

Section 1

Introduction

This section introduces a project to extend sand extraction and processing operations at the Calga Sand Quarry to the south, allowing for an increase in annual production to 1 million tonnes per year.

This section provides information on the following.

- *The scope and format of the document.*
 - *The Proponent, Rocla Materials Pty Ltd.*
 - *The format of the Environmental Assessment.*
 - *Relevant background about the Project.*
 - *A summary of the approvals process.*
 - *The personnel involved in the Project design, document preparation and specialist consultant investigations.*
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1.1 SCOPE

Rocla Materials Pty Ltd (“Rocla”) proposes to extend its existing sand extraction and processing operations on Lot 2, DP 229889 at Calga (“the Calga Sand Quarry”) to the south onto Lots 1 and 2, DP 805358 (“the Southern Extension”). **Figure 1.1** presents the location of the Project Site in its context on the Somersby Plateau, approximately 11km west of Gosford. **Figure 1.2** presents the local setting of the Project Site, approximately 1.0km northwest of the Calga Interchange of the F3 Freeway.

This *Environmental Assessment* has been prepared to support Rocla’s Application for Project Approval from the Minister for Planning to incorporate the proposed Southern Extension into the overall Calga Sand Quarry (“the Project”). For the purposes of this document, the Project would involve:

- i) the continued operation of the currently approved Calga Sand Quarry, albeit modified slightly to accommodate the inclusion of the Southern Extension; and
- ii) the development and operation of the Southern Extension.

The *Environmental Assessment* describes the Project and provides information on mitigation measures and management controls Rocla would continue to adopt to avoid or reduce potential impacts on the Project Site and within the surrounding environment. The residual impact(s) are described and proposed monitoring outlined to assess the ongoing environmental performance of the Project. The *Environmental Assessment* has been prepared in accordance with the provisions of Part 3A, Section 75 of the *Environmental Planning and Assessment Act 1979*.

The Project is classified as a Major Project in accordance with State Environmental Planning Policy (SEPP) (Major Development) (2005). The application is made possible by virtue of the fact that extractive industries are a permissible land use on the Project Site in accordance with the prevailing Gosford / Wyong Local Environmental Plan 2001 – Central Coast Plateau Areas. This instrument prevails over Zones 1(b) and 7(b) of Gosford Interim Development Order 122 and clarifies the conflicting provisions of Sydney Regional Environmental Plans 8 and 9(2). Permissibility of the Project is considered in further detail in Section 3.2.4 (and **Figure 3.2**).

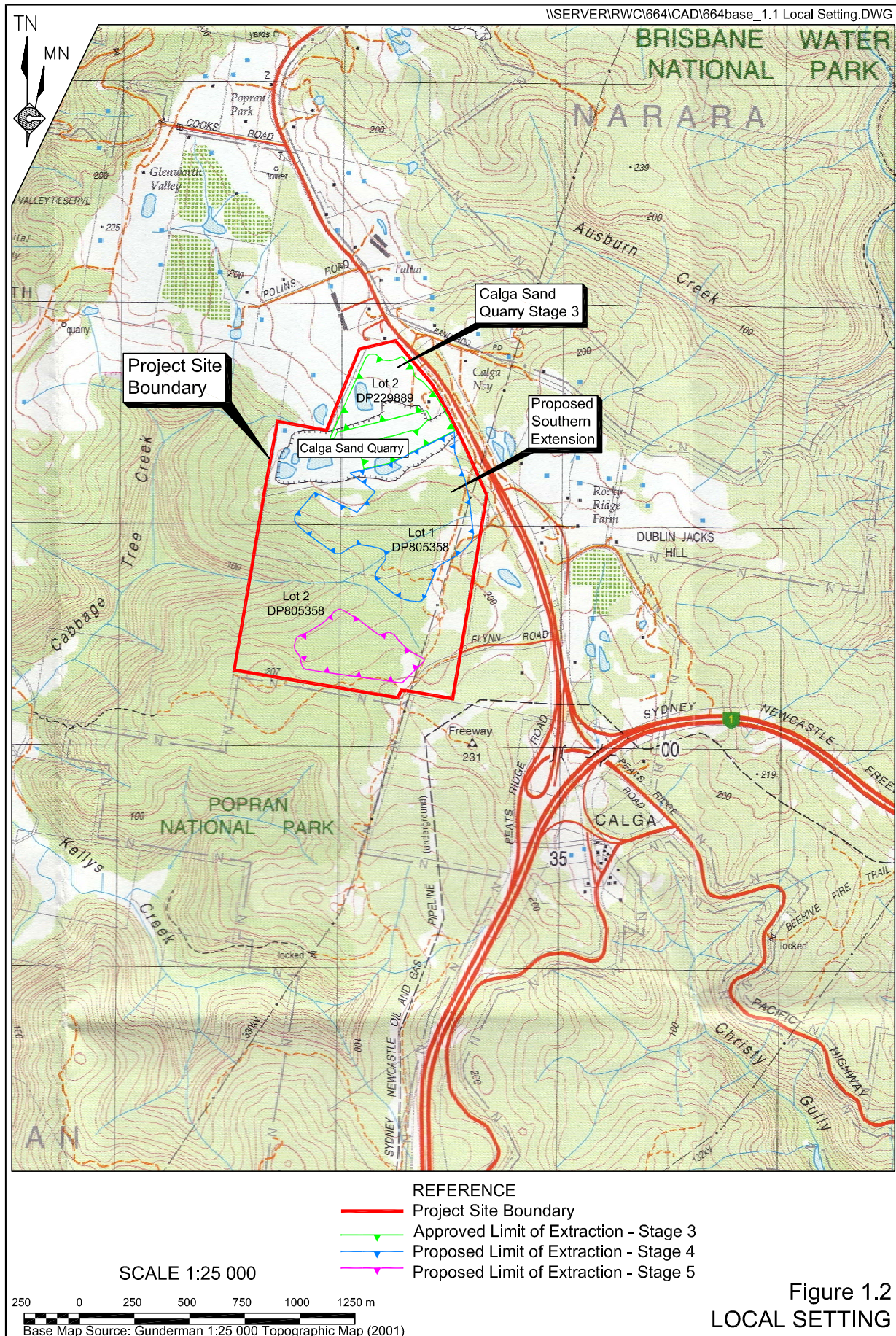
This document addresses those components of the existing approved operation that are planned to continue, those components of the existing approved operation that would be modified and the progressive development and operation of the Southern Extension. This approach has been taken to enable all readers to fully understand how the entire quarry would operate as a single entity and what level of environmental impact would occur. Furthermore, it would enable the Minister for Planning, should the incorporation of the Southern Extension into the Calga Sand Quarry be approved, to issue the project approval for the entire quarry.





