

Section 3

Consultation and Issue Identification

PREAMBLE

This section describes how the environmental issues assessed in the Environmental Assessment were identified and prioritised. In summary:

- i) *a comprehensive list of all relevant environmental issues was assembled through consultation with the local community and local and State government agencies, completion of preliminary environmental studies and a review of relevant legislation, planning documents and environmental guidelines;*
- ii) *a review of the project design and local environment was undertaken to identify risk sources and potential environmental impacts for each environmental issue;*
- iii) *an analysis of **unmitigated** risk for each potential environmental impact was then completed with a risk rating assigned to each impact based on likelihood and consequence of occurrence; and*
- iv) *through a review of the allocated risk ratings and the frequency with which each issue was identified, the relative priority of each issue was determined, with this priority used to provide an order of assessment and breadth of coverage within Section 4.*

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3.1 INTRODUCTION

To enable a comprehensive *Environmental Assessment* of the Project, 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, preliminary environmental studies and literature review was undertaken to identify relevant environmental issues and potential impacts. This was followed by an analysis of the environmental risk posed by each potential impact in order to prioritise the assessment of the identified environmental issues within the *Environmental Assessment*.

3.2 ISSUE IDENTIFICATION

3.2.1 Introduction

Identification of environmental issues relevant to the development and operation of the Project involved a combination of consultation and background investigations and research. This included:

- consultation with surrounding land owners and the local community (Section 3.2.2.1);
- consultation with State and local government agencies (Section 3.2.2.2); and
- reference to relevant NSW government legislation and environmental guidelines (Section 3.2.3).

3.2.2 Consultation

3.2.2.1 Consultation with Surrounding Land Owners and the Local Community

During the preparation of the *Environmental Assessment* for the Project, the Proponent consulted with the four land owners immediately adjacent to the Project Site and Patons Lane, namely:

- V.W. & Y.D Bates (“Roughwood Park”);
- The Commonwealth of Australia (managed by the Australian Defence Force);
- Eric Newham Holdings Pty Ltd (“Glenholme Farm”); and
- Darley Australia Pty Limited (“Coolamon Park”).

These land owners expressed concerns relating principally to odour and pest/vermin issues which are substantially diminished and easily controlled at facilities only receiving general solid waste (non-putrescible) as would be the case on the Project Site. A high standard of site management was requested from these land owners to ensure all problems are avoided.



The owners and/or occupiers of the various rural-residential lots fronting onto Luddenham Road near Patons Lane were approached on or soon after 30 January 2009 and informed about the Proponent's project. The issues raised by these residents related primarily to the following.

- Traffic.
- Dust.
- Operational Hours.
- Construction of Patons Lane.

Only one resident of Luddenham Road responded, requesting follow-up discussions.

The owners and/or occupiers of the residences in the vicinity of the Project Site and within "The Vines" estate were informed via a mail-out and letter box drop on 31 March 2009. The objective of the initial correspondence was to inform the residents within the estate about the Proponent's project and to create an open channel of communication to enable issues of interest to be identified and discussed. The feedback received from "The Vines" residents related primarily to the following.

- Types of waste to be accepted (putrescible/ non-putrescible and asbestos?).
- Hours of operation.
- Noise controls.
- Odour generation and odour controls.
- Regeneration and post-operational land use
(would the Project Site be returned to grazing land).
- Pest and vermin control.

A total of 78 letters were hand delivered which, in turn, generated six responses.

An information and feedback package was also hand delivered to each residence in "The Vines" estate and adjacent to Luddenham Road in October 2009 following the finalisation of the project design and environmental assessments but prior to the exhibition of the *Environmental Assessment*.

The wider local community has been informed about the Project through a number of Project-related newspaper articles in the local press ("*Penrith City Star*") since early 2009. The Proponent has provided the *Penrith City Star* with a range of documents and information to assist in the compilation of relevant articles. Issues raised by local residents and recorded in the *Penrith City Star* related to:

- dust generation from trucks entering and leaving the former quarry via Patons Lane (currently unsealed);
- the impact of the Project on the value of surrounding real estate in the short and long term; and
- noise and odour generation by the proposed Project.



Each individual concern or issue raised has been addressed in the relevant sections of the *Environmental Assessment*.

Consultation with the local Aboriginal Community

Consultation with the local Aboriginal community was undertaken by the Proponent's consultant archaeologist, Archaeological Surveys & Reports (AS&R) and is summarised in AS&R (2009) (Part 10 of the *Specialist Consultant Studies Compendium*) and Section 4.10 of this document. This consultation involved correspondence circulated to a range of nominated parties and the including and the placement of an advertisement in the *Penrith City Star* on 21 April 2009 inviting any stakeholders to register an interest in taking part in an archaeological study for the Project. Three Aboriginal stakeholders participated in the consultation, namely Deerubbin Local Aboriginal Land Council, Darug Custodial Aboriginal Corporation and Darug Aboriginal Cultural Heritage Assessments.

The results of the involvement of the local Aboriginal community in the assessment of Aboriginal Heritage issues are presented in correspondence included in AS&R (2009).

3.2.2.2 Consultation with Government Agencies

During the preparation of the *Preliminary Environmental Assessment*, the following government agencies and organisations were consulted.

- Penrith City Council (PCC)*.
- NSW Department of Environment and Climate Change (DECC)*, now the Department of Environment, Climate Change and Water (DECCW) – Environment Protection and Regulation Group (DECCW-EPRG).
- NSW Department of Water and Energy (DWE), now the Department of Environment, Climate Change and Water – Office of Water (DECCW-NOW).
- NSW Department of Planning (DoP)*.
- NSW Roads and Traffic Authority (RTA).
- NSW Department of Primary Industries – Mineral Resources (DPI-MR), now the Department of Industry and Investment – Minerals and Energy (DII-M&E).
- Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA).

Representatives of those government agencies identified with an asterisk (*) attended the Planning Focus Meeting convened by DoP on Friday 27 March 2009.



The Director-General's requirements (DGRs), including correspondence from the DoP, is presented in **Appendix 2** together with a tabulated record of where the DGRs and other government agency requirements have been addressed in the *Environmental Assessment* and *Specialist Consultant Studies Compendium*. The DGRs, along with additional requirements from representatives of various NSW government agencies were provided to the Proponent on 20 May 2009. The key issues, as identified by the DGRs, were as follows.

