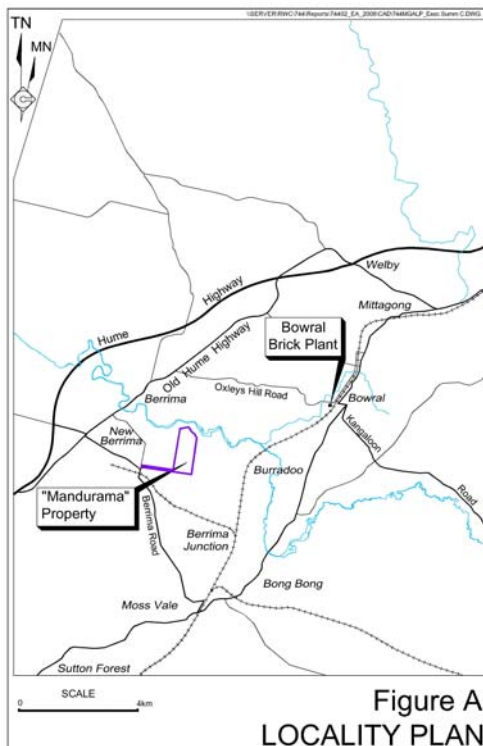


Executive Summary

Introduction

This *Environmental Assessment* has been prepared to support an application by The Austral Brick Company Pty Limited (“the Proponent”) for project approval from the Minister for Planning to establish a clay/shale quarry near New Berrima in the Southern Highlands. The quarry would be developed to supply the bulk of the brick manufacturing raw materials required for the ongoing operation of the Bowral Brick Plant.

The area which is the subject of the application for project approval (the “Project Site”) is located approximately 1.5km east of the township of New Berrima and approximately 5km northeast of Moss Vale (see **Figure A**).



The Project is classified as a Major Project in accordance with the *State Environmental Planning Policy (Major Development) 2005*. Consequently, the Minister for Planning is the approval authority. As a

Major Project, it would be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* and an *Environmental Assessment* is required to be prepared to accompany the project application.

This executive summary introduces the Proponent, provides relevant background about the Project, presents an overview of the Project, outlines issue identification and prioritisation undertaken, identifies key issues and summarises the predicted Project-related impacts on the environment within and surrounding the Project Site.

The Proponent

The Proponent for the Project is The Austral Brick Company Pty Ltd. The company trades as “Austral Bricks” and, since its formation in 1907, has been involved in the production and distribution of a range of quality fired clay products. The Proponent is the owner and operator of the existing Bowral Brick Plant and various other brick and paver plants throughout Sydney.

Brickworks Limited, the Proponent’s parent company is a publicly listed company. Brickworks Limited also owns a range of other companies, including Bristle Roofing and Austral Masonry. These companies, together with the Proponent, manufacture a large range of clay bricks, pavers, terracotta floor tiles, roof tiles and concrete blocks. The Proponent is Australia’s largest manufacturer of pavers, bricks, building materials, facade systems and landscaping products.

The products produced at the Bowral Brick Plant are used in a wide range of buildings and structures and are particularly sought after for renovations of private and public brick buildings constructed throughout the 20th Century.



Background to the Project

The principal raw material used in the manufacture of the dry pressed bricks at the Bowral Brick Plant is Ashfield Shale. The Ashfield Shale has been extracted from a quarry adjacent to the Bowral Brick Plant for over 80 years, however, the remaining resources are limited and likely to be exhausted within about 5 years. The Proponent recently acquired the 100ha "Mandurama" property approximately 1.5km east of New Berrima and 1.5km northeast of the Berrima Cement Works (Boral Cement). The drilling investigations on the property have established there is in the order of 8 million tonnes of recoverable shale on the property, the bulk of which is ideally suited to the manufacture of dry pressed bricks at the Bowral Brick Plant. The Proponent proposes to extract the shale and a proportion of the clay and transport the materials to the Bowral Brick Plant to be used in the manufacture of dry pressed bricks to supply the Sydney market.

Planning Context

The Project Site is located within Zone E3 identified as "Environmental Management" within Wingecarribee Local Environmental Plan (LEP) 2010, which does not permit *extractive industry* but permits *mining*. The Project is, however, permissible given the provisions of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

The Project would also be developed and operated with reference to relevant clauses of *State Environmental Planning Policies 33, 44* and *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

Project Overview

The Proponent is proposing to extract and transport an average of approximately 120 000tpa shale, weathered shale, brick clay and some friable sandstone, with an

upper limit of 150 000tpa, for a period of 30 years. The operation would employ approximately five part-time personnel for the duration of the project. The proposed hours of extraction operations are from 7:00am to 5:00pm Monday to Friday and 7:00am to 2:00pm on Saturdays with no work on Sundays. Product despatch would be from 7:00am to 4:00pm Monday to Friday and Saturdays under special circumstances and 8:00am to 4:00pm on Sundays under special circumstances. The proposed project would involve a capital investment of approximately \$1 million.