Figure 1.1
 LOCALITY PLAN





The Southern Extension would be undertaken in conjunction with Stage 3 of the Calga Sand Quarry, approved in November 2005, and involve the following activities.

- Progressive removal of vegetation, topsoil, subsoil and overburden from two proposed areas of sand extraction to expose the sand resource, namely:
 - an extension of Stage 3 to the perimeter of Lot 2 DP 229889 and Stage 4 (on Lot 1, DP 805358), which would extend the existing quarry by approximately 32.1 ha from its current southern boundary; and
 - Stage 5, a smaller area (11.7ha) to the south of and separated from Stage 4 by an ephemeral tributary to Cabbage Tree Creek which traverses Lots 1 and 2, DP 805358.
- Extraction of the exposed sand resource that can be easily removed by excavator or bulldozer, ie. without the need for blasting.
- Processing of the removed sand either by washing, to produce concrete sand products, or dry screening, to produce mortar sand products. Initially, the extracted sand resource would be processed through the existing wash and mortar sand plants. However, once sufficient space has been created within the initial extraction stages of Stage 4, a second wash plant and mortar sand plant would be constructed, allowing for annual production from the quarry to be increased.
- Transportation of the sand products to markets in either Sydney or the Central Coast via Peats Ridge Road and the F3 Freeway. In order to facilitate one-way traffic movement through the overall quarry, a second entrance (the “Southern Entrance”) would be constructed off Peats Ridge Road, opposite its intersection with Jones Road, with all quarry traffic entering via this entrance and exiting through the existing quarry entrance/exit (the “Northern Entrance”). Until the Southern Entrance is constructed, entry and exit to the Calga Sand Quarry would be via the Northern Entrance. Following the completion of operations within Stage 3, entry and exit to the Calga Sand Quarry would occur through the Southern Entrance.
- Internal management of the fine sediment (“silt”) containing water generated by the washing process within a series of progressively developed storage cells (“silt cells”) on the floor of completed extraction area of the quarry. The silt would settle from the water and consolidate on the floor of each cell. The clarified water would then be recycled through the wash plant and the consolidated silt left to dry and consolidate.
- Replacement of any overburden, or interbedded clay or shale removed during the extraction operations, oversize material screened from the sand during processing, mulched vegetation and previously stripped soil over completed and dried silt cells.
- Progressive shaping of the replaced overburden/clay/shale/oversize, subsoil, topsoil and mulched vegetation.



- Re-seeding and re-planting of the created landform with tree, shrub and grass species.

The Project, if approved, would ensure a continued supply of sand to the construction industry in Sydney and on the Central Coast as other sand sources are exhausted, eg. Kurnell and to a lesser but still significant extent, Penrith Lakes.

1.2 FORMAT OF THE REPORT

The *Environmental Assessment* has been structured to address the general requirements and key issues nominated by the Director-General of the Department of Planning (the Director-General's Requirements (DGRs)), which themselves have been based on the requirements of the Department of Planning and other relevant State and local government agencies. The *Environmental Assessment* has been compiled in a single volume which includes seven sections of text, a reference section, glossary, and a set of Appendices. The *Environmental Assessment* is supported by a two volume *Specialist Consultant Studies Compendium* incorporating the reports prepared by eight specialist environmental consultancies engaged to assess specific aspects of the Project.

The format of the *Environmental Assessment* has been structured as follows.