- **Noise** – a quantitative assessment of the potential construction, operational and traffic noise impacts of the Project, in particular the staged removal of the bund walls.
- **Traffic and Transport** – predictions of traffic volumes, the potential impacts of this traffic on the surrounding road network, details of any proposed road upgrade works and details of the access and parking arrangements on site.
- **Waste** – quantities and classification of waste to be received, the location and size of stockpiles and details on the landfill design and environmental integrity.
- **Soil and Water** – modelling of the potential surface and groundwater impacts of the Project and nearby watercourses and associated riparian corridors, a site water balance for the Project, details of the proposed erosion and sediment controls and assessment of potential soil and groundwater contamination.
- **Rehabilitation and Final Landform** – detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape.
- **Air** – quantitative assessment of the potential air quality impacts of the Project
- **Odour** – a quantitative assessment of the potential odour impacts of the Project
- **Greenhouse Gas** – a quantitative assessment of the Scope 1, 2 and 3 greenhouse gas emissions of the Project and the potential impacts of these emissions of the environment, an assessment of all reasonable and feasible measures that could be implemented to minimise the generation of greenhouse gas emissions.
- **Biodiversity** – an assessment of the potential impacts of the Project on threatened species and endangered ecological communities, management of breeding/spread of potential horticultural pests and details of the proposed measures to enhance biodiversity conservation value of the site.
- **Visual** – an assessment of the potential visual impacts of the Project on the amenity of the surrounding area, a detailed description of the measures that would be implemented to minimise the potential visual impact of the project, and details of the proposed lighting and signage.
- **Hazards** – from gases produced by composting and land filling, from the storage of hazardous materials, fire risk and management, details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials at the site
- **Social and economic** – an assessment of the costs and benefits of the project as a whole and whether it would result in a net benefit to the NSW community.



3.2.3 Review of Planning Issues and Environmental Guidelines

3.2.3.1 State Planning Issues

State Environmental Planning Policy (Major Development) 2005

The purpose of *State Environmental Planning Policy (Major Development) 2005 (SEPP Major Development)* (formerly known as *SEPP (Major Projects) 2005*) is to define those projects of state significance or proposed on state significant sites and therefore require Ministerial approval under the provisions of Part 3A of the Act. *SEPP Major Development* and Part 3A of the Act was a system introduced to specifically deal with the complexity of major projects and to streamline the assessment process of related applications.

Section 6(1) in *SEPP Major Development* states:

“Development that, in the opinion of the Minister, is development of a kind:

(a) *that is described in Schedule 1 or 2*

is declared to be a project to which Part 3A of the Act applies.”

Schedule 1 of *SEPP Major Development* sets out a range of thresholds for projects to be declared a major project.

Group 9 in Schedule 1 of *SEPP Major Development* defines those resource and waste related industries that are major projects including ‘*Resource recovery or waste facilities*’, which meet the following criteria.

- Clause 27(3) ‘Development for the purpose of resource recovery or recycling facilities that handle more than 75,000 tonnes per year of waste or have a capital investment value of more than \$30 million.’

The proposed waste and resource management facility on the Project Site has been designed to receive up to 600 000 tonnes of waste material per annum and the recycling and re-processing of an average of 150 000tpa of waste. The development is therefore defined as a Major Project and was declared so by the Director-General of the Department of Planning on 11 November 2008. The proposal is, therefore, a project to which Part 3A of the Act applies and hence, this document has been prepared accordingly to support the project application for the facility.

It is also noteworthy that the proposed clay/shale extraction component similarly exceeds the threshold in Clause 7(1) of Schedule 1 relating to extractive industry. The Project would exceed the 200 000tpa threshold extraction rate for an extractive industry.

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure) was introduced to facilitate the delivery of infrastructure across the State by improving regulatory certainty and efficiency.



The aims of the SEPP Infrastructure are to provide a consistent planning regime under the Act that:

- provides greater flexibility in the location of infrastructure and services by identifying a broad range of zones where types of infrastructure are permitted;
- allows for the efficient development, redevelopment or disposal of government owned land. This is achieved by permitting additional uses on State land and allowing adjacent land uses to be undertaken on State land (except conservation lands) if the uses are compatible with surrounding land uses;
- outlines the approval process and assessment requirements for infrastructure proposals; and
- identifies works of minimal environmental impact as exempt or complying development to improve turnaround times for maintenance and minor upgrades.

Part 3, Division 23 in SEPP Infrastructure provides development controls for Waste and Resource Management Facilities. SEPP Infrastructure applies to the State.

Clause 120 of SEPP Infrastructure defines a ‘waste or resources management facility’ as meaning ‘a waste or resource transfer station, a resource recovery facility or a waste disposal facility.’ Clause 121(1) in SEPP Infrastructure permits ‘any person’ to carry out development for the purposes of a ‘waste or resource management facility’ in a ‘prescribed zone.’

A ‘*prescribed zone*’ for the purposes of Waste or Resource Management Facilities in SEPP Infrastructure includes zone RU2 Rural Landscape (RU2 zone). The RU2 zone is the proposed and predominant new zoning for the Project Site under the provision of draft Penrith Local Environmental Plan 2008 (draft PLEP 2008) (see discussion below in Section 3.2.3.3). A small section (0.9ha) in the northwestern corner of the Project Site, where Blaxland Creek traverses the land, is proposed to be zoned E2 Environmental Conservation (E2 zone). Both the RU2 and E2 zones on and surrounding the Project Site are displayed on **Figure 1.1**. The draft PLEP 2008 is discussed further in Section 3.2.3.3.

Clause 6(3)(b) of SEPP Infrastructure provides the Director General with the authority to determine that the Project Site’s current 1(a) (Rural “A” Zone – General) under the provisions of Penrith Local Environmental Plan No.201 (Rural Lands) is ‘*equivalent*’ to a ‘*prescribed zone*’. The Project would, therefore, be permissible and approval may be granted to it prior to gazettal of draft PLEP 2008.

Although Clause 123 in SEPP Infrastructure only applies to Development Applications made under Part 4 of the Act and not Part 3A applications, the Director-General’s requirements have identified that consideration to this clause, as it relates to project need, is to be given as part of this Environmental Assessment.

Clause 123 in SEPP Infrastructure states:

In determining a development application for development for the purpose of the construction, operation or maintenance of a landfill for the disposal of waste, including putrescible waste, the consent authority must take the following matters into consideration:

- a) whether a justifiable demand exists for the landfill, having regard to the provisions of the NSW Waste Avoidance and Resource Recovery Strategy and the waste disposal data provided from time to time by the Department of Environment and Climate Change;



- b) whether the location of the development is consistent with any regional planning strategies or locational principles included in the publication EIS Guideline: Landfilling (Department of Planning, 1996), as in force from time to time; and
- c) the views of relevant public authorities and councils responsible for the area from which the waste material is proposed to be sourced.

Each of these subclauses is addressed as follows.

Justifiable Demand

In determining whether there is a justifiable demand for the Project, a review of the capacity of existing similar facilities and those recently approved facilities has been undertaken having regard for the extent of predicted waste generation in Sydney.

