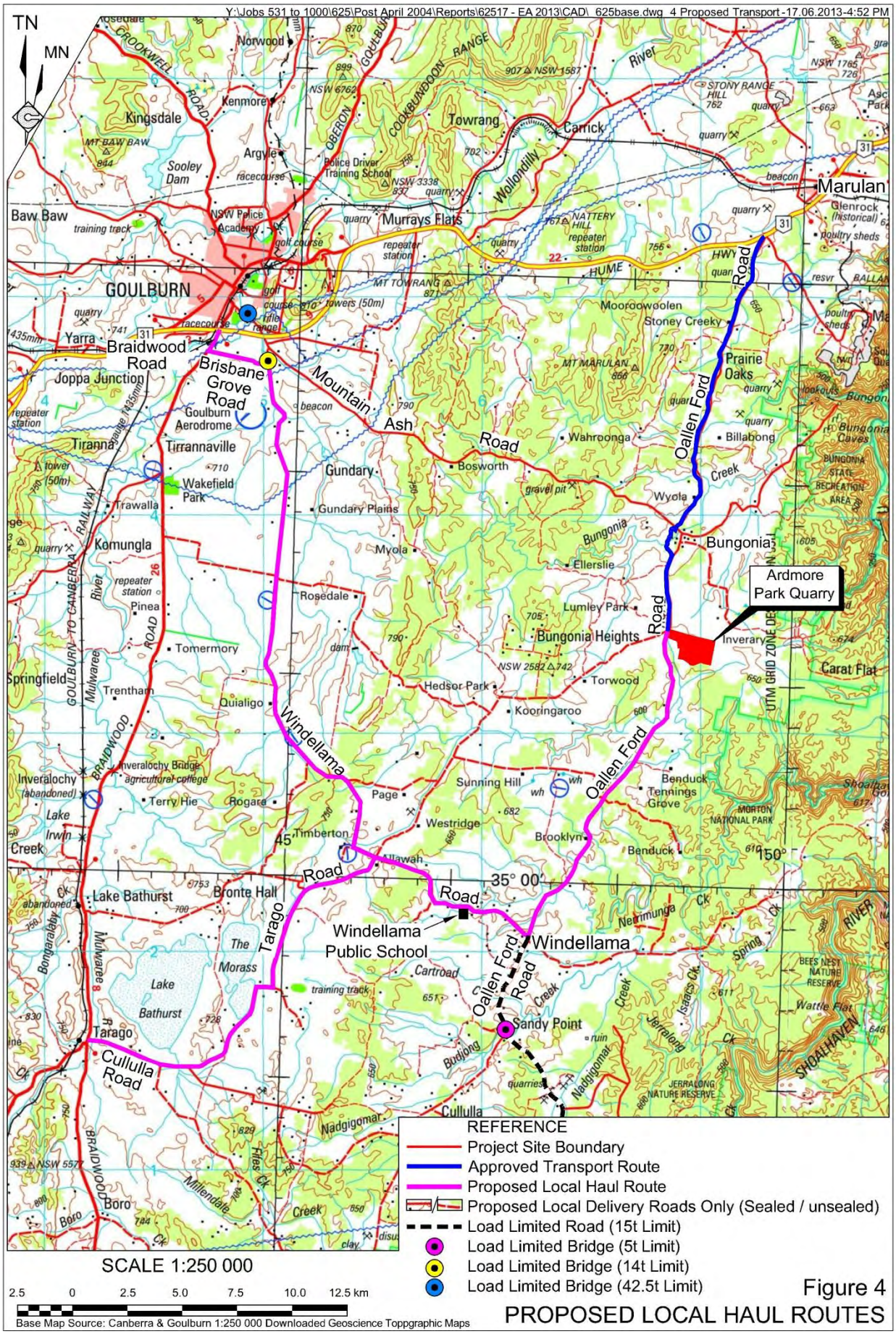

Figure 4
PROPOSED LOCAL HAUL ROUTES

The following describes the various sections of the local haul routes in terms of their current status.

Oallen Ford Road to Windellama Road (0km - 17.5km) [1]

Oallen Ford Road is a sealed, 7.2m shoulder width, two lane local road, heading south, connecting the quarry to the township of Windellama and Windellama Road. Oallen Ford Road is lane marked from the quarry for approximately 13.5km before being unmarked until its intersection with Windellama Road, approximately 17km from the quarry.

Windellama Road to Brisbane Grove Road (17.5km – 52.0km)

Windellama Road is a sealed 7m wide, two lane road intersecting at a T with Oallen Ford Road and aligned in an easterly and later, northerly direction until its connection with Brisbane Grove Road. The road is unmarked for approximately 9.5km, until its intersection with Lumley Road, where the remainder of the road in continuously marked until its intersection with Brisbane Grove Road. Windellama Public School (see **Figure 4**) is located approximately 4km from the Oallen Ford Road intersection and contains 40km/hr school zone markings.

Brisbane Grove Road to Braidwood Road (52.0km – 55km)

Brisbane Grove Road is a sealed, 7m wide, unmarked, two lane road that turns left from intersecting at a T with Windellama Road and aligned in an easterly direction connecting Windellama Road and Braidwood Road. This road is also utilised as a heavy vehicle by-pass for the 42.5 tonne load limited Lansdowne Bridge, located on the northern side of the Hume Highway near Goulburn.