- Section 1:** introduces the Project, the Proponent (Rocla Materials Pty Ltd) and relevant background information. Information on the approvals process is provided together with information on the management of investigations for the *Environmental Assessment*.
- Section 2:** describes Rocla's objectives and proposed sand extraction, processing, product despatch, hours of operation, infrastructure and services, water and waste management, rehabilitation activities and biodiversity offset strategy. Each of these activities are described in terms of the existing activities that are planned to continue, those existing activities that would be modified and those activities that would be undertaken within the area of the Southern Extension.
- Section 3:** provides a description of the process used to identify and prioritise the key issues for assessment with reference to the Director-General's requirements for the Project, stakeholder consultation through the Project planning stages and a general environmental risk analysis undertaken to establish the specific environmental risk(s) posed by issues identified.
- Section 4:** presents the environmental setting of the Project Site, including information on topography, meteorology and land ownership and land use.
- Section 5:** describes the existing environment, proposed management, assessment of potential impact and maintenance/monitoring requirements for the key issues identified in Section 4.
- Section 6:** provides a draft statement of commitments compiled by Rocla in relation to environmental management and monitoring for the entire Project.



Section 7: evaluates the Project in terms of biophysical, economic and social considerations, and the goals and guidelines of Ecologically Sustainable Development. A conclusion relating to the acceptability of the Project based on the above is presented to conclude the *Environmental Assessment*.

Glossary of Technical Terms, Symbols, Units and Acronyms: explains the technical terms, acronyms, symbols and units used throughout the *Environmental Assessment*.

References: lists the various source documents referred to for information and data used during the preparation of the *Environmental Assessment*.

Appendices: present the following additional information.

- i) A copy of Rocla's Application for Project Approval.
- ii) The Director-General's Requirements and tabulated summary of the requirements of the consulted government agencies.
- iii) A detailed description of the anticipated development and extraction sequence for Stages 3, 4 and 5 of the Calga Sand Quarry.

The *Environmental Assessment* has been prepared with the input of nine specialist consultancies to prepare a total of seven specialist environmental assessments. Their reports have been compiled into the *Specialist Consultant Studies Compendium* which has been placed on exhibition with the *Environmental Assessment*. The contents of these reports are summarised into the appropriate section(s) of the *Environmental Assessment*.

1.3 THE PROPONENT AND THE PROJECT SITE

1.3.1 The Proponent

The Proponent for the Calga Sand Quarry Southern Extension is Rocla Materials Pty Ltd (ABN 30 083 169 091), the current owner of the existing Calga Sand Quarry. Rocla Materials Pty Ltd is owned by Rocla Pty Ltd which in turn is wholly owned by Fletcher Building from New Zealand.

The raw materials division of Rocla Pty Ltd trades as Rocla Quarry Products. Since its formation in the 1960s, Rocla Quarry Products has been involved in the production and distribution of a range of construction materials, especially sand.

Rocla Quarry Products currently operates 16 sites across the mainland Australian states. Fifteen of these sites are involved with the extraction, processing and distribution of sand and one of aggregates. Rocla Quarry Products has been the operator of the Calga Sand Quarry since October 2002.



1.3.2 The Project Site

For the purposes of this document, the area of land, which is the subject of the application for Project Approval, is referred to as the “Project Site”. This area covers both the existing Stages 1, 2 and 3 within the Calga Sand Quarry operation on Lot 2, DP229889, and the proposed Stages 4 and 5 of the Southern Extension on Lots 1 and 2, DP805358. All three lots are within the Parish of Narara, County of Northumberland and local government area of Gosford City, and are owned by Rocla¹.

Figure 1.3 displays the boundary of the Project Site, which covers a total of 130ha and the boundaries of the approved Stages 1 to 3 and proposed Stages 4 and 5.

Access from the Project Site to the adjoining Peats Ridge Road would cross the Peats Ridge Road reserve, which is currently owned by the NSW Roads and Traffic Authority but is under the care and control of Gosford City Council.