According to the NSW Department of Planning (2009), the principle underpinning the concept of justifiable demand is to keep landfill capacity scarce to encourage people to divert all waste streams away from landfills. As clearly outlined in the discussion below, there is a justifiable demand for this Project within the Sydney Metropolitan Area (SMA) and, therefore, satisfies Clause 123(a) of SEPP Infrastructure.

Capacity/demand position

The Project would have the capacity to import up to 600 000 tonnes per annum of general solid waste (non-putrescible) with a total capacity of 7 800 000 tonnes. It is expected that the average volume of waste that be received once the operations were in full swing would be approximately 300 000 tonnes per annum. Of this amount, it is anticipated that 67% (200 000 tonnes) would be recycled and/or re-processed, with the remaining wastes unsuitable for re-processing and the residual wastes from re-processing to be directed to the on-site emplacement.

As detailed in **Table 1.1** in Section 1.5 of this *Environmental Assessment*, the 2006 Performance Report indicated that Sydney generated 8 901 500 tonnes of waste over the 2004-05 period, which showed a 3% increase per capita from the 2002-03 period. Of the amount of waste generated over the 2004-05 period, 49% was recycled.

Moreover, the total volume of C&D and C&I waste generated over the 2004-05 period in metropolitan Sydney was 7 200 000 tonnes. Based on the above statistics, which is the latest available data on waste and recycling, the Project has the capacity to recycle and/or landfill approximately 8% per annum of metropolitan Sydney's C&D and C&I waste generation.

As outlined in the NSW Department of Planning's (DoP) Director-General's report (2009) prepared in relation to a similar facility known as the Eastern Creek Waste Project (Lighthorse), Mr Tony Wright was engaged by the DoP to assess whether a justifiable demand existed for this Project. *'Mr Wright in his assessment finds that the fundamental measure to justifiable demand is the extent of existing landfill capacity in excess of disposal demand. Prudent planning practices suggest that a measure of contingency capacity should always be allowed for, say 10 years. Conversely, if excess capacity is to be avoided, then a maximum capacity limit should also be considered, say 20 to 30 years of demand at current disposal rates'* (NSW Department of Planning, 2009).

'Mr Wright's assessment found the overall capacity of General Solid Waste (non-putrescible) licensed landfills in the Sydney Metropolitan Area is 35 million tonnes at the end of June 2009.



This is sufficient to accommodate 14 years waste input at expected future disposal rates. This would indicate that additional reserve capacity could be considered' (NSW Department of Planning, 2009).

In order to determine whether this represents a justifiable demand, it is, therefore, important to analyse the capacity of existing and recently approved facilities, which is provided in the following section.

Alternate existing waste recycling and resource recovery facilities

Currently within the Western Sydney region, encompassing Penrith, Liverpool, Fairfield, Campbelltown and Blacktown Local Government Areas, there are 11 DECCW licensed operational landfills that can accept General Solid Waste (Class 2). The most recently approved waste facility, which includes land filling, is the Lighthorse facility that was recently approved on 22 November, 2009 by the NSW Planning Assessment Commission. As mentioned above, according to Mr Wright the overall landfill capacity of licensed landfills within the Sydney Metropolitan Area is 35 million tonnes as at June 2009, which is sufficient to accommodate 14 years waste input at expected future disposal rates. This is considerably less than the 20 to 30 years of demand considered reasonable by Mr Wright to avoid excess capacity.

Given the quantity of existing capacity within the Sydney Metropolitan Area, it is imperative to therefore, assess the justifiable demand having regard for the now approved Lighthorse facility, which has a large volume available for landfill. The Lighthorse landfill and waste management facility, which is located close to the M4 and M7 motorway junctions in the Blacktown Local Government Area. This site represents the biggest competitor in terms of the Project's business operations due to its size and relative close proximity. It also represents the most significant site in terms of justifying the demand for this Project primarily as a result of its capacity.

According to the NSW Department of Planning (2009), the Lighthorse facility will add 14 million tonnes to Sydney's Class 2 (non putrescible) landfill capacity. This equates to 40% or 6 years to demand at the current disposal rates. This would *'ensure there is a level sufficient to accommodate 20 years of demand at expected future disposal rates'* (NSW Department of Planning, 2009).

Impact of the Project on Landfill Demand

Based on the figures expressed by Mr Wright and the NSW Department of Planning in its assessment of the Lighthorse facility, 1 000 000 tonne of landfill capacity equates to approximately 0.43 years of demand. The maximum landfill capacity of the Project is 7 800 000 tonnes, therefore, based on the above figures this therefore equates to 3.4 years of demand at the expected future disposal rates.

As outlined by the NSW Department of Planning (2009), the Lighthorse facility will increase the maximum capacity limit to 20 years. Approval of the Orchard Hills Project would further increase the maximum demand capacity to 23.4 years.

It is therefore submitted that as the Project would comfortably fall within the maximum capacity limit of 20 to 30 years of reserve demand considered by Mr Wright and the NSW Department of Planning as reasonable to avoid excess capacity, then it can be concluded that there is justifiable demand for the project.



Alignment with the provisions of the NSW Waste Avoidance and Resource Recovery Strategy

This Project will meet the demand and those challenges identified in the NSW Waste Avoidance and Resource Strategy 2003 and 2007 (Waste Strategy), which includes meeting the 2014 waste recycling targets and the growing demand for infrastructure to cater for the significant amount of waste being generated in metropolitan Sydney (DECC, 2007). This is reflected by the fact that 7.2 million tonnes of construction and demolition (C&D) and commercial and industrial (C&I) waste was generated in 2004/2005, almost half of which was sent to landfill (DECC, 2007). A similar figure was recorded over 2005/2006.

This Project, with its focus on recycling and a residual landfill component will minimise the volume of waste sent to landfill and, therefore, be consistent with the Waste Avoidance and Resource Recovery Act 2001 and NSW Government policies and objectives regarding waste avoidance and resource recovery.

The need and justifiable demand for this Project stems from a number of environmental, social and economic benefits, in particular, the provision of recycling and landfill infrastructure to cater for Sydney's continually increasing waste generation per capita. In 2004-05, Sydney recycled 49% of its total waste, which represented an increase of 1% since 2002-03 (DECC, 2007). Over the same period, Sydney increased its overall waste generation per capita by 3% (DECC, 2007).

The demand for Waste and Resource Management facilities is also going to increase as a result of significant infrastructure and development that will occur in the short term and in the future within western Sydney. The Project Site is centrally located between the North-West and South-West Subregions, which form part of the NSW Government's Sydney Metropolitan Strategy. These areas are identified for significant increases in the provision of housing and employment. Penrith has also been identified to become a Regional City to service the North-West Subregion, in which the Project Site is also located. Moreover, Erskine Park and Eastern Creek, which are in close proximity to the Project Site, have been earmarked as employment hubs to facilitate meeting the employment targets for the North-West Subregion. All of this development will need to be accompanied by ancillary infrastructure like that proposed in this Project, which subsequently justifies their demand.