Braidwood Road to Goulburn (55km – 56.5km)

Braidwood Road is a sealed and marked, 8m wide, two lane road with access to Goulburn from a right turn from Brisbane Grove Road. This road provides access to the regional centre of Goulburn and bypasses Lansdowne Bridge.

Tarago Road / Cullulla Road to Braidwood Road (Tarago) (26.5km – 46km)

Tarago Road is accessed by turning left from Windellama Road approximately 4.5km west of Windellama Public School and is an unmarked and generally unsealed, two lane road. The initial 500m of Tarago Road from Windellama Road is sealed with the remainder of the road unsealed until its intersection with Cullulla Road, located approximately 15km from the Tarago Road / Windellama intersection.

Cullulla Road is a sealed, unmarked, 7m wide two lane road the remaining distance of 5km to the township of Tarago.

Other Roads

The delivery of products to customers may sometimes require the use of local roads that do not form part of the local haul routes and include all roads within the local area. These roads may include sealed and unsealed roads. Some local roads may be weight limited and consequently would only be used for delivery purposes to a specific destination not accessible by any other road, e.g. Lumley Road.

Figure 4 identifies the roads that are known to be weight limited. These roads would not be used as local haul routes and would only be used only for delivery purposes when no other access is available.

[1] Numbers within the parenthesis indicate the road distance from the quarry entrance.

2.2.2.1 Restricted Routes

The following roads are currently either known to be restricted by weight limits or identified by Multiquip as to be avoided where possible. The use of these roads would be prohibited unless required for delivery purposes when no other access is available. The restricted roads of the local public road network (as understood) are identified on **Figure 4** and are as follows.

- Mountain Ash Road (excluding the 150m connecting the Bungonia by-pass and Jerrara Road within the approved transport route).
- Oallen Ford Road south of the Windellama Road intersection.
- King Street, Bungonia. This street would not be utilised as per the conditions imposed under PA 07_0155.

Furthermore, in relation to Windellama Public School, located approximately 4km west of the Oallen Road Ford / Windellama Road intersection, Multiquip has made a commitment not to pass the school during school drop off and pick up times (8:00am – 9:30am and 2:30pm – 4:00pm). As per a request by the School Principal, a speed limit of 40km/h during all other times would be enforced past the school. The school bus timetable has also been obtained to further assist in scheduling of product transportation and is discussed further in Section 5.2.3.2.

2.2.2.2 Weight Restricted Bridges

The following information provides a summary of the weight restricted bridges within the Goulburn Mulwaree LGA that may limit deliveries (see **Figure 4**).

Lansdowne Bridge

The Lansdowne Bridge, located on Windellama Road north of the Hume Highway, has a weight restriction of 42.5t and as such, use of this bridge and road to the north is restricted. Should a delivery be required north of this bridge, an alternative route would be utilised. If this is unfeasible from an operational and/or transportation viewpoint, the net weight of delivery trucks would be limited to less than 42.5t.

Windellama Road Bridge (Unnamed Creek)

The bridge on Windellama Road, approximately 500m from the intersection with Mountain Ash Road, has an imposed weight limit of 14t and as such, this effectively excludes using Mountain Ash Road to access the northern end of Windellama Road and the bridge would only be used if deliveries were required between the bridge and Mountain Ash Road.

Oallen Ford Road Bridge (Sandy Point)

The bridge on Oallen Ford Road (south of the Oallen Ford Road / Windellama Road intersection), currently has a 5t load capacity. This section of Oallen Ford Road has a 15t load limit and would not be used regardless of the Oallen Ford Road Bridge limitation.

2.3 THE PROPOSED QUARRY ACCESS ROAD INTERSECTION

As a result of a traffic study (CHA 2013), it has been concluded that the quarry entrance approved in RWC (2010), is adequate to accommodate the proposed modification with detailed discussions and justifications provided in Section 5.2.4.5. As such, no modification to the approved Quarry Access Road / Oallen Ford Road intersection is required.

2.4 ANTICIPATED TRAFFIC LEVELS

2.4.1 Maximum Anticipated Yearly Traffic Levels

Assuming 32.5t capacity per delivery truck and the maximum annual volume of 20 000t, an estimated 650 trucks would be despatched per year. This calculation provides for an estimated 30 truckloads per year being limited to 20t of product, allowing for travel across the load limited (42.5t) Lansdowne Bridge or to local customers that require smaller loads of product. 650 despatched product trucks would result in a total of 1 300 truck movements per year, accounting for return trips of trucks.

2.4.2 Maximum Anticipated Campaign-Based Traffic Levels

It is anticipated that local customer product requirements would not exceed 5 000t and would likely be in the order of 100t. As such, the delivery of products would be undertaken on a campaign basis, subject to customer demands. This campaign basis of deliveries would not exceed 5 loads per day to the local customers. Therefore, no more than 10 movements would be on these routes any one day. **Table 2.1** provides campaign delivery lengths, measured in time (days), over a range of customer requirement scenarios.