1.4 BACKGROUND TO THE PROPOSAL

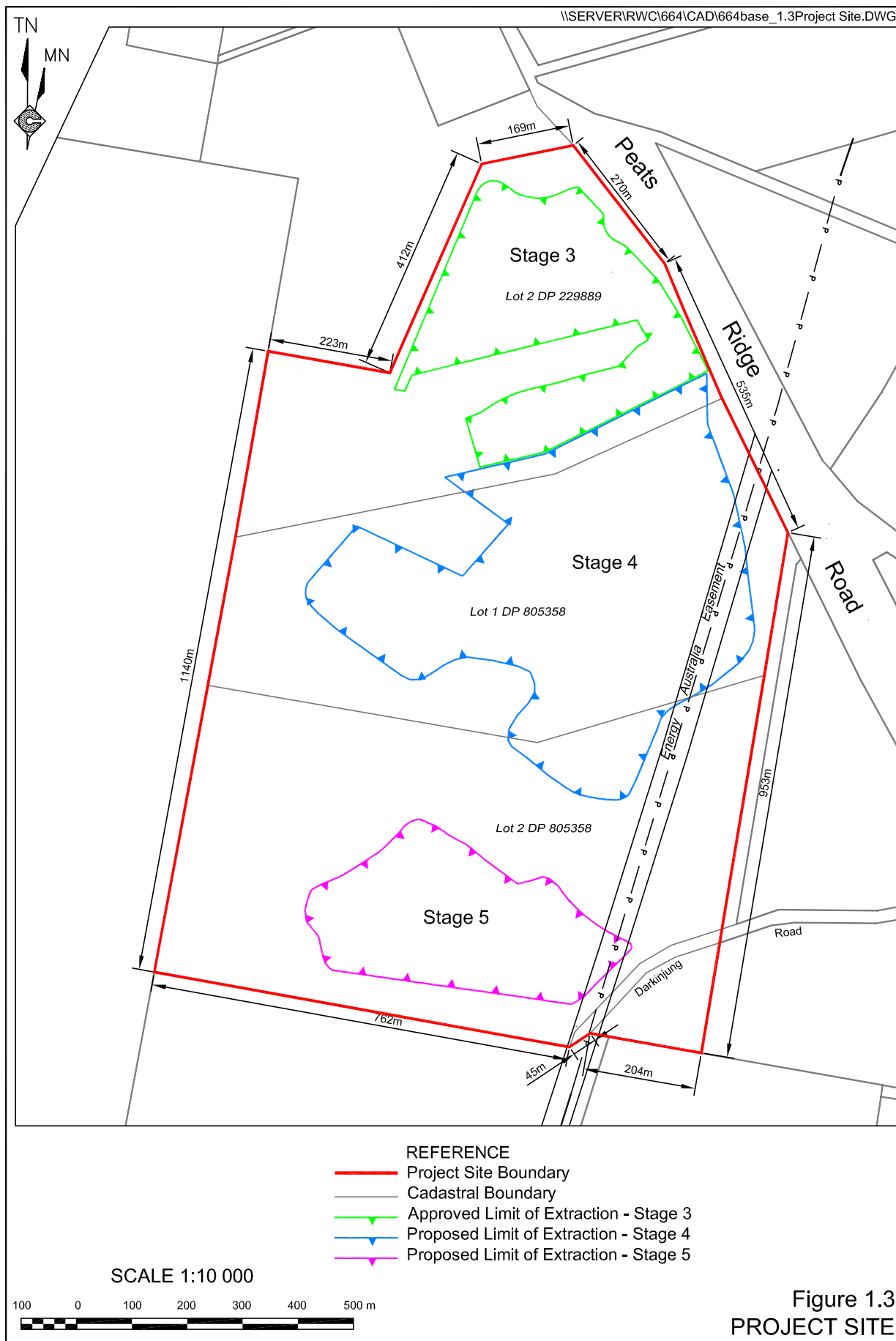
1.4.1 Calga Sand Quarry Operations

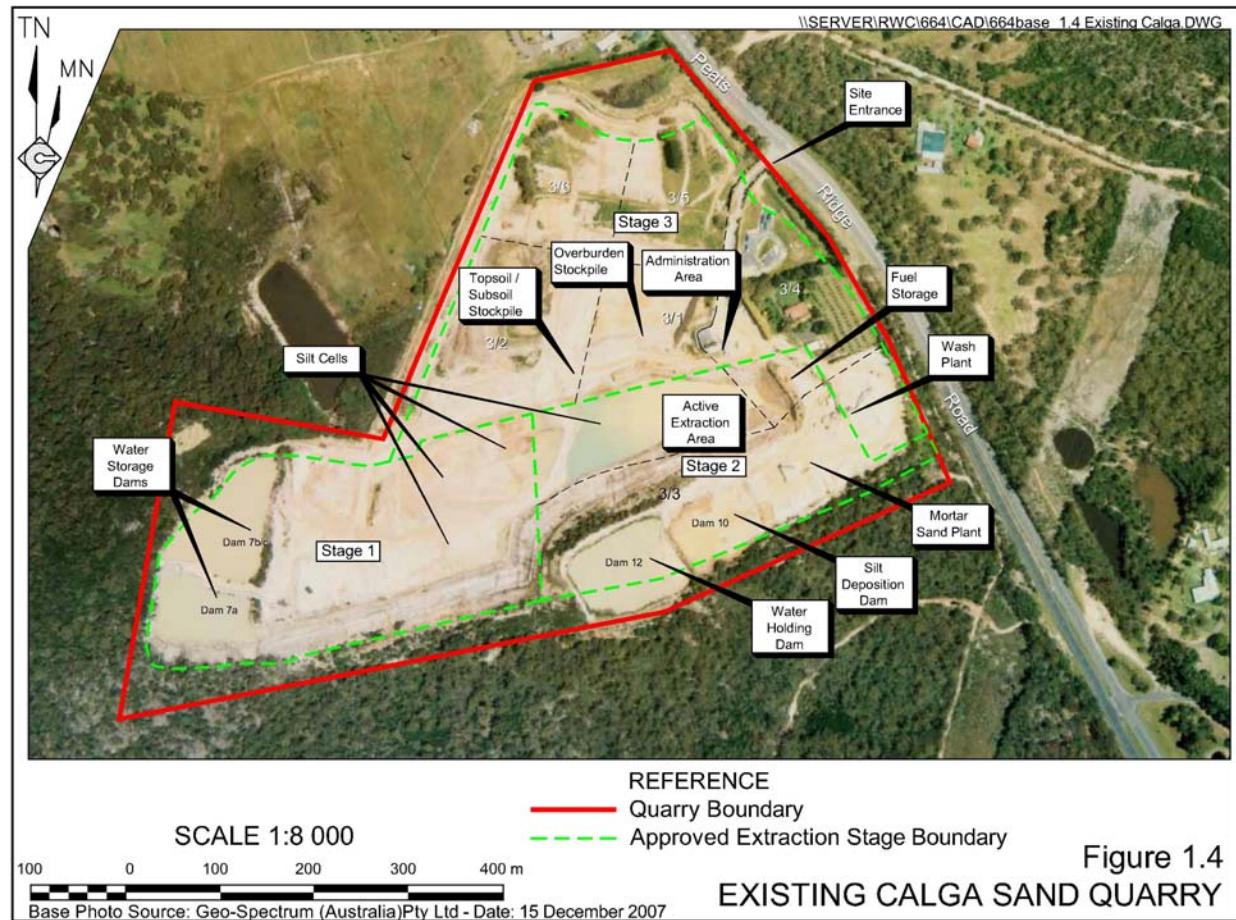
The initial development application in 1990 for the Calga Sand Quarry was considered and determined by the NSW Land and Environment Court with a development consent granted in July 1991 (Development Consent No. 10604). The Court approved extraction Stages 1 and 2 but rejected the area of extraction north of Stages 1 and 2. Extraction in the area north of Stages 1 and 2 was not approved at that time principally because of the lack of a definitive understanding of impacts upon the groundwater regime north of the proposed extraction area, and a conflict at that time between Sydney Regional Environmental Plans 8 and 9 with respect to the use of the land for agricultural or extractive industry purposes.