Consistency with Planning Strategies

Although Waste and Resource Management facilities are not specifically mentioned in the Sydney Metropolitan Strategy, as discussed above, the demand for such facilities is increasing based on the amount of waste per capita Sydney is currently generating and the anticipated future development within the western Sydney Region.

The Project Site is centrally located between the North-West and South-West subregions with good access to the M4, M7 and M5 Motorways. The Project Site is, therefore, strategically located and commensurate with the planning strategies for the region.

The *EIS Guideline: Landfilling (Department of Planning, 1996)* is not relevant to this Project as it only relates to development proposed under Part 4 and 5 of the Act. Notwithstanding this, the technical requirements relevant to best practice included in that document have been reflected in the design of the project.



Views of the Relevant Public Authorities & Council

As detailed in Section 3.2.2.2, the relevant authorities have been thoroughly consulted in the development of the Project for this Project Site. The theme at each of these consultation meetings with the various authorities has been to focus on limiting both on-site and off-site environmental impacts. Subject to the various recommendations provided by the relevant authorities and the expertise of the Project consultant team, this *Environmental Assessment* sets out a robust site management and rehabilitation process that will limit the onset of adverse impacts on the amenity of the local area and the natural environment.

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

The Project Site has existing development consent (DA No.116/80) for clay/shale extraction. Given the downturn in the demand for clay/shale in the past 3 to 4 years, the Project Site is now commercially unviable as a stand-alone enterprise. This situation is reflected by the fact that clay/shale extraction has not occurred on the Project Site for almost 2 years.

The Project Site still contains a substantial quantity of light-firing clay/shale that has not yet been extracted. Despite the current reduced demand for clay/shale, the former NSW Department of Primary Industries-Mineral Resources advised the Proponent that it has a preference to avoid known mineral resources being sterilised. However, the Department is cognisant of the implications of the requirements of the brick industry and the need to rehabilitate the Project Site.

The Project has been designed such that it would be possible for clay/shale extraction to be carried out concurrently with the residual waste emplacement operations for many years into the life of the Project Site. Furthermore, emphasis would be placed upon the recovery of materials from an area recognised to be the optimum area for light-firing clay/shale. This is a practice which is commonly undertaken with a number of waste management facilities around Sydney.

As the continuation of clay/shale extraction forms part of the Project, if approved, Development Consent DA No.116/80 would be surrendered under the provisions of 75YA(2)(b) of the *Environmental Planning and Assessment Act 1979* and the ongoing clay/shale extraction operations would be permitted to continue as part of the overall project approval.

The continuation of clay/shale extraction from the Project Site would remain subject to the matters for consideration in State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (the "Mining SEPP") including land compatibility, natural resource management and environmental management, resource recovery, transport and rehabilitation. All of these matters have been comprehensively addressed in Sections 2, 3 and 4 of this *Environmental Assessment*.

State Environmental Planning Policy No 33 – Hazardous and Offensive Development

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) requires development consent for 'hazardous or offensive development.' It aims to ensure when determining whether a development is a 'hazardous or offensive industry' that any measures proposed to be employed to reduce the impact of the development are taken into account.



The DoP [formerly the Department of Urban Affairs & Planning (DUAP)] prepared *Applying SEPP 33 - Hazardous and Offensive Development Application Guidelines*, which outlines the assessment criteria to determine whether a proposal constitutes a '*potentially offensive or potentially hazardous industry*.'

Potentially Offensive Industry

SEPP 33 defines a potentially offensive industry as "a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment."

The DUAP (1997) Guidelines state that "the key consideration in the assessment of a potentially offensive industry is that the consent authority is satisfied there are adequate safeguards to ensure emissions from a facility can be controlled to a level at which they are not significant. An important factor in making this judgement is the view of the EPA (now DECCW) (for those proposals requiring a pollution control licence under EPA legislation). If the EPA considers that its licence requirements can be met, then the proposal is not likely to be 'offensive industry'. In most cases, compliance with EPA requirements should be sufficient to demonstrate that a proposal is not an offensive industry." (DUAP, 1997).

The Project is required to obtain licences from DECCW with respect to recycling and use of the existing quarry to accept and emplace general solid wastes, that is, in addition to the ongoing clay/shale extraction. Schedule 1 of the POEO Act details the licence requirements. The potential impacts of the Project on air quality, groundwater, surface water, noise and other environmental aspects have been addressed in detail in Section 4 of this *Environmental Assessment*. It is unlikely that the Project would not be able to achieve the requirements to obtain the required environment protection licences. Therefore, although the Project falls within the definition of a '*potentially offensive industry*', it is unlikely to be an '*offensive industry*'.

Potentially Hazardous Industry

SEPP 33 defines a potentially hazardous industry as "a development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

- a) to human health, life or property, or
- b) to the biophysical environment, and includes a hazardous industry and a hazardous storage establishment."

A SEPP 33 screening exercise has been undertaken in order to determine whether any chemicals (for example, diesel) to be stored/used on the Project Site are classified as Dangerous Goods under the Dangerous Goods Code. The on-site storage of diesel is the only potentially hazardous substance, which depending on the manner in which it is stored on site, may result in the Project being classified a '*potentially hazardous industry*'. Diesel is defined as a C1 Flammable Liquid under the Australian Dangerous Goods Code. However, SEPP 33 states that



diesel is not considered potentially hazardous if 'It is stored in a separate bund or within a storage area where it is the only flammable liquid present.' The diesel on the Project Site will be stored within a tank that and will be the only flammable liquid present within the vicinity of this storage tank. The Project is, therefore, not a '*potentially hazardous industry*'.

Apart from risks associated with diesel, the only other possible risk relates to fire within raw materials awaiting re-processing or the products awaiting despatch. In both cases, the Proponent has assessed the risk would be low given proposed restrictions on stockpile sizes (see Section 2.6.2), the intended time limitations for storage and the proposed installation of fire fighting equipment on the on-site water truck.

State Environmental Planning Policy No. 55 – Remediation of Land

State Environmental Planning Policy No. 55 (SEPP 55) requires the consent authority to consider whether land is contaminated prior to granting consent to any development. The consent authority must be satisfied that any necessary remediation is undertaken to an acceptable standard before use of the land is permitted.

A preliminary contamination assessment has been undertaken on the Project Site. It has been established that construction and demolition waste was dumped and incorporated within some of the perimeter bund walls of the Project Site by the former owner in contravention to the requirements of the *Protection of the Environment Operations Act 1997* and the current development consent for clay/shale extraction.