Table 2.1
Campaign Delivery Length

Quantity Required (t)	Product Truck Capacity (net t)	Despatched Trucks[1]	Total Truck Movements	Campaign Length (days)[2]
20 000 (total)	32.5	650	1300	130
5 000 (max.)	32.5	154	308	31
1000	32.5	31	62	7
100 (likely)	32.5	4	8	1
1 (estimated min)	32.5	1	2	1

[1] Rounded up
[2] Calculated at a maximum of 10 truck movements per day.

2.5 DELIVERY HOURS OF OPERATION

The delivery of products would be undertaken within the same delivery hours as specified in PA 07_0155, being:

- Monday to Friday – 7:00am to 6:00pm.
- Saturday – 8:00am to 1:00pm.
- Sunday and Public Holidays – No deliveries.

As noted in Section 2.2.3.1, no trucks would be despatched on to Windellema Road between the hours of 8:00am to 9:30am and 2:30pm to 4:00pm coinciding with school drop-off and pick-up times.

3. PLANNING CONSIDERATIONS

3.1 S75W OF THE EP&A ACT

A modification to PA 07_0155 is required under Section 75W of the EP&A Act as the proposed use of local roads other than that of the approved transport route would change the terms of the determination made by the Minister (clause 75W(1)(b)).

Multiquip sought advice from DP&I on 15 April 2013 as to the intention to lodge the application to modify PA 07_0155 with advice provided by DP&I on 1 May 2013 as to the in-formal requirements (in lieu of formal Director-General's Requirements) that the Environmental Assessment would need to address to support the application. These informal requirements are attached to this document as **Appendix 1.**

3.2 LOCAL PLANNING ISSUES

The quarry lies entirely within that part of the Goulburn Mulwaree Local Government Area covered by the Goulburn Mulwaree Local Environmental Plan 2009 (GLEP 2009). The proposed modification would not alter the proposed activities of the quarry, i.e. extractive industry, which is permissible with consent in the applicable zone RU1 – Primary Production.

4. ISSUE IDENTIFICATION AND PRIORITISATION

4.1 INTRODUCTION

To enable a comprehensive assessment of the proposed modification, appropriate emphasis needs to be placed on those issues likely to be of greatest significance to the local environment, surrounding and nearby land owners and the wider community. In order to ensure this has occurred, a program of community and government consultation, followed by a preliminary review of environmental issues was undertaken to identify relevant environmental issues and potential impacts.

4.2 ISSUE IDENTIFICATION

4.2.1 Consultation

Multiquip has undertaken a proactive approach to consultation, both with government bodies and the community alike. The following provides a summary of consultation undertaken for the proposed local haul route modification.

Department of Planning and Infrastructure

As discussed previously in Section 3.1, DP&I were initially advised by Multiquip to lodge an application to modify PA 07_0155 on 15 April 2013 with correspondence provided by DP&I on 1 May 2013, highlighting the specific issues that require assessment within the Environmental Assessment (**Appendix 1**).

Goulburn Mulwaree Council

Multiquip approached Council about the proposed modification and participated in meetings on 12 April and 19 April 2013 with Mr Chris Stewart Director of Planning & Community Services and Ian Aldridge Manager Engineering Services to discuss the status of the overall Project and their thoughts on the alternative transport routes. Council had no objection to the notion of alternative routes providing Multiquip followed all applicable planning procedures.

Windellama Public School

On 6 May, 2013, Jason Mikosic of Multiquip met with Mr Jonathon Taylor (Relieving School Principal for Ms Donna Edworthy School Principal) at Windellama Public School to discuss the proposed modification and ascertain any potential issues. A community consultation letter was used to form the basis for these discussions and is included as **Appendix 2**.

The outcomes of the discussion resulted in Multiquip confirming that no truck movements would occur by the school between 8:00am to 9:30am and 2.30pm to 4.00pm and all product trucks would maintain a speed limit of 40km/hr within the defined school zone areas at all times throughout the day.

General Community

Multiquip has also consulted the wider community through meetings and letters placed for public viewing within frequently visited publically accessible locations. For example, copies of the community consultation letter were provided to the owners of 'Johnno's Shop' on Oallen Ford Road (see **Appendix 2**). The letter was subsequently posted on the shops notice board with several copies left at the shop for review by the wider community.

Initial responses to the proposed modification by the community have been relatively neutral with common verbal responses alluding to the fact that trucks (non-Multiquip trucks) already use the roads and the small amount of product to be transported per year would not add significantly to the road usage.

The letter has also been published in the June edition of the Bungonia times with no further response or comment received at this stage.

It is noted that as for the operation of the quarry itself, there remains some community opposition to the approved operations and any associated modifications. Evidence of this opposition is reflected in an article featured in the Goulburn Post of 31 May 2013, where Bungonia Progress Association President expressed opposition to the use of local roads by trucks. A copy of the article is in included in **Appendix 2.** Acknowledging the potential impacts on local roads, Multiquip has commissioned an assessment of impacts by traffic consultant Christopher Hallam & Associates Pty Ltd (see **Appendix 3**).