Extraction continued under the Development Consent No. 10604 until December 2004 when the sand resources within Stages 1 and 2 were exhausted and the development consent expired. At that time, operations at the Calga Sand Quarry were suspended whilst an application to extend operations northwards onto Stage 3 was determined (**see Figure 1.4**). Following the granting of Development Consent DA 94-4-2004 on 28 October 2005, sand extraction commenced within Stage 3 of the Calga Sand Quarry and processing and product despatch resumed. A full description of the existing operations within the Calga Sand Quarry is incorporated throughout Section 2 as part of the overall ongoing operation.

¹ At the time of lodging of Rocla's application for project approval, Lot 2, DP 229889 was owned by Mrs J. Voutos. Ownership has since transferred to Rocla Materials Pty Ltd although a contractual arrangement exists for the Voutos family to acquire Lot 2, DP 229889 at the completion of the Project.







1.4.2 Sand Markets

1.4.2.1 Existing Sand Demand / Supply to Sydney and Central Coast Markets

Sydney consumes up to 7 million tonnes of construction sand annually, about 55% of which is fine-grained sand (predominantly <0.6mm) with the remainder classed as coarse grained (0.6mm to 4.75mm). The central coast sand market consumes about 10% of the sand used by the Sydney market, ie. about 700 000 tonnes per annum. The major uses of fine-grained sand are for concrete manufacture, mortar for bricklaying, roof tile and fibre cement manufacture, plastering and production of concrete products eg blocks, culverts, pipes etc. The price and demand for particular types of sand are determined by use and distance from the source to the market.

The two largest sources of fine sand currently supplying the Sydney market are at Kurnell Peninsula (up to 1.5Mtpa) and Penrith Lakes (up to 0.6Mtpa). An application to extend extraction operations on the Kurnell Peninsula was refused in 2005, a decision upheld by the Land and Environment Court in 2007, and no further approval to extract sand at Kurnell is likely. As a consequence of the unsuccessful application, it is anticipated that the production of fine sand from the Kurnell Peninsula will cease within 10 years. Production of fine sand from Penrith Lakes is expected to cease during 2009, although it is noted that coarse sand from Penrith Lakes will continue to be produced until about 2014.



As the supply of coarse sand diminishes from Penrith Lakes, greater reliance will be placed by concrete producers upon using “manufactured sands”, ie. fine materials <4.75mm in diameter produced from hard rock crushing operations. However, for technical as well as economic reasons, an increased proportion of natural fine to medium-grained sand will still need to be blended with manufactured sands in the production of concrete.

1.4.2.2 Future Sand Supply to Sydney and Central Coast Markets

In recognition of the potential shortage in fine sand production from existing long-term sources and supply to the Sydney construction industry, the NSW Government recently sponsored a study of current and potential sources of construction sand for Sydney (Geos Mining, 2006). The study considered existing coarse and fine aggregate (sand) resources with consent, potential resources which (in 2006) did not have consent and forecast demand for these resources within the Sydney construction market. **Figure 1.5** presents the fine aggregate deficit for the Sydney Construction market forecast by Geos Mining (2006).

It is acknowledged that since the preparation of the report of Geos Mining (2006), there have been several fine aggregate (sand) projects approved to supply the Sydney construction market. It is also acknowledged that due to recent economic circumstances affecting the demands of the housing and construction sectors, the demand for construction materials may not have reached the forecast levels of **Figure 1.5**. However, the significant deficit in supply and demand of fine aggregate (and particularly fine sand) products, forecast to occur as early as 2012, illustrates the critical nature of identifying future sources of these products for the Sydney construction market.