The extraction of the resource would be undertaken on a campaign basis, with approximately two to three campaigns per year, in six stages principally to reduce the area of disturbance at any one time and to facilitate progressive rehabilitation of disturbed areas. The clay/shale product would be transported by truck to the Bowral Brick Plant along a defined transport route.

The Project Site

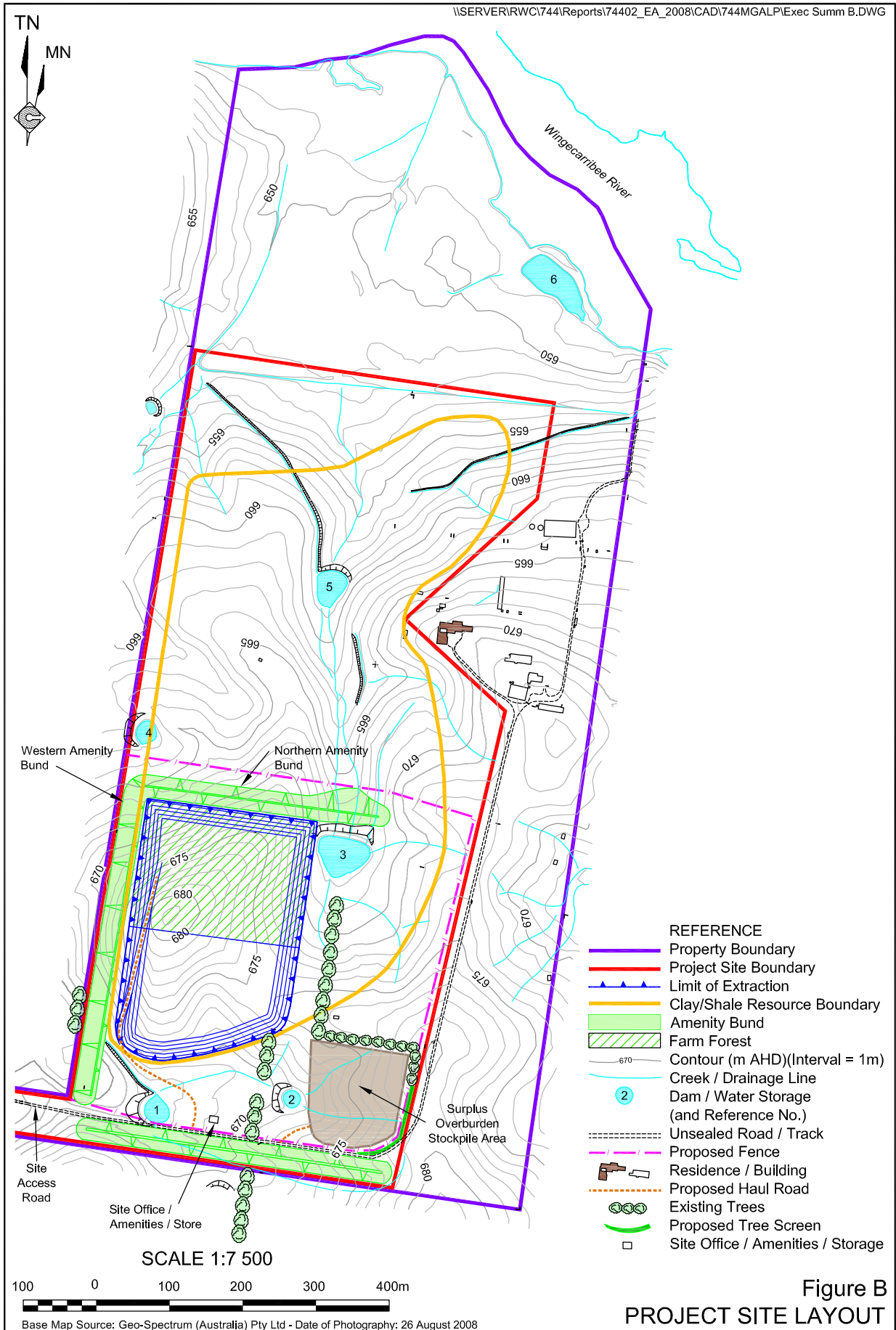
The "Project Site" is a 51ha area within the "Mandurama" property, Lot 1 DP 414246, located at 1 Berrima Road, New Berrima. Access to the Project Site is from Berrima Road, approximately 300m north of the intersection of Berrima Road and Taylor Avenue. The "Mandurama" property lies immediately south of the Wingecarribee River, is currently used for the grazing of beef cattle and is predominantly covered in improved pastures with some windrows of introduced species.