4.2.2 Analysis of Potential Environmental Impacts

4.2.2.1 Introduction

A review of the *Environmental Assessment* (RWC, 2008) prepared to support the application for project approval has been undertaken, in conjunction with the advice provided by DP&I to identify potential issues that could be affected by the proposed modification and therefore require further assessment.

The following sub-sections identify each environmental aspect and discusses its relevance for assessment within this document.

4.2.2.2 Traffic

As the proposed modification would result in an increase (albeit minor) to the number of heavy vehicles using local roads south of the quarry, there is the potential for impact on the local road network, traffic conditions and road safety. As previously noted, a specialist traffic impact assessment has been commissioned (CHA, 2013) (see **Appendix 3**) and Section 5.2 provides a summary of this assessment.

4.2.2.3 Noise and Vibration

Noise from quarry truck movements, as a result of the Proposal, has the potential to affect residences that have not experienced noise from quarry truck movements previously on the proposed local haul route. A specialist noise assessment has been commissioned (SLR, 2013) (see **Appendix 4**) and the results of this assessment are discussed in Section 5.3.

4.2.2.4 Water Resources

As the proposed modification relates to public road infrastructure that is already in place and operating, no impacts on water resources are anticipated.

No further assessment is warranted.

4.2.2.5 Air Quality

The proposed modification would significantly reduce the travel distance required to deliver quarry products to areas south of Goulburn and within the southern highlands, reducing vehicle emissions that would otherwise be released via the approved transport route.

No further assessment is warranted.

4.2.2.6 Flora and Fauna

As the proposed modification relates to public road infrastructure that is already in place and operating, no impacts on flora and fauna are anticipated.

No further assessment is warranted.

4.2.2.7 Cultural Heritage

As the proposed modification relates to public road infrastructure that is already in place and operating, no impacts on cultural heritage are anticipated.

No further assessment is warranted.

4.2.2.8 Local Amenity

Visibility in relation to the transportation of quarry products has the potential to affect the local amenity of residences along the proposed local haul routes that have not been subjected to quarry truck movements previously. As such, local amenity is discussed and assessed further in Section 5.4.

4.2.2.9 Soils and Land Capability

As the proposed modification relates to public road infrastructure that is already in place and operating, no impacts on cultural heritage are anticipated.

No further assessment is warranted.

4.2.2.10 Socio-Economic

The Proposal has the potential for minor impacts upon the socio-economic setting of the surrounding environment and as such they are discussed and assessed further in Section 5.5.

4.2.2.11 Summary

In summary, the environmental aspects identified within Section 4.2.2 that could be affected as a result of the Proposal include the following.

- Traffic and Transportation.
- Noise generated by proposed transport activities.
- Local amenity issues relating to transport activities.
- Socio-economic impacts.

4.2.3 Issue Prioritisation

Based on the issues identified in Sections 4.2.1 and 4.2.2, the following environmental issues have been determined as requiring further assessment and are defined below in order of priority of assessment within Section 5.

1. Traffic*.
2. Noise*.
3. Local Amenity.
4. Socio-Economic

For those environmental issues noted with an * a specialist consultant assessment has been undertaken. All remaining potential environmental issues have been undertaken by desktop assessment utilising information provided in RWC (2008) and RWC (2010).

5. ENVIRONMENTAL ASSESSMENT

5.1 INTRODUCTION

This section describes the specific environmental features of the proposed local haul routes and surrounds that may be affected by the proposed modification. The proposed design and/or operational safeguards and an assessment of the level of impact the proposed modification may have after implementation of these safeguards is described.

5.2 TRAFFIC

Christopher Hallam & Associates Pty Ltd (CHA) was commissioned to prepare a report to undertake studies to determine the suitability and identify the potential impacts of the proposed local haul route. The complete report of CHA (20013) is reproduced in full as ***Appendix 3****. The following sub-sections summarise the key elements of CHA (2013), along with sections of RWC (2008) and RWC (2010), as relevant to the assessment of the proposed modification.*

5.2.1 Existing Traffic Levels

Traffic counts were undertaken on Oallen Ford Road between 10 May and 16 May 2013, at a location approximately 500m south of the quarry entrance (the identical location to the 2008 traffic counts featured in RWC, 2008). **Table 5.1** and **Table 5.2** present the hourly and daily 2013 traffic count information respectively, highlighting the relatively low use of the road.

Table 5.1
Hourly Traffic Flows on Oallen Ford Road 2013

Period	Northb	Southb	Total	Period	Northb	Southb	Total
0-1 am	0	2	2	12-1pm	12	12	24
1-2	0	0	0	1-2	12	12	24
2-3	0	0	0	2-3	16	13	29
3-4	0	0	0	3-4	14	18	32
4-5	2	0	2	4-5	9	20	29
5-6	6	1	7	5-6	9	17	26
6-7	9	4	13	6-7	4	13	17
7-8	12	8	20	7-8	3	7	10
8-9	17	11	28	8-9	3	7	10
9-10	13	9	22	9-10	0	5	5
10-11	17	12	29	10-11	0	4	4
11-12noon	11	12	23	11-12mnt	1	2	3

Note: "Northb" represents Northbound and "Southb" represents Southbound.
Source: CHA (2013) – Table 3.1

Table 5.2
Daily Two-Way Traffic Flows on Oallen Ford Road 2013

Day	Light	Heavy	Total
Monday	158	9	167
Tuesday	183	22	205
Wednesday	167	16	183
Thursday	205	11	216
Friday	240	17	257
Saturday	248	20	268
Sunday	306	15	321
Average	200	16	216

5.2.2 Existing Route Conditions

5.2.2.1 Oallen Ford Road / Windellama Road Route

Existing route conditions and significant features along the Oallen Ford Road / Windellama Road Route are listed in **Table 5.3**.