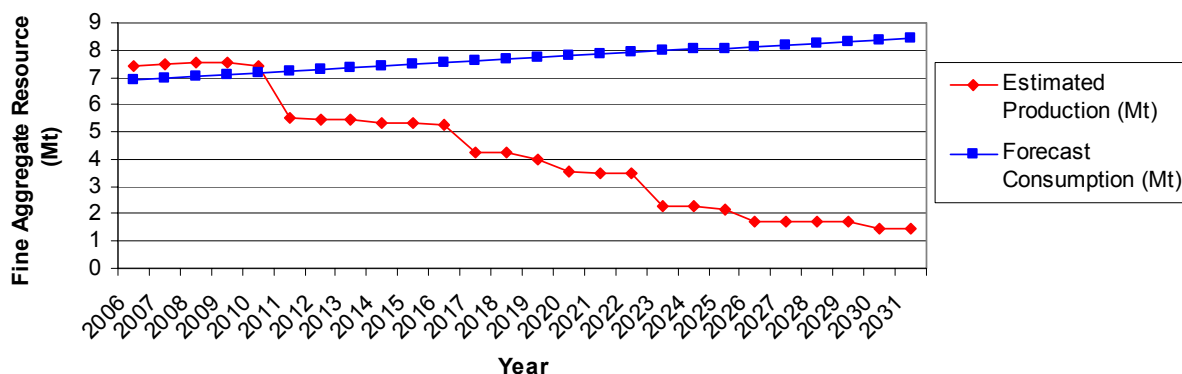


Figure 1.5

Forecast Fine Aggregate (Sand) Supply & Demand within the Sydney Construction Market

Source: Geos Mining (2006)

Noting this forecast deficit, and building on previous studies and assessments of sand resource areas surrounding Sydney by Oakes, Lishmund and Paterson (1995), Pienmunne and Whitehouse (2001), Department of Planning (2005), Geos Mining (2006) identified the known fine aggregate resources which could potentially supply the forecast shortfall. **Figure 1.6** shows the location of the main potential resources that could supply the Sydney market over the next 20 years.

Considering the known potential Somersby Plateau resource areas identified on **Figure 1.6** (including Kulnura, Peats Ridge, Somersby Fields² and Reservoir Road), Oakes, Lishmund and Paterson (1995) concluded, in part, that the Somersby Plateau was a major source of fine to medium grade sand to the northern Sydney metropolitan area and the Central Coast. Notably, of the other potential sources identified, a proportion are no longer considered viable for both environmental and economic reasons. In contrast, technological advances in sand washing technology have increased the efficiency of water use, reducing the reliance on substantial extraction of groundwater resources, an issue of considerable concern on the Somersby Plateau.

1.4.2.3 Strategic Importance of the Calga Sand Quarry

At present, Rocla despatches approximately 85% of its sand produced at the Calga Sand Quarry to the Sydney market, principally throughout the northern and northwestern suburbs. The remaining 15% of products are despatched to local markets in the Central Coast, a market in which demand is increasing.

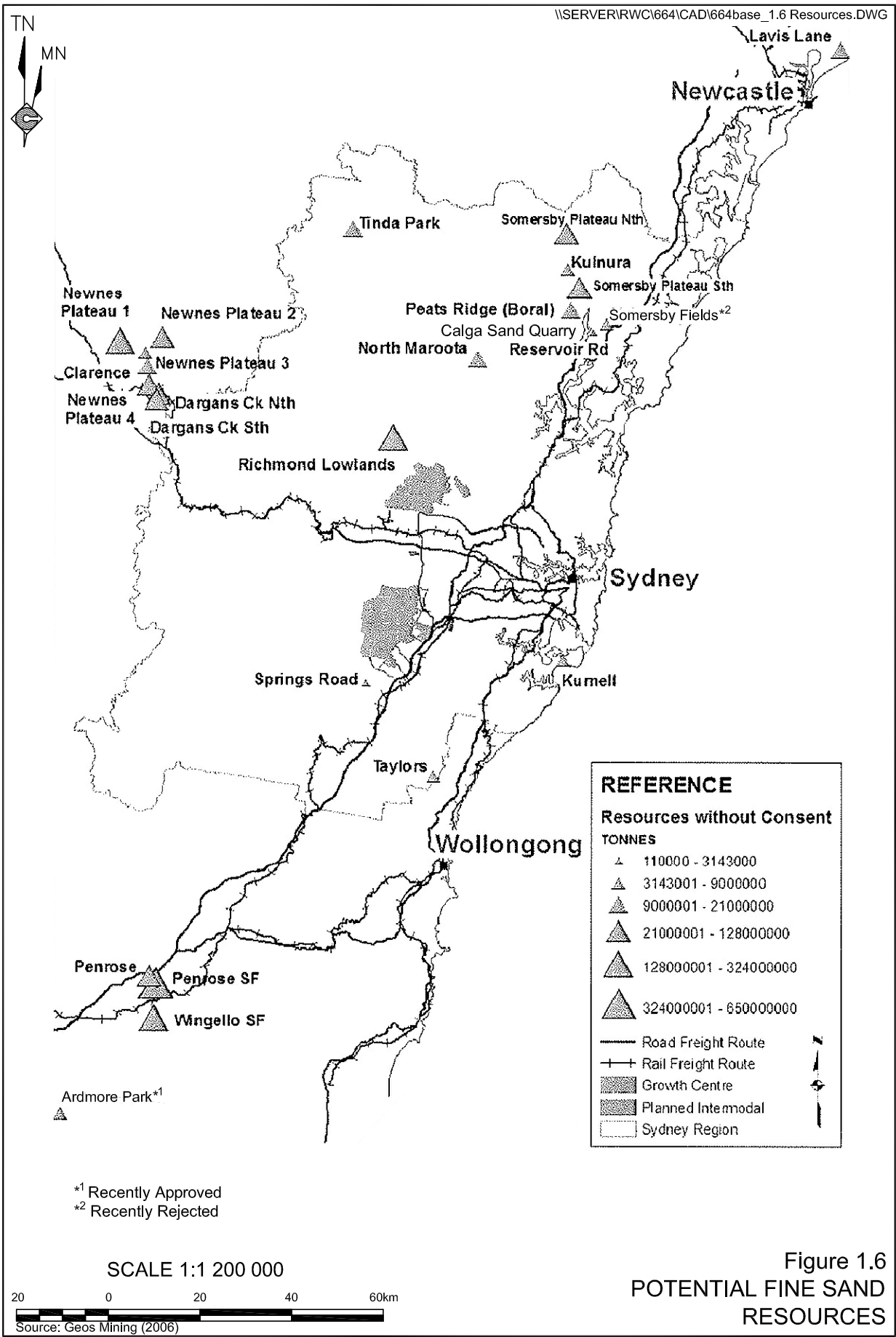
The proposed Southern Extension of the Calga Sand Quarry would increase the sand resource available to the Sydney and Central Coast markets by approximately 13.8Mt (based on a preliminary assessment of the resource and proposed limit of extraction). Importantly, access to this additional resource would allow the Calga Sand Quarry to gradually increase annual production from 400 000tpa to 1 000 000tpa, thereby easing the supply pressure on Sydney markets in lieu of the supply from Penrith Lakes and ultimately Kurnell.