Project Site Layout

The Project Site incorporates the following components (see **Figure B**).

- A site access road from Berrima Road to the extraction area, a distance of approximately 800m.
- An extraction area covering approximately 7.7ha.





- A water storage facility in the active extraction area to store surface water runoff and incidental groundwater inflows to the extraction area.
- Re-development of two existing dams to serve as sedimentation dams which would capture run-off from disturbed areas outside of the extraction area.
- A transportable lunchroom/ amenities building.
- A storage and workshop area located within a shipping container.
- Three perimeter amenity bunds which would minimise visual amenity, noise and dust impacts, namely the combined Northern and Western Amenity Bunds and Southern Amenity Bund.
- A surplus overburden stockpile area which would initially be the storage area for surplus topsoil, overburden and product clay/shale and topsoil in the longer term.

Project Activities

Site Establishment

The establishment and construction phase would commence with the survey and marking of areas for roadways, extraction stages, amenity bunds, dams, diversion banks and other site features. Transportable buildings and containers would be brought to the site and fixed in place.

The access road would be upgraded, the bridge over Stony Creek assessed and the intersection of the access road and Berrima Road constructed. The Project Site would be fenced. Silt fencing and other erosion control structures would be constructed, as required.

A farm forest would be planted, using tube stock and/or direct seeding of a fast

growing marketable native timber species, on the Stage 4 land (on the northern side of the hill within the extraction area) to provide the required visual screening of activities near the surface on the southern side of the hill. As Stage 4 progresses, these trees would be felled for timber sales.

Land Preparation and Bund Construction

The few existing trees within the footprint of the extraction area would be felled and the felled timber mulched and used onsite. Topsoil and overburden would be strip cleared and used in the construction of amenity bunds. The clayey subsoil not immediately required for bund construction would be stockpiled on the floor of the extraction area or within the surplus overburden stockpile area for later use in rehabilitation or transported to the brick plant if considered suitable for brick manufacture.

Amenity bunds would be constructed to a height of 7m on the western, northern and southern sides of the extraction area. The purpose of these is to provide visual, noise and dust screening for surrounding residences. Bunds would be revegetated with a quick growing cover crop with longer term plantings of native tree tube stock.

Water Management System

Five farm dams are located on the Project Site. Two of these dams would be upgraded to act as sedimentation dams. A system of diversion banks and channels would be constructed and maintained to divert “clean” runoff from entering the disturbed areas.

Extraction

Extraction would be conducted on a campaign basis with about two to three 4 to 6 week campaigns per year. Extraction would be undertaken in six stages. Stages 1 to 3 would be on the southern side of the hill. Stage 3 is expected to cease after



approximately 18 years from commencement. Stages 4 to 6, on the northern side of the hill would proceed through Years 19 to 30.

Extraction face heights would be 10m, operational bench widths 30 to 50m and final bench widths, 5m. Equipment used would include a scraper, a dozer, a front-end loader and trucks. Excavation would reach a final elevation of approximately 640m AHD.

Product Transportation

Transportation of the product clay/shale would be by road-registered articulated and rigid trucks, not exceeding 19m in length, predominantly Monday to Friday. The transportation route (see **Figure C**), involves a left turn from the Project Site access road onto Berrima Road, turning right into Taylor Avenue, through to Medway Road onto the Hume Highway.