Table 5.3
Route Inventory of Oallen Ford Road-Windellama Road

Chainage From Site	Local Road Feature
0.0	Quarry driveway
1.2	Carriageway width 6.8m
2.1	Speed advisory on bend 75 km/hr (speed limit is 100 km/hr)
4.2	35 km/hr speed advisory on approach to causeway (7.2m wide)
4.7	Carriageway width 6.9m to edge lines
6.5	Causeway; speed limit 80 km/hr; 5.8m carriageway
6.7	Speed limit returns to 100 km/hr
7.5	Carriageway width with shoulders 7.2m
14.2	Windellama Creek causeway; warning sign on southbound approach
14.5	Approaching crest; no centreline
17.4	Intersection with Windellama Road; wide intersection with good sight lines
19.3	Eloura Road junction; carriageway 7.8m on Windellama Road
20.0	Advance warning of 40 km/hr school zone ahead
20.2	Speed advisory on bend 65 km/hr
21.0	School Zone 40 km/hr
21.2	Windellama Public School
25.8	Intersection with Lumley Road
52.0	Brisbane Grove Rd junction, with Brisbane Grove Rd a designated Heavy Vehicle Bypass
55.0	Braidwood Road intersection
Source: CHA (2013) – Table 3.2	

None of these features are considered to preclude their use for the delivery of quarry products on occasional campaign basis (CHA, 2013).

5.2.2.2 Tarago Route

Existing route conditions and significant features along the Tarago Route are listed in **Table 5.4**.

Table 5.4
Route Inventory of Tarago Route

Chainage From Junction	Local Road Feature
0.0	Junction of Lumley Road & Windellama Road
0.5	Gravel/unsealed road commences
3.7	T-junction with Glenovel Road
4.9	Causeway
8.6	T-junction, route continues to the West (No Through Road to East)
14.8	T-junction, route continues to the West; road to east goes to Sandy Point
19.0	Intersection with Braidwood Road at Tarago
Source: CHA (2013) – Table 3.3	

None of these features are considered to preclude their use for the delivery of quarry products on occasional campaign basis (CHA, 2013).

5.2.2.3 Other Roads

Existing route conditions and significant features that exist along roads within the local area that are not specifically located on any proposed route have been discussed previously in Section 2.2.2 and include Brisbane Grove Road, Braidwood Road and Cullulla Road. CHA (2013) notes that these roads and their features do not preclude their use for the delivery of quarry products with the exception of wet weather (see Sections 5.2.4.3 and 5.2.4.4)

5.2.3 Transport Planning

5.2.3.1 School Zones

The majority of product trucks transporting products would invariably pass Windellama Public School, located on Windellama Road, approximately 4km west from the Oallen Ford Road / Windellama Road intersection. Following consultation by Multiquip with Windellama Public School, it was confirmed that no truck movements would occur by the school between 8:00am to 9:30am and 2.30pm to 4.00pm. Furthermore, all product trucks would maintain a speed limit of 40km/hr within the defined school zone areas at all times throughout the day.

5.2.3.2 Bus Routes

During consultation between Multiquip and Windellama Public School, the school bus timetable was discussed. Multiquip has committed to recognising and regularly reviewing the bus routes and pick-up / drop-off points and avoiding these where possible when in operation (generally between 8:00am – 9:00am and 3:00pm – 3:50pm). The Windellama Public School bus routes primarily consist of Windellama Road, Lumley Road, Jacqua Road and Oallen Ford Road with bus stops situated as required on these roads.

5.2.4 Assessment of Impacts

5.2.4.1 Approved Transport Route

The approved transport route would only be utilised for local deliveries following the completion of the Bungonia Bypass and completion of the Stage 1 upgrade of Jerrara Road. Following the previous assessment of this route within the application for PA07_0155, this route does not require further assessment and any future deliveries, would abide by conditions imposed by PA07_0155.

5.2.4.2 Oallen Ford Road / Windellama Road Route

As discussed previously in Section 5.2.1, this route carries a Monday to Saturday average of 216 vehicles per day, including 16 heavy vehicle movements, resulting in very low average hourly traffic flows. The maximum proposed daily quarry truck movements for local deliveries, being 10 truck movements, would lift the average daily flow numbers from 216 to 226 vehicle movements a day, and the heavy vehicle movements from 16 to 26. While the proportional increase might appear high, in absolute terms, it would still remain a relatively low number overall and have a low impact upon the traffic environment.

5.2.4.3 Tarago Route

The use of local roads to deliver products to Tarago would involve travelling along portions of roads that are unsealed. These sections of the road would not be travelled upon during or immediately following any rain. In the event that rain does occur and deliveries are required to Tarago, product trucks would continue northbound along Windellama Road, turn left at Brisbane Grove Road, and then turn left at Braidwood Road, for travel back towards Tarago. Local connection roads (Glenovel Road, Painters Lane and Meadow Lane) would not be used to access Braidwood Road and would be used for specific delivery purposes only along these roads.