The assessment undertaken by Douglas Partners Pty Ltd (2009) to characterise the materials in the perimeter bund walls identified that virtually all of the imported waste was construction and demolition materials. A small component of this waste (< 0.01%), however, was found to contain small quantities of asbestos. It is noted that the testing undertaken by Douglas Partners identified asbestos fibres in concentrations less than limit of 0.1g/kg in six samples and in concentrations marginally above the limit in only one sample. The asbestos material was identified within the existing eastern bund wall on the Project Site. The Proponent proposes to excavate the waste containing asbestos above the 0.1g/kg limit and place it in Cell 1 soon after wastes commence being delivered to that cell.

All this material would be placed near the floor of Cell 1A which will ultimately be at least 25m below the final landform surface.

Ultimately, as part of the Project Site's progressive rehabilitation, the land will be returned so that it is suitable for grazing purposes, although the land in the northwestern corner and along the northern bund wall would be revegetated with woodland and riparian species to promote nature conservation. The use of the final landform for agricultural purposes would be the subject of an audit from an appropriately qualified expert to confirm its suitability following the completion of all waste-related activities.

Given the above mentioned procedures that would be undertaken prior to the full scale commencement of the Project and before the land is returned for the purposes of grazing pursuits, the provisions of SEPP 55 are satisfied.



3.2.3.2 Regional Planning Issues

Sydney Regional Environmental Plan No. 9 – Extractive Industry (No2 – 1995) (Deemed SEPP)

Sydney Regional Environmental Plan No. 9 – Extractive Industry (No2 -1995) (SREP 9(2)) identifies regionally significant extractive resources within the Sydney Region to facilitate their utilisation.

The plan ensures extraction is carried out in an environmentally acceptable manner and prohibits extraction from certain environmentally sensitive areas. SREP 9(2) also ensures that decisions on future urban expansion take into account the ability to realise the full potential of important deposits. The provisions of SREP 9(2) were used during the planning of “The Vines” rural-residential estate to the north of the Project Site when the then owner of the Erskine Park Quarry sought approval for subdivision of the overall landholding to create “The Vines” estate. The separation distance between the extractive operations on the Project Site and the closest residential land was set at a minimum of 500m.

As previously outlined, the Project includes provision for continued extraction of clay/shale, if there is sufficient demand for its use as a raw material for brick manufacture, as well as for the purposes of capping the ancillary waste emplacement. The Project Site is identified in SREP 9(2) as an area of regional significance for clay/shale extraction. The Project has been designed to ensure that the significant resources still available on the Project Site would have the potential to be utilised should the demand for them arise. In this regard, the Proponent has recently entered into some discussions with various parties interested in sourcing the light-firing and red-firing clay from the Project Site. The Project would, therefore, also maintain consistency with some of the relevant aims of SREP 9, namely:

- *to facilitate the development of extractive resources in proximity to the population of the Sydney Metropolitan Area by identifying land which contains extractive material of regional significance; and*
- *to promote the carrying out of development for the purpose of extractive industries in an environmentally acceptable manner.*

Sydney Regional Environmental Plan No. 20 – Hawkesbury Nepean River (No.2-1997) (Deemed SEPP)

The Project Site is located within the Hawkesbury Nepean River catchment area. Therefore, the provisions of Sydney Regional Environmental Plan No. 20 – Hawkesbury Nepean River (No.2-1997) (SREP HNR) apply. This policy aims to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land use are considered in a regional context.

The specific planning policies and recommended strategies relating to total catchment management, environmentally sensitive areas, water quality, cultural heritage, fauna and flora, riverine scenic quality, agriculture and related matters have been addressed in Section 4 of this *Environmental Assessment*.



3.2.3.3 Local Planning Issues

Penrith Local Environmental Plan No.201 – Rural Lands

The Project Site is currently zoned 1(a) (Rural “A” Zone – General) (zone 1(a)) under the provisions of the Penrith Local Environmental Plan No.201 (Rural Lands) (the ‘PLEP-RL’). The development control table in PLEP-RL for zone 1(a) only lists those uses that are prohibited or those permitted without consent. A ‘*waste or resources management facility*’ is not listed as being prohibited or permitted without consent in zone 1(a).

The PLEP-RL, however, does not define a ‘*waste or resources management facility*’. Similarly, the *Environmental Planning and Assessment Model Provisions 1980* adopted by PLEP-RL, does not provide a definition for this use.

However, clauses 33 and 33A in PLEP-RL do specifically identify development for the purposes of ‘*Waste Disposal*’. Clause 33 refers to a series of sections in the Act that would apply to development for the purposes of ‘*Waste Disposal*.’

The Project would also be consistent with the objectives of zone 1(a) in the PLEP-RL namely:

- the associated future rehabilitation of the Project Site would enhance the scenic quality and rural character of the locality; and
- the environmental capabilities of the land and the enhancement of natural resources would be utilised to its full potential.

Moreover, the Penrith Rural Lands Study 2001, prepared to assist with the planning for the future of Penrith’s rural areas, clearly states that ‘*The management of solid waste for both the urban and rural areas takes place in the rural lands.*’

The ambiguity as to whether all of the proposed activities would be permissible under PLEP-RL is subsequently resolved under the provisions of SEPP Infrastructure and the Project Site’s proposed and predominant new RU2 zone in draft PLEP 2008 (see Section 4.4). As detailed above, SEPP Infrastructure permits, with consent, all of the proposed activities under the Project Site’s impending ‘*prescribed*’ RU2 zone or where, in the opinion of the Director General, the Project Site’s current 1(a) zone is deemed as being ‘*equivalent*’ to the RU2 zone.

Draft Penrith Local Environmental Plan 2008

Under the provisions of draft Penrith Local Environmental Plan 2008 (draft PLEP 2008) the Project Site is proposed to be predominantly zoned *RU2 Rural Landscape* (zone RU2) with a small portion of the northwestern corner proposed to be zoned E2 Environmental Conservation (E2 zone) (see **Figure 1.1**).

Zone RU2 permits, with development consent, ‘*Waste or resource management facilities.*’ ‘*Waste or resource management facilities*’ in draft PLEP 2008 are defined as and include a ‘*waste or resource transfer station, a resource recovery facility or a waste disposal facility.*’ ‘*Waste disposal facilities*’ are, however, listed as prohibited development in zone RU2. Therefore, the only ‘*waste or resources management facilities*’ permitted in zone RU2 would be a ‘*waste or resource transfer station*’ or a ‘*resource recovery facility.*’

The E2 zone permits with development consent, *Drainage; Earthworks; Environment facilities; Environmental protection works; Flood mitigation works; Public utility undertakings; Recreation areas; and Roads.*

The proposed Waste and Resource Management Facility would be permissible under draft PLEP 2008 as it fits within the definition of a '*resources recovery facility*.' Furthermore, as discussed above, SEPP Infrastructure also permits '*waste disposal facilities*' within the '*prescribed*' RU2 zone, or where, in the opinion of the Director General, the Project Site's existing zoning is deemed as being '*equivalent*' to the RU2 zone.