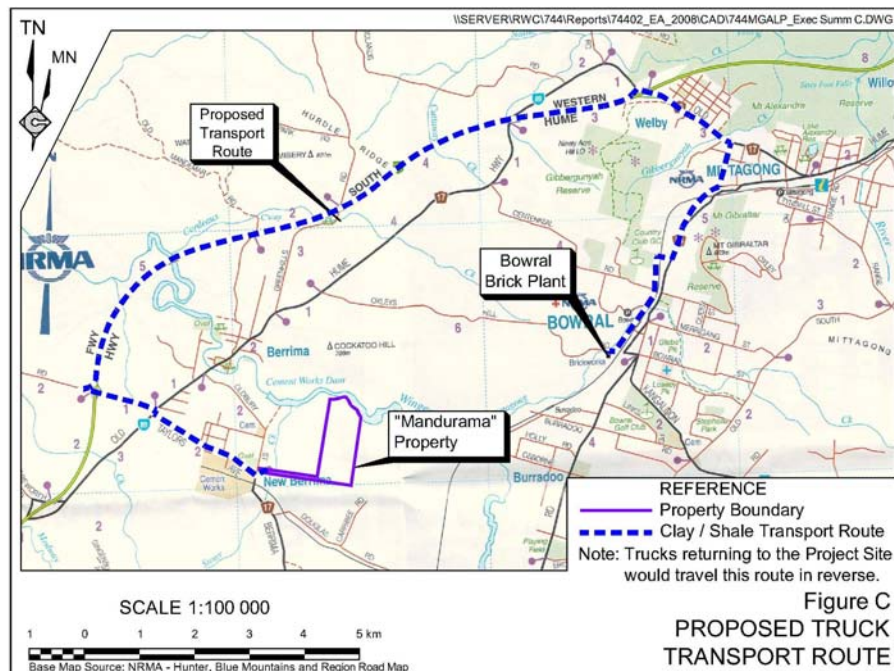
Trucks would exit the Hume Highway onto the Old Hume Highway and travel through Mittagong via Cavendish Street and Old Bowral Road onto Mittagong Road. Trucks

would turn left into Lyle Avenue and proceed into Kirkham Road and Oxley Hills Road to enter the Bowral Brick Plant via Kiama Street.

There would typically be up to 17, 30t loads or 34 truck movements per day for five days per week to transport approximately 2 500t of product clay/shale per week. However, following periods of prolonged wet weather, these traffic volumes may need to increase to as much as 68 loads per day albeit for only a few days to keep the brick plant operational.

Final Land Use and Rehabilitation

The final land use would include agricultural purposes such as grazing on the extraction area floor, with strips of bushland on the rehabilitated benches. As areas of extraction are completed, benches would be progressively rehabilitated. This would involve placement of overburden and topsoil on the completed benches and revegetation with native trees and shrubs. The extraction area floor would be covered with material from the amenity bunds and revegetated with pasture species.



Issue Identification and Prioritisation

In order to undertake a comprehensive *Environmental Assessment* of the Project, appropriate emphasis has been placed on those issues likely to be of greatest significance to the local environment, neighbouring land owners and the wider community.

These issues and their potential impacts were identified through a program of community and government consultation and a review of relevant legislation and guidelines. This was followed by an analysis of the unmitigated environmental risk associated with each issue identified in order to prioritise the assessment of the identified environmental issues within the *Environmental Assessment*.

Through a review of the allocated risk ratings the following priority of issues was determined.

- | | |
|-------------------|-------------------------------------|
| 1. Traffic | 7. Air Quality |
| 2. Surface Water | 8. Socio-economic |
| 3. Noise | 9. Soil and Land
Capability |
| 4. Flora | 10. Aboriginal
Cultural Heritage |
| 5. Fauna | 11. Groundwater |
| 6. Visual Amenity | |

Existing Environment, Proposed Safeguards and Impacts

The components of the existing environment within and surrounding the Project Site have been studied in detail and the Project designed to avoid or minimise potential impacts.

Traffic

A review of the existing traffic and road capability indicated that the existing roads are operating satisfactorily. Assessment of the roads, intersections and traffic volumes under the predicted increased traffic attributable to the Project identified that minimal traffic nuisance and safety impacts

could be expected but a type BAR intersection at the intersection of Berrima Road and the site access road is required.

Surface Water

The Project Site is set back from the Wingecarribee River by approximately 730m. No watercourses or water bodies are within the extraction area, although Stony Creek crosses the site access road and there are five farm dams located within the Project Site. An assessment of the surface water impacts shows that with the proposed surface water control structures such as sedimentation dams and diversion banks, and with the installation of silt control fencing and sound management of the dams, impacts are predicted to be minimal.

Noise

An assessment of ambient noise at various locations around and within the Project Site determined that the area experiences very low background noise levels. Assessment of potential impacts through modelling based on the proposed site layout and operations, including the mitigating features of amenity bunds and use of local topography, determined that noise impacts would be minimal and within DECCW established criteria. The modelling resulted in the management recommendations which included the restriction of some activities in some locations during adverse weather conditions.

Flora

The flora of the existing environment comprises predominantly improved pasture species with some windrows of exotic tree species. A few of these trees would have to be removed to allow extraction and the construction of amenity bunds. The Project Site does not contain any threatened or endangered flora species, populations or communities. The assessment determined that impacts on flora attributable to the Project would be minimal.