5.2.4.4 Other Roads

Lumley Road, between the intersection of the Quarry Access Road and Windellama Road, is a more direct route to the West than via Oallen Ford Road and Windellama Road but would not be used other than for deliveries along this road, due to the majority of the Lumley Road being unsealed. Similarly, Bullamalita Road would not be used other than for delivery purposes due to the current road standard.

5.2.4.5 Quarry Access Road Intersection

The current approved Quarry Access Road intersection is based on quarry trucks arriving from the north, to make a left turn into the Quarry Access Road (along the alignment of the property boundary), and returning towards the north via right turns from the Quarry Access Road. Widening to assist the left turn into the Quarry Access Road is part of the approved works. For the left turn out from the Quarry Access Road, widening of the inside of the corner is also part of the approved works. This would assist any trucks making local deliveries towards the south or south-west.

Right Turn-In Potential Impacts

For trucks returning from the south or south-west to the quarry, product trucks would be required to make a right turn into the Quarry Access Road. The determination of the most appropriate form of intersection is generally based on standards and warrants, provided within the Austroads '*Guide to Road Design Part 4A: Unsignalised and Signalised Intersections'* (Austroads). Current and proposed traffic volumes were considered by CHA (2013) against these standards to assess whether upgrade of the existing Basic Right (BAR) design to a Channelised Right (CHR) is required.

As displayed in **Table 5.1**, the highest two-way flows in the morning occurred between 10:00am to 11:00am, with 10 vehicles per hour travelling northbound and 8 vehicles per hour travelling southbound. In the afternoon, the highest two-way flows occurred between 3:00pm to 4:00pm, with 8 vehicles per hour travelling northbound and 11 vehicles per hour travelling southbound. Considering the relevant Austroads figure (Figure 3 of CHA 2013) for traffic speeds of 100 km/hr or more, the allowable right turn volume was determined at 5 vehicles per hour. Based on the use of a maximum of two trucks to deliver quarry products, and likely round-trip delivery times of at least one hour, the number of turning vehicles would not exceed five vehicles per hour.

Daily average loads at 20 000tpa were calculated to be 2.2 loads per day, based upon the following assumptions.

- 32 tonne loads (625 loads per year).
- 48 weeks per year (6 days per week).

CHA (2013) assessed that the surveyed average weekday peak hour flow of 20 vehicles per hour, plus an allowance for the left turn into the Quarry from the north, the site access right turn is significantly below the threshold for the upgrade to a Type CHR(S), indicating that the potential for a conflict between a right turn vehicle and passing traffic is very low.

Lumley Road Potential Impacts

The upgraded approved intersection indicates that if a truck is about to make a right turn into the Quarry Access Road and was delayed by a southbound vehicle, they would need to stop along Oallen Ford Road before turning in, blocking northbound traffic. CHA (2013) determined that the sight line from a northbound vehicle, to a truck at the junction of the Quarry Access Road and Lumley Road is very good, so the truck would be easily seen. CHA (2013) has assessed that no additional widening of Oallen Ford Road is required to be undertaken on the south-west corner of the intersection.

5.2.4.6 Government Contributions

The *Goulburn Mulwaree Development Contributions Plan 2009 Amendment No.2* (dated 14 March 2012) sets out the requirements for contributions towards road maintenance and reconstruction at a calculated contribution rate of 4 cents per tonne per kilometre of road travelled charged, where roads are controlled by Goulburn Mulwaree Council. There is no charge for transport on roads controlled by the Roads & Maritime Services, and on roads outside of the LGA. For transport along the approved transport route, these contributions apply.

The roads over which this contribution would be charged are those Local Haul Routes shown on **Figure 4**, plus the roads used for the final delivery to customer location. A monitoring system would be required and implemented, based on weighbridge records at the quarry and the delivery destination. Log books at the weighbridge would record the load, the destination and the proposed route and would be summarised at the end of each recording period, for which the contributions would be calculated and payed.

5.2.5 Conclusion

It is concluded that as a result of a traffic assessment undertaken by CHA (2013), the delivery of 20 000tpa of products per year along the identified local roads would not adversely affect current traffic levels on existing roads, with a Section 94 Contributions Plan applicable to Council to maintain the up-keep of local roads utilised by the Proposal.