It is acknowledged that there are a number of sites that are producing or are proposed to produce fine sand at other locations on the Somersby Plateau. The forecast shortfall of sand resources for the Sydney construction market notwithstanding, the Southern Extension to the Calga Sand Quarry has several notable advantages over these operations, particularly over the proposed operations.

1. Rocla has established markets for the washed and mortar sand produced at the Calga Sand Quarry.
2. Calga Sand Quarry is closer to Sydney than any other of the operating or potential Somersby Plateau sand quarries, with a transport route that passes fewer residents.
3. By extending an existing quarry, disturbance would be restricted to an area already affected by an extractive industry, as opposed to the establishment of quarrying activities in areas not previously disturbed for this type of activity.
4. Extensive environmental studies and ongoing monitoring have been undertaken as part of proposals for the original quarry and extension to Stage 3. The information gained over time will continue to increase the level of confidence in the prediction of potential impacts associated with the Project.

² Project approval for the Somersby Fields Project was refused by the Minister for Planning on 9 August 2009.





1.5 APPROVALS PROCESS FOR A MAJOR PROJECT AND THE PROJECT TIMETABLE

Table 1.1 presents the component stages of the overall approvals process for a major Project and provides an indicative Project timetable currently being followed by Rocla. Based upon the submission of an adequate *Environmental Assessment* in December 2008, the determination of the Application by the Minister for Planning (*Stage 12* of **Table 1.1**) could occur by early 2010.

Table 1.1
Approvals Process for a Major Project and the Proponent's Indicative Timing

Stage	Activity	Indicative Timing
1 ⇒	A "Preliminary Environmental Assessment" of the Project is prepared and submitted to the Department of Planning for distribution to relevant government agencies.	Completed - September 2006
2 ⇒	A Planning Focus Meeting is convened for all relevant government agencies to attend a briefing about the Project and a site inspection.	Completed - September 2006
3 ⇒	Rocla writes to the Department of Planning lodging its Application for Planning Approval, Project Description Report and a final copy of this document.	Completed - 20 September 2006
4 ⇒	The Department of Planning receives the written requirements of the government agencies consulted and issues the Director-General's Requirements for the Project.	Completed - 15 December 2006
5 ⇒	Rocla undertakes consultation with the local and wider community – which continues throughout the entire process.	Completed - October 2008
6 ⇒	An <i>Environmental Assessment</i> is provided to the Department of Planning for consideration and assessment of adequacy by the Department and other government agencies (prior to it being placed on public exhibition).	Completed - December 2008
7 ⇒	The <i>Environmental Assessment</i> is lodged with modifications reflecting the comments provided by the various government agencies. The Department of Planning will place all documents on public exhibition and notify neighbours and other stakeholders about the Project and the exhibition period.	November 2009
8 ⇒	Review of the <i>Environmental Assessment</i> during the exhibition period by the community and government agencies.	November/December 2009
9 ⇒	The Department of Planning seeks from Rocla, a response / clarification of issues raised in the submissions from government agencies and the community.	December 2009
10 ⇒	Rocla provides a response to the issues raised and, if necessary, a revised Statement of Commitments.	December 2009/ January 2010*
11 ⇒	The Department of Planning prepares its assessment report based on all documentation submitted by Rocla, government agencies and the community. If considered appropriate by the Minister, the application will be referred to a Planning Assessment Commission.	January/February 2010*
12 ⇒	Determination by the Minister for Planning.	March/April 2010*

Note *: Estimated timing only



1.6 ENVIRONMENTAL MANAGEMENT AND DOCUMENTATION

1.6.1 Environmental Management

On-going environmental management of the Project, including the assessment of the Proponent's performance with respect to the commitments made in this document (see Section 6) and the implementation of project approval or licence conditions, would be the ultimate responsibility of Rocla's Regional Manager responsible for NSW sand extraction operations. The Quarry Manager would remain responsible for day-to-day on-site supervision including the integrated implementation of all environmental safeguards identified in this document, and all additional documentation as developed throughout the life of the quarry. Assistance would be provided by specialist consultants, as and when required.