Fauna

The Project Site does not contain any threatened or endangered fauna species, habitats, populations or communities. The assessment determined that impacts on fauna attributable to the Project would be minimal.

Visual Amenity

The existing visual character of the Project site and surrounds is a combination of a rural landscape, including grazing and bushland, and isolated industrial facilities such as the Boral Cement Plant at Taylor Avenue, New Berrima, and the Inghams Feed Plant at Douglas Road, Berrima. Visibility of the Project Site is greatest at elevated residences on the northern side of Wingecarribee River but these views are at considerable distance from the Project Site and against a backdrop of the cement plant and the stockfeed plant.

A range of design and operational mitigation measures would be implemented to reduce the visual impacts of the Project. These measures include the siting and staging of the Project to benefit from the natural topography, the construction of vegetated amenity bunds around three sides of the extraction area, tree screens and a proposed farm forest and the progressive rehabilitation of completed areas of extraction.

Air Quality

An air quality assessment of the existing and predicted air environment based on dispersion modelling showed that impacts at the neighbouring residences would be within DECCW criteria. A range of design and operational mitigation measures would be implemented to reduce air quality impacts. These measures include the construction of amenity bunds, the watering of roads and other potentially dusty areas, as required, the vegetation of exposed areas, covering of loads and the correct use and maintenance of equipment.

Socio-economic

The socio-economic assessment found that positive impacts of the Project include the provision and maximum utilisation of clay/shale which is a limited resource necessary for the manufacture of an important building product, the creation of up to five employment positions, the long-term viability of the Bowral Brick Plant and the associated benefits to employment and support of the local area. The negative impacts include the potential impacts upon of lifestyle and land values for neighbouring residents, although these impacts are considered to be minimal or negligible due to the mitigation measures proposed to reduce noise, visible amenity and air quality impacts.

Soil and Land Capability

The soils and land capability within the Project Site were assessed. It was determined that the characteristics of the soil would not present any constraints to the Project, the topsoil resource would be conserved and used in rehabilitation and that the existing land capability would not be significantly impacted by the Project.

Cultural Heritage

An Aboriginal cultural heritage assessment undertaken in accordance with legislative requirements, determined that there are no Aboriginal artefacts, sites or Potential Aboriginal Deposits on the Project Site or likely to be found on the Project Site. The Project Site does not contain any items or sites of non-Aboriginal Heritage significance. The impacts on heritage are considered to be minimal although precautions relating to the possibility of finding Aboriginal items would be adopted.

Groundwater

Exploratory drilling did not intercept groundwater and it is considered unlikely that clay/shale extraction would intercept groundwater. It is considered that impacts on groundwater would be minimal.



Project Evaluation and Justification

An evaluation of the Project has been undertaken by firstly re-assessing the risks posed to the local environment by project-related activities following the implementation of all design and operational safeguards and mitigation measures, and secondly, throughout the principles of ecologically sustainable development.

The evaluation found that, with the implementation of the proposed controls and safeguards measures, the residual risk posed by each possible environmental incident or impact was reduced from its original level and classified as either moderate or low, and therefore acceptable.

The Project has also addressed each of the sustainable development principles. It has been concluded that the Project achieves a sustainable outcome for the local and wider environment.

The Project has also been justified in terms of a wide range of biophysical, social and economic issues. These impacts have been justified in terms of the low risk of environmental impacts and the positive economic and social benefits that would result for the local community and broader Berrima-Bowral-Mittagong region.

Conclusion

The Project has, to the extent feasible, been designed to address all issues raised by the local community and all levels of government as well as the principles of ecologically sustainable development.

The Project provides for the extraction and transportation of clay/shale which would provide the Proponent's Bowral Brick Plant with continued viability for at least 30 years. This would provide significant social and economic benefits to the local and wider community.

In light of the conclusions incorporated throughout the *Environmental Assessment*, it is assessed that the Project could be developed and operated in a manner which would satisfy all relevant statutory goals and criteria, environmental objectives and reasonable community expectations.

The *Environmental Assessment* supported by the range of specialist consultant studies has established that if the Project proceeds, it would:

- provide necessary raw materials for the manufacture of significantly important building products for the Greater Sydney and regional area;
- maximise the utilisation of a limited resource in close proximity to its point of use;
- reduce risk levels associated with possible environmental incidents and adverse impacts on the environment to an acceptable level;
- have a minimal and manageable impact on the biophysical environment;
- satisfy sustainable development principles;
- provide for continuing and future use of the Project Site for agricultural purposes;
- provide social and economic benefit to the local and wider community; and
- address perceived social impacts.