5.3 NOISE AND VIBRATION

SLR Consulting Australia Pty Ltd (SLR) was commissioned to prepare a traffic noise and vibration report to determine the possibility of traffic noise generated from the Proposal impacting upon sensitive receivers along the proposed local haul route (SLR 2013). The complete SLR (2013) report is reproduced in full as ***Appendix 4****. The following sub-sections summarise the key elements of SLR (2013) as relevant to the assessment of the proposed modification.*

5.3.1 Assessment Methodology

The traffic noise assessment utilised a minimum offset distance of 35m for any residential dwelling located adjacent to the proposed transport routes (residence located on Jerrara Road) and minimum offset distance of 40m to Windellama Public School. **Table 5.5** displays the respective design speed limits and proposed maximum truck speed limits imposed by PA 07_0155

Table 5.5
Offset Distances and Speeds along Local Haul Routes

Road	Design Speed Limit	Truck Speed Limit	Minimum Offset Distance
Oallen Ford Road	100 km/hr	80 km/hr	35 m
Windellama Road	100 km/hr	80 km/hr	35 m
Brisbane Grove Road	100 km/hr	80 km/hr	35 m
Braidwood Road	100 km/hr	80 km/hr	35 m
Tarago Road/Cullulla Road	100 km/hr	80 km/hr	35 m
Windellama Public School	100 km/hr & 40 km/hr	40 km/hr	40 m
Source: SLR (2013) – Table 3			

Utilising the maximum traffic movements per hour as tabulated in CHA (2013) (Table 2.5 and Table 3.1), a worst-case scenario would involve the proposed maximum haul trucks (four movements per hour) occurring on Oallen Ford Road between the hours of 2.00pm and 3.00pm (consisting of three existing heavy vehicles, and 26 existing light vehicles).

Traffic noise emissions were sourced from attended monitoring undertaken for the 2008 *Environmental Assessment (*RWC 2008) at the closest residence on Jerrara Road (35m offset distance).

Using the measured vehicle emissions and the existing and predicted traffic flows, the $L_{Aeq(1hour)}$ traffic noise emissions for the existing traffic levels and proposed transport operations at the minimum offset distance have been calculated.

5.3.2 Assessment Criteria

The relevant noise criteria applicable to the Proposal is the NSW Road Noise Policy (NSW RNP), compiled by the then Department of Environment, Climate Change and Water (DECCW) in 2011 and subsequently adopted by the NSW Environment Protection Authority. The applicable criteria for residential and school classrooms are presented in **Table 5.6**.

Table 5.6
Applicable Noise Criteria

Road Traffic Noise Assessment Criteria for Residential Land Uses	
Type of Project and Land Use	**Total Traffic Noise Criteria**[1]
Land use developments generating additional traffic on existing local roads	Daytime 55 $L_{Aeq(1hour)}$[2]
	Night-time 50 $L_{Aeq(1hour)}$
Road Traffic Noise Assessment Criteria for School Classrooms Affected by Proposed Traffic Generating Developments	
Land use developments generating additional traffic on existing local roads	$L_{Aeq(1hour)}$ 40 dBA (internal) $L_{Aeq(1hour)}$ 50 dBA[3](external)
Note 1: Daytime 0700 hrs to 2200 hrs, Night-time 2200 hrs to 0700 hrs. Note 2: LAeq = equivalent continuous noise level. Note 3: In the case of buildings used for education or health care, noise level criteria for spaces other than classrooms and wards may be obtained by interpolation from the "maximum" levels shown in Australian Standard AS 2107:2000 (Standards Australia 2000)	
Source: SLR (2013) – Table 1 and 2	

It is proposed that quarry products are to be transported during day-time hours only (excluding school zone times along Windellama Public School) and therefore, as shown in **Table 5.6**, the maximum allowable $L_{Aeq, (1\ hour)}$ noise levels 55 dB(A) along the majority of the proposed routes and 50 dB(A) outside Windellama Public School.

5.3.3 Results

5.3.3.1 Residential Land Uses

Table 5.7 displays the results of the traffic noise assessment, highlighting that the traffic noise levels are below the criterion (of 55 dBA $L_{Aeq(1hour)}$) recommended in the NSW RNP, based on the additional maximum 4 truck movements per hour.

Table 5.7
$L_{Aeq(1hour)}$ Traffic Levels – Residential Receivers

Offset Distance	**Speed**	**Noise Level**	
		Existing Traffic Level	**With Proposed Transport Operations**
35m	80km/hr	51 dBA	52 dBA
Source: SLR (2013) – Table 5			

Furthermore, for comparison, compliance with the $L_{Aeq(1hour)}$ traffic noise criterion of 55 dBA would also be met (at an offset distance of 35m and a speed of 80km/hr) with 60 light vehicles and 10 heavy vehicles per hour, additional to the proposed maximum of 4 quarry related heavy vehicles per hour. This is 57 light and 7 heavy vehicles more than the maximum hourly vehicle numbers recorded on Oallen Ford Road in May 2013.

5.3.3.2 Windellama Public School

In relation to Windellama Public School, Multiquip has committed to not pass the school during school drop off and pick up times (8:00am – 9:30am and 2:30pm – 4:00pm), as well as to limit the trucks to a speed of 40 km/hr pasts the school during all other times (refer to Section 2.2.3).

On this basis, the maximum hourly traffic noise contribution from the quarry related trucks is 43 dBA ($L_{Aeq(1hour)}$).

With reference to Note 3 of **Table 5.6**, the criterion of 50 dBA ($L_{Aeq(1hour)}$) is applicable to outside school classrooms when adjusted in accordance with the EPA's "*Environmental Criteria for Road Traffic Noise"* document. Traffic noise is predicted to be 7dBA lower than the nominated criteria.