No waste recycling, waste transfer operations, waste emplacement or resource extraction activities would be undertaken within the proposed E2 zone on the Project Site as they are prohibited in this zone.

3.2.3.4 Environmental Guidelines

The DGRs require that in assessing the identified key assessment requirements, reference is made to one or more guideline documents. In addition, a number of the government agencies consulted in relation to the project required reference to other environment guideline documents. Each of these guidelines was reviewed and addressed where appropriate in either the *Environmental Assessment* or Specialist Consultant studies.

3.2.4 Summary of Identified Environmental Issues

The consultation and review process described in Sections 3.2.2 and 3.2.3 resulted in the identification of a range of environmental issues that require consideration within the *Environmental Assessment*. The issues identified have been categorised (by environmental parameter), local environment and other factors reviewed to define potential sources of risk and corresponding environmental impact(s) for each issue. **Table 3.1** presents the identified environmental issues.

3.3 ANALYSIS OF RISK AND ISSUE PRIORITISATION

3.3.1 Analysis of Risk

Risk is the chance of something happening that will have an impact upon the objectives or the task, which in this case is development and operation of the proposed waste and resource management facility with minimal effect on the local environment. Risk is measured in terms of consequence (severity) and likelihood (probability) of the event happening. For each environmental issue identified in **Table 3.1**, the potential environmental impacts have been allocated a risk rating based on the potential consequences and likelihood of occurrence and in accordance with Australian Standards HB 203:2006 and AS/NZS 4360:2004.



The allocation of a consequence rating was based on the definitions contained in **Table 3.2**. It is noted that the assigned consequence rating represents the highest level applicable, ie. if a potential impact is assigned a level of 4 - Major based on impact to the environment and 2 - Minor based on area of impact, the consequence level assigned would be 4 - Major. The likelihood or probability of each impact occurring was then rated according to the definitions contained in **Table 3.3**.

The risk associated with each environmental impact was assessed **without** the inclusion of any operational controls or safeguards in place and based on the qualitative assessment of consequence and likelihood, a risk ranking of either; low, medium, high or extreme was assigned to each potential impact based on the matrix of **Table 3.4**.

The four risk rankings are defined as follows.

- Low (L): requiring a basic assessment of proposed controls and residual impacts. Any residual impacts are unlikely to have any major impact on the local environment or stakeholders.
- Moderate (M): requiring a medium level assessment of proposed controls and residual impacts. It is unlikely to preclude the development of the project but may result in impacts deemed unacceptable to some local or government stakeholders.
- High (H): requiring in-depth assessment and high level documentation of the proposed controls and mitigation measures. Ultimately, this level of risk may preclude the development of the project.
- Extreme (E): requiring in-depth assessment and high level documentation of the proposed controls and mitigation measures and possible preparation of a specialised management plan. Unless considered to be adequately managed by the controls and/or management plan, this level of risk is likely to preclude the development of the project.

Table 3.1 presents the identified potential impacts that may be associated with each environmental issue based on the source or risk or potential incident, potential consequences and local receptor/surrounding environment.

Table 3.5 provides an assessment of the **unmitigated** risk for each potential environmental impact based on the classifications and definitions provided. Where appropriate, and to provide a more realistic assessment of the risks posed by the various environmental issues, the environmental impacts have been further defined using either a level, range or scale of impact providing for the various circumstances which may apply.

3.3.2 Environmental Issue Prioritisation

The issues identified as requiring assessment within the *Environmental Assessment* have been prioritised based upon the key assessment requirements within the DGRs and government agency requirements (see Section 3.2.2.2 and **Appendix 2**) and the issues identified and their frequency during the community consultation.



Table 3.1
Risk Sources and Potential Environmental Impacts

Page 1 of 2

Environmental Issue	Risk Source/potential incident(s)	Potential Consequences	Receptor/ Surrounding Environment	Potential Environmental Impacts
Groundwater	• Pollution of groundwater due to leachate inflow.	• Decreased groundwater quality.	• Seepage toward Blaxland Creek.	• Reduced groundwater quality in the unlikely event leachate flows off site.
	• Pollution of groundwater due to hydrocarbon spills.	• Decreased groundwater quality.	• Seepage towards Blaxland Creek.	• Reduced groundwater quality in the unlikely event spillage reaches the groundwater.
	• Reduction of groundwater levels due to in-flows to existing/proposed extraction area(s).	• Reduction in groundwater levels.	• Within close proximity to the Project Site.	• Reduced groundwater levels around the Project Site would have negligible impacts.
	• Reduction of water quality due to saline groundwater.	• Decrease in quality of surface water.	• Groundwater would be retained within the extraction areas and/or Project Site.	• Negligible impacts envisaged if water is retained/used on site.
	• Reduction in-flows to natural springs.		• Groundwater dependent ecosystems, if present.	• Reduced viability of GDEs, if present.
Surface Water	• Reduction in environmental flows in Blaxland Creek.	• Reduced flows to downstream environmental flows. • Decreased availability of water for downstream stock watering.	• Downstream ecology. • Downstream agricultural lands.	• Reduced natural surface water flows resulting in stress to native vegetation and degradation of fauna habitats and/or reduced viability of grazing lands.
	• Discharge of dirty, saline or contaminated water.	• Decreased water quality. • Degradation of local waterways, soils and vegetation.	• Local creeks and tributaries. • Surrounding soils and vegetation.	• Reduced quality of downstream waters. • Indirect impacts on soil quality and vegetation.
	• Altered flood regimes.	• Changes to area of coverage of flooding (for 1:100 Year Event).	• Adjoining agricultural lands.	• Reduction in value of affected agricultural land.
Soil Erosion	• Erosive actions of wind and water. • Suspension of sediments within runoff resulting from erosion of disturbed areas	• Loss of soil resources. • Increased sedimentation within downstream creeks.	• Blaxland Creek	• Soil erosion. • Increased sediment load in Blaxland Creek.
	• Removal of native vegetation.	• Removal of habitat and disturbance to threatened species.	• Vegetation adjacent to and within Blaxland Creek.	• Clearing of threatened flora species or vegetation community. • Loss of, or alteration to, threatened flora and fauna habitat.
Threatened Flora and Fauna	• Disturbance to fauna and fauna habitat as a result of project operations, eg. noise, dust etc.	• Reduction in biodiversity.	• Blaxland Creek riparian zone.	• Reduced local and regional biodiversity.
Aboriginal Heritage	• Removal or destruction of two identified Aboriginal artefacts due to the Project.	• "Destruction" of Aboriginal artefacts through salvage.	• Local archaeological context. • Local Aboriginal community	• Impact on identified artefacts as a result of the Project.
Noise	• Elevated noise levels resultant from the Project-related activities on the Project Site.	• Reduced amenity of the local area. • Decreased land values.	• Residents/land owners on properties north and east of the Project Site.	• Increased noise levels associated with the activities on the Project Site causing annoyance, distractions, ie. amenity impacts.
	• Elevated noise levels resultant from increased traffic levels on public roads.	• Reduced amenity of the local area. • Decreased land values.	• Residents/land owners adjacent to Luddenham Road, near Patons Lane.	• Sleep disturbance as a result of traffic noise levels. • Increased noise levels associated with traffic travelling to and from the Project Site.