Rocla is committed to undertaking all extraction, processing, transportation and associated activities in a responsible and pro-active manner which:

- i) enables the co-existence of the various land uses in the area;
- ii) is environmentally and socially responsible; and
- iii) minimises any real or perceived impacts on other members of the community. Central to this approach would be regular contact with neighbours and members of the local community and a willingness to openly discuss actual or perceived problems and to implement appropriate changes to operational procedures.

1.6.2 Environmental Documentation

Successful environmental management invariably involves regular, organised documentation to ensure that, irrespective of personnel changes, all aspects of planning, environmental control, monitoring and responses to problems are properly recorded. The documentation produced by Rocla would be based on conditions provided by the project approval, should it be granted. It is anticipated that at least the following would be required.

- Environmental Management Strategy.
- Site Water Management Plan.
- Landscape and Rehabilitation Management Plan.
- Cultural Heritage Management Plan.
- Noise Monitoring Program.
- Air Quality Monitoring Program.

In addition to these management plans and monitoring programs, the Proponent would prepare an Annual Environmental Management Report (AEMR). The AEMR would provide an overview of the activities in each preceding year with an assessment of compliance of the various conditional requirements in the project approval. The document would also report upon any specific requirements nominated in the conditions. All monitoring data collected during the preceding year would also be presented and evaluated.



The principal chapter headings for the AEMR are likely to be as follows.

Preamble:	presenting an overview of the report and its contents.
The Past 12 Months:	presenting information of construction activities, extraction operations, processing operations, product despatch, silt deposition and consolidation and rehabilitation / final landform preparation measures.
Environmental Management and Monitoring:	covering groundwater and surface water management, weed management, noise management, air quality management, vegetation and threatened species management, cultural heritage management, effectiveness of mitigation measures and compliance issues.
The Next 12 Months:	presenting plans for the following 12 months of operations relating to extraction and processing operations, silt deposition and consolidation, rehabilitation and final landform preparation.
Appendices:	present the relevant approvals, compliance tables and monitoring data.

1.7 MANAGEMENT OF INVESTIGATIONS

The preparation of this document has been managed by Mr Rob Corkery, M.Appl.Sc., B.Appl.Sc (Hons), Principal of R.W. Corkery & Co Pty. Limited, with a considerable proportion of text preparation and management of Specialist Consultant studies being undertaken by Mr Alex Irwin, B.Sc. (Hons) of the same company.

On behalf of Rocla, Mr John Gardiner, M.Com., B.E. (Hons), L.L.B. (Hons), Dip. Ed., Rocla's Regional Manager, Mr Alex Echt, Resource Development Manager and Mr Pat McCue, Rocla's Quarry Superintendent, provided technical information on the Project. Community consultation was coordinated by Mr McCue, assisted throughout by Mr Paul Slough, the Calga Sand Quarry Manager.

Strong emphasis has been placed upon a multi-disciplinary team approach to the design of the Project, the description of the existing environment and impact assessment. Rocla, through the following specialist consultancies (and the principal authors), commissioned a wide range of specific studies to assist in the design and assessment of the Project.

- Groundwater Data Collection: Peter Dundon & Associates Pty Ltd
(*Mr Peter Dundon – M.Sc., B.Sc.*)
- Groundwater Assessment: GeoTerra Pty Ltd
(*Mr Andrew Dawkins – M.App.Sc, B.Sc*)
- Aboriginal Heritage Assessment: Archaeological Surveys and Reports Pty Ltd
(*Mr John Appleton – B.A. (Hons)*)
- Ecological Assessment:
 - Cumberland Ecology Pty Ltd
(*Dr David Robertson – PhD, B.Sc. (Hons)*)
(*Ms Joanne Brownett - B.Sc. (Environmental) (Hons)*)
 - Eastcoast Flora Survey
(*Mr Stephen Bell – B.Sc. (Hons)*)



- Air Quality Assessment: PAEHolmes
(Ms Judith Cox – B. Eng.(Hons))
- Noise Assessment: Wilkinson Murray Pty Ltd
(Mr Jimi Ang – B.E (Aero.))
- Traffic Assessment: Transport and Urban Planning
(Mr Terry Lawrence – M.Urb.Plan)
- Surface Water Assessment: Evans and Peck Pty Ltd
(Dr Stephen Perrens – PhD, M.Eng.Sc)

It is noted that all reports prepared by the team of specialist consultants advising Rocla were initially finalised in late 2008 to accompany the *Environmental Assessment* during its assessment of adequacy by the DoP and relevant Government agencies. As a result to the adequacy assessment, two reports (relating to surface water and traffic) required little change. All other reports were modified to varying degrees in response to the adequacy assessment throughout 2009. Accordingly, each report carries the month and year when it was completed in the form it is present in the *Specialist Consultant Studies Compendium*.