Assuming the measured maximum hourly light/heavy vehicle flows on Oallen Ford Road (of 26 light and 3 heavy vehicles), the predicted combined (quarry and non-quarry related) road traffic noise level increases to 46 dBA, a combined traffic noise level 4 dBA below the criterion.

5.3.4 Vibration

Road transportation vibration was assessed by SLR (2013) at the closest residence (35m on Jerrara Road) and found that as a result of truck traffic as generated by the Proposal, there would be a maximum of 0.1mm/s at 80km/hr, significantly under the vibration criterion on 5mm/s. Section 2 of SLR (2013) provides further information if required.

5.3.5 Conclusion

It is concluded that the proposed minor increases in truck numbers on local roads would not result in either noise level increases above the relevant criteria of the RNP or vibration impacts.

5.4 LOCAL AMENITY

5.4.1 Introduction

The proposed modification has the potential to impact upon the local amenity from receptors not previously subjected to proposal-related traffic movements. It should be noted, however, that residences along the local haul routes do experience truck movements associated with other quarry product deliveries and other industries requiring truck transport such as stock and machinery transport.

5.4.2 Discussion

As discussed in Section 2.4, a total of 1300 truck movements (at the proposed maximum of 20 000tpa) would utilise the local road network to deliver quarry products. Extrapolated from **Table 2.1**, 10 truck movements could occur along a local haul route for a maximum period of 130 days consecutively. Realistically, however, these deliveries would be spread over several haul routes and over the year. This would be equate, more reasonably to 10 truck movements every 3 days (accounting for no deliveries on Sundays consistent with PA 07_0155).

Residences located along local roads not associated with the local haul routes would experience lower quarry-related traffic levels, as it is estimated a maximum of 5 000t per customer would be delivered along these local roads, equating to a maximum of 31 days in which residences would experience quarry-related traffic.

5.4.3 Controls

Quarry trucks would use the defined local haul routes where possible to deliver products and utilise less travelled routes only for specific delivery purposes. This would ultimately reduce the number of trucks and potential local amenity impacts upon residences who have not previously been exposed to quarry product transportation.

Furthermore, it is proposed that a complaints register be maintained adequately noting any transport related complaints, ensuring that the complainant, time and date, comments, and follow up actions are all recorded. A summary of complaints and actions attributed to alleviate these complaints where possible would be submitted within the quarry's Annual Return.

5.4.4 Conclusion

It is concluded that at a maximum of 10 truck movements per day, the relatively short nature of delivery trucks passing residences and accounting for current non-quarry related traffic levels, any local amenity impacts on residences as a result of the Proposal would be minimal.

5.5 SOCIO-ECONOMIC

5.5.1 Introduction

The proposed modification, as identified in Section 4.2.2, has the potential to impact upon the socio-economic climate of the local setting.

5.5.2 Discussion

The delivery of 20 000tpa of quarry products to local customers would have a positive socio-economic impact upon both the local customers and the Applicant for the following reasons.

- By providing locally produced products to customers, costs to customers would be reduced as a result of reduced travel distances.
- The provision of new and/or continued employment would be ensured.
- Increased monetary contributions to Council through a Section 94 Contributions Plan

It is anticipated that there would be no quantifiable negative socio-economic impacts as a result of the Proposal (over and above those considered by RWC, 2008).

5.5.3 Conclusion

Overall, the Proposal would provide a number of positive socio-economic impacts for both local businesses and the wider community.

6. JUSTIFICATION OF THE MODIFICATION

This *Environmental Assessment* has been prepared to assist in the assessment of the likely environmental impacts associated with allowing up to a maximum of 20 000tpa of products being transported and delivered to local customers on local roads within the Goulburn-Mulwaree Local Government Area.

The Proposal would provide valuable resources to be delivered to local customers and negate the need to travel a further distance to the same delivery locations via the approved transport route (prior to the required upgrades imposed under PA 07_0155).

It is concluded the Proposal would not result in any significant environmental impacts, particularly in those environmental areas which have the potential to be impacted upon – being:

- Traffic;
- Noise;
- Local Amenity; and
- Socio-economic.

The Proposal therefore, would allow for up to 20 000tpa of products to be delivered to local customers on local roads, whilst not imposing any significant environmental impacts upon local residents and sensitive receivers.

7. REFERENCES

Austroads *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (Austroads).

Australian Standard AS 2107:2000 '*Acoustics – Recommended Design Sound level and Reverberation Times for Interior Buildings'* (Standards Australia 2000).

Christopher Hallam and Associates Pty Limited (CHA 2013) 'Local Roads Project Application for "Ardmore Park" Quarry, Oallen Ford Road, Bungonia, NSW'.

R.W. Corkery & Co. Pty Limited (RWC 2008). *Environmental Assessment for the Modified "Ardmore Park" Quarry Project Via Bungonia, NSW*. Prepared on behalf of Multiquip Quarries.

R.W. Corkery & Co. Pty Limited (RWC 2010). *Environmental Assessment for a Request to Modify Project Approval for "Ardmore Park" Quarry Via Bungonia, NSW*. Prepared on behalf of Multiquip Quarries.

SLR Consulting Australia Pty Ltd (SLR 2013) *'Traffic Noise Impact Assessment - Ardmore Park Quarry via Bungonia, NSW'*.

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