Table 3.1 (Cont'd)
Risk Sources and Potential Environmental Impacts

Page 2 of 2

Environmental Issue	Risk Source/potential incident(s)	Potential Consequences	Receptor/ Surrounding Environment	Potential Environmental Impacts
Air Pollution – Dust, Odour, Greenhouse Gases, other	• Dust generation resulting from the proposed construction, clay/shale extraction, waste placement and processing activities (including wind erosion from stockpiles and disturbed surfaces).	• Increased deposited dust levels and suspended particulate matter concentration.	• Local airshed. • Surrounding residences on properties surrounding the Project Site.	• Nuisance/amenity impacts from dust deposited on window sills, cars, surfaces etc. • Adverse health impacts (if PM10 levels are excessive).
	• Emissions from vehicles and earth-moving equipment.	• Increased greenhouse and other gas emissions.	• Local air-shed.	• Increased contribution to the greenhouse effect.
Visual Amenity	• Changes in visual characteristics of the Project Site.	• Altered visual outlook during the life of the Project. • Altered visual outlook following site closure.	• Residents to east and north.	• Decreased visual amenity.
Traffic and Transport	• Increased traffic levels due to delivering of wastes and despatch of clay/shale and recycled/re-processed products. • Increased light vehicle levels.	• Increased heavy and light vehicle movements.	• Luddenham Road. • Regional Road Network.	• Increased traffic congestion. • Elevated risk of accident/incident on local roads. • Road pavement deterioration.
Soil and Land Capability	• Reduction in soil quality and availability (as a result of poor management practices).	• Structural damage and reduced biological activity of soils. • Erosion of stripped, stockpiled and replaced soils.	• Project Site soils.	• Insufficient soil quantities for rehabilitation. • Reduced soil quality. • Elevated erosion or erosion potential.
	• Decreased land capability in final landform.	• Reduced productivity of final agricultural land.	• Project Site soils.	• Decreased land and agricultural capability of the final landform.
Rehabilitation and Final Landform	• Modified final landform. • Modified land uses on the Project Site.	• Reduced visual amenity of the Project Site. • Reduced agricultural capability of land on the Project Site.	• The Project Site.	• Reduced amenity of the final landform. • Reduced availability of agricultural land.
Waste Management	• Production of contaminating or polluting materials, eg. waste oils, general rubbish.	• Contamination of downstream surface waters. • Contamination of groundwater. • Reduced visual amenity.	• The Project Site land and water resources. • Downstream land and water resources. • Groundwater.	• Leachate contamination of surface water. • Leachate contamination of groundwater. • Reduced amenity of Site due to poor rubbish, litter management.
	• Odour generated by organic materials in delivered wastes.	• Release of odours.	• Residents/land owners on properties north and east of the Project Site.	• Nuisance/amenity impacts from odour.
Land Contamination	• Presence of asbestos fragments in construction and demolition waste.	• Fibres of asbestos are released.	• Areas on and potentially surrounding the Project Site.	• Adverse health effects for personnel on site.
Socio-Economic Impacts	• Alteration of social activities or employment due to employment generation and capital expenditure.	• Reduced unemployment and increased local spending.	• Local community and businesses.	• Improved economic activity and related social impacts attributable to reduced unemployment
	• Perceived or real impacts on local amenity of neighbouring properties.	• Reduced property values.	• Rural-residential properties in “The Vines” and adjacent to Luddenham Road.	• Reduced quality of life (actual or perceived). • Reduced property values.
	• Reduction in property values due to presence of Project.	• Changed property values.	• Surrounding landowners.	• Possible short-term reduction in land values versus increases from increased economic growth.

Source: Modified after template provided by HB203:2006 – Table 3



Table 3.2
Qualitative Consequence Rating

Level	Descriptor	Description
5	Catastrophic	<ul style="list-style-type: none"> Massive and permanent detrimental impacts on the environment. Very large area of impact. Massive remediation costs. Reportable to government agencies. Large fines and prosecution resulting in potential closure of operation. Severe injuries or death.
4	Major	<ul style="list-style-type: none"> Extensive and/or permanent detrimental impacts on the environment. Large area of impact. Very large remediation costs. Reportable to government agencies. Possible prosecution and fine. Serious injuries requiring medical treatment.
3	Moderate	<ul style="list-style-type: none"> Substantial temporary or minor long term detrimental impact to the environment. Moderately large area of impact. Moderate remediation costs. Reportable to government agencies. Further action may be requested by government agency. Injuries requiring medical treatment.
2	Minor	<ul style="list-style-type: none"> Minor detrimental impact on the environment. Affects a small area. Minimal remediation costs. Reportable to internal management only. No operational constraints posed. Minor injuries which would require basic first aid treatment.
1	Insignificant	<ul style="list-style-type: none"> Negligible and temporary detrimental impact on the environment. Affects an isolated area. No remediation costs. Reportable to internal management only. No operational constraints posed. No injuries or health impacts.

Source: Modified after HB 203:2006 - Table 4(B)

Table 3.3
Qualitative Likelihood Rating

Level	Descriptor	Description
A	Almost Certain	Is expected to occur in most circumstances.
B	Likely	Will probably occur in most circumstances.
C	Possible	Could occur.
D	Unlikely	Could occur but not expected.
E	Rare	Occurs only in exceptional circumstances.

Source: HB 203:2006 - Table 4(A)

Table 3.4
Risk Rating

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (Almost Certain)	H	H	E	E	E
B (Likely)	M	H	H	E	E
C (Possible)	L	M	H	E	E
D (Unlikely)	L	L	M	H	E
E (Rare)	L	L	M	H	H

Note: Rating modified after HB 203:2006 - Table 4(C)



Table 3.5
Analysis of Unmitigated Risk

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Potential Environmental Impacts (see Table 3.1)	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Groundwater				
Groundwater Pollution by hydrocarbons or leachate	Contamination requiring minor recovery works	1	D	L
	Contamination requiring major recovery works	2	E	L
Reduced groundwater levels	Reduced water levels within the Bringelly Shale	1	B	M
	Reduced water levels within the Hawkesbury Sandstone	1	C	L
Reduction in groundwater quality	Impacts on groundwater quality within the Bringelly Shale	1	D	L
	Impacts on groundwater quality within the Hawkesbury Sandstone	1	E	L
Impacts on Groundwater Dependent Ecosystems (if present)		3	E	M
Surface Water/Flooding and Drainage				
Reduced natural surface water flows	Reduced productivity of downstream grazing lands	2	D	L
	Stressing of downstream native vegetation due to restricted flows	2	D	L
Reduced quality of downstream waters	Isolated and minor event resulting in temporary degradation of water quality in local creeks and tributaries, eg. minor discharge of sediment-laden water	2	C	M
	Substantial discharge of sediment-laden water resulting in degradation of water quality in local creeks and tributaries	4	D	H
Changes to local flooding patterns	Change to area of flooding in Blaxland Creek	2	D	L
Soil Erosion				
Soil erosion	Minor gully erosion of drainage lines, stockpiles or created slopes	1	B	M
	Minor sheet or gully erosion of rehabilitated landform	1	C	L
	Major gully or sheet erosion formation	2	C	M
Threatened Flora and Fauna				
Loss of, or alteration to, existing habitats	Removal of native vegetation / habitat	1	D	L
	Disturbance to native vegetation / habitat outside the areas nominated as part of the proposed activities	1	C	L
Direct adverse impact on threatened species	Disturbance to Threatened flora, fauna or endangered communities	2	D	L
	Disturbance leading to local population reduction	2	D	L
Reduced biodiversity	Local biodiversity	2	D	L
	Regional biodiversity	2	D	L
Heritage				
Impact on identified sites and/or artefacts of Aboriginal cultural heritage as a result of the proposed construction and operation of the Project without the permission of Aboriginal stakeholders or DECCW		4	D	H
Impact on unidentified sites and/or artefacts of Aboriginal cultural heritage and without the permission of Aboriginal stakeholders or DECCW		3	C	H
Impact on unidentified sites of European heritage as a result of the proposed activity and without permission of the NSW Heritage Office		1	D	L
Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare Risk Rating: E = Extreme; H = High; M = Moderate; L = Low				



Table 3.5 (Cont'd)
Analysis of Unmitigated Risk

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Potential Environmental Impacts (see Table 3.1)	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Noise				
Increased noise levels associated with on-site activities causing annoyance, distractions, ie. amenity impacts	Occasional minor exceedance of noise criteria (1-2dB(A))	1	C	L
	Regular minor exceedance of noise criteria (1-2dB(A))	2	C	M
	Marginal exceedance of noise criteria (3-5dB(A))	2	C	M
	Regular marginal exceedance of noise criteria (3-5dB(A))	3	C	H
	Occasional major exceedance of noise criteria (>5dB(A))	2	C	M
	Regular major exceedance of noise criteria (>5dB(A))	3	C	H
Increased noise levels associated with traffic travelling to and from the Project Site via Luddenham Road	Occasional minor exceedance of L_{eq1hr} criteria (<1dB(A))	1	C	L
	Regular minor exceedance of criteria (<1dB(A))	2	C	M
	Marginal exceedance of criteria (1-2dB(A))	2	C	M
	Regular marginal exceedance of criteria (1-2dB(A))	3	C	H
	Occasional major exceedance of criteria (>2dB(A))	2	C	M
	Regular major exceedance of criteria (>2dB(A))	3	C	H
Maximum noise levels resulting in sleep disturbance		3	C	H
Air Quality				
Nuisance – deposited dust	Deposited dust levels attributable to the Project occasionally exceed the DECCW guideline (1-2x)	1	C	L
	Deposited dust levels attributable to the Project regularly exceed (for >5 months per year) the DECCW guideline	3	C	H
Health – PM ₁₀	PM ₁₀ levels attributable to the Project occasionally above the project goal at non-project related residences	2	D	L
	PM ₁₀ levels attributable to the Project regularly exceed (>5 times per year) the project goal at non-project related residences	3	C	H
Landfill Gas	Potential migration off site	2	C	M
Odour	Odour level exceeds 6OU	3	C	H
	Odour level exceeds 2OU	2	D	L
Increased Greenhouse Gas Emissions		1	B	M
Impacts on adjoining native vegetation	Significant adverse impact on adjoining native vegetation	2	D	L
Visual Amenity				
Reduced amenity during operational life	Periodic observations of earthmoving equipment	2	B	H
	Regular observations of earthmoving equipment	3	C	H
Reduced amenity of altered Site landform	Periodic visibility of operational activities	1	A	H
	Marginally identifiable change to the landscape created by final landform	2	A	H
	Highly identifiable change to the landscape created by final landform	2	C	M
Traffic and Transport				
Increased traffic congestion		1	D	L
Road pavement deterioration		2	C	M
Elevated risk of accident/incident on local roads	Minor accident – no injury	1	C	L
	Minor accident – minor injury	2	D	L
	Major accident – moderate injuries requiring hospitalisation	3	E	M
	Severe accident – severe injuries or death injury	4	E	H
Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare Risk Rating: E = Extreme; H = High; M = Moderate; L = Low				



Table 3.5 (Cont'd)
Analysis of Unmitigated Risk

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Potential Environmental Impacts (see Table 3.1)	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Soil and Land Capability				
Insufficient soil quantities for rehabilitation.		2	D	L
Reduced soil quality	Temporary disturbance to soil	1	B	M
	Degradation of soil quality	2	C	M
Elevated erosion or erosion potential.		2	C	M
Decreased land and agricultural capability of the final landform		2	D	L
Rehabilitation				
Reduction to agricultural land productivity		2	D	L
Increase in areas designated for native vegetation conservation		n/a	n/a	n/a
Land Contamination				
Presence of contaminated material	Small area affected (<0.01ha)	1	E	L
	Large area affected (>0.01ha)	2	D	L
Socio-Economic Impacts and Property Values				
Reduced quality of life (actual or perceived)		3	D	M
Reduced property values	Temporary decrease in property values	1	C	L
	Moderate term decrease in property values	2	C	M
	Long term decrease in property values	3	D	M
Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare Risk Rating: E = Extreme; H = High; M = Moderate; L = Low				

Based on the issues identified, the emphasis placed on each issue by the various government agencies and the risk ratings allocated to the potential environmental impacts of these, the following order of priority has been determined. This order of priority provides for the order of assessment throughout Section 4 namely:

- | | |
|---------------------|-------------------------------|
| 1. Groundwater | 7. Flora |
| 2. Surface Water | 8. Fauna |
| 3. Noise | 9. Aboriginal Heritage |
| 4. Air Quality | 10. European Heritage |
| 5. Traffic | 11. Soils and Land Capability |
| 6. Visual Amenities | 12. Socio-economic Setting |

It is noted that the inclusion of "Socio-economic Setting" at N° 12 is not a direct consequence of the risk analysis. Rather, it is included at N° 12 to enable all other issues to be considered prior to the consideration of the socio-economic setting as this issue invariably is inter-related with many of the preceding issues.

The sources of risk and potential environmental impacts associated with each issue are discussed within relevant subsections throughout Section 4.

