

Section 6

Project Evaluation and Conclusion

PREAMBLE

This section concludes the assessment of the Project. The key assessment requirements (identified by the Director-General's Requirement's) and other are reassessed based on the implementation of the proposed safeguards, controls and mitigation measures and a residual risk level determined. The Project is then evaluated in consideration of ecologically sustainable development.

A justification for the Project is provided based on the residual impacts of the Project, the likely economic and social benefits that would be generated and the consequences locally and regionally of the Project not proceeding.



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6.1 INTRODUCTION

As a conclusion to the *Environmental Assessment*, the development and operation of the proposed Orchard Hills Waste and Resource Management Facility is evaluated and justified through consideration of its potential impacts on the environment and potential benefits to the local and wider community.

The project evaluation has been undertaken by firstly reviewing the residual environment risks and impacts, assuming the implementation of the controls, safeguards and mitigation measures summarised in Section 5. The Project has also been evaluated against the principles of Ecologically Sustainable Development (ESD) in order to provide further guidance as to the acceptability of the Project, as presented in the *Environmental Assessment*.

Section 6.3, which presents the justification of the Project, revisits the predicted residual impacts on the biophysical environment, considers the socio-economic benefits which would be provided and assesses the consequences of not proceeding with the Project.

6.2 EVALUATION AND JUSTIFICATION OF THE PROJECT

6.2.1 Residual Environmental Risks and Impacts

The Project's residual environmental risks and impacts have been assembled following the comprehensive assessment of impacts presented throughout Section 5 of this document. The assessment has assisted to review each environment since and establish the residual risks to the on-site and surrounding environment. The residual risks for the Project have been assembled in the following order, noting this is different to the prioritisation incorporated in Section 3.3.2.

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

An overview of the status of each of the above and their residual risks are as follows.



6.2.1.1 Noise

The noise assessment has established that the proposed on-site activities may be audible at some surrounding residences, however, importantly all noise levels are predicted to comply with all noise criteria under all meteorological conditions. Considerable care would be required by the Proponent and their contractor(s) / operators to ensure the range of proposed safeguards and fully implemented.

6.2.1.2 Surface Water

The surface water assessment has established that the internal and external sediment dams, sumps and other controls would be sufficient to manage the surface water runoff under a range of rainfall events. It would be important, particularly when undertaking earthworks outside the perimeter bund walls to ensure all controls are fully functional at all times. The water balance for the site established sufficient water would be available on site to meet the site's dust suppression requirements.

6.2.1.3 Air Quality

The air quality assessment has established that dust generated by on-site activities and dust lift off from exposed areas would be elevated for a few days each year, particularly 24hr average PM₁₀ levels when background levels from other sources are high. Notwithstanding this, it is concluded that the proposed facility could be operated without causing adverse dust or odour impacts at the surrounding residences.

6.2.1.4 Traffic Assessment

The traffic assessment has established that the increased heavy vehicle movements on Luddenham Road would not adversely impact upon the mid block roadway capacity or the performance of either Mamre Road or Patons Lane intersections. The traffic assessment recorded both intersections would cater for B-doubles in the event the transport route to the Project Site is designated a B-double route. It remains for the Proponent to ensure the behaviour of truck drivers travelling to and from the Project Site abide by all commitments and requirements in the Driver's Code of Conduct.

6.2.1.5 Visual Amenity

Both the existing and proposed elevated sections of the Project Site are, and would continue to be, visible from various locations, principally to the north and east of the Project Site. The Project has been designed with a range of visual controls, a number of which are indirectly related to proposed noise controls. These controls and the fact that most on-site activities would be well shielded behind the perimeter bund walls would ensure the visual impacts are acceptable. Importantly, the long term rehabilitated landform suited to grazing purposes would be visually appealing.



6.2.1.6 Groundwater

The groundwater investigations for the Project have established that with the adoption of well recognised procedures for leachate collection and management and the excellent natural attributes of the clay/shale on site, the limited groundwater present (of poor quality) in the clay/shale would not be adversely impacted. Similarly, the comparatively low level of groundwater pumping from the on-site abstraction bore would have negligible impacts on other groundwater users.

6.2.1.7 Socio-economic Setting

The Proponent recognises that whilst the Project Site is well removed from many land uses, it is fundamental that the facility is operated in an environmentally responsible manner to ensure the amenity of the surrounding neighbourhood is not adversely affected. The Proponent's commitment to consult with the community and support local community activities would be an important feature of the Proponent's approach to operating the facility.

6.2.1.8 Aboriginal Heritage

The Aboriginal Heritage assessment identified two isolated Aboriginal artefacts near the eastern and northern boundaries of the Project Site. The Proponent will invite the interested Aboriginal stakeholders to salvage both artefacts in the event the Project is approved. No ongoing Aboriginal heritage issues are expected.

6.2.1.9 Soils and Land Capability

The soils on the Project Site are moderately dispersive which is recognised in the high turbidity levels in the water on site. Limited quantities of soil remain, however, the remaining soil is suitable for rehabilitation activities but would need to be supplemented by soil materials manufactured on site in the recycling and re-processing plant.

6.2.1.10 Flora and Fauna

The flora and fauna assessments recognised the bulk of the Project Site has low ecological values although the riparian zone adjacent to Blaxland Creek requires protection. No adverse impacts are predicted on any threatened flora or fauna species or endangered ecological communities. Weed management on site would be an important component as the final landform is progressively revegetated.

6.2.1.11 European Heritage

No items of European Heritage are relevant to the Project Site.



6.2.2 Ecologically Sustainable Development

6.2.2.1 Introduction

Sustainable practices by industry, all levels of government and the community are recognised to be important for the future prosperity and well-being of the world. The principles of Ecologically Sustainable Development (ESD) that have been recognised for well over a decade were based upon meeting the needs of the current generation while conserving our ecosystems for the benefit of future generations. In order to achieve sustainable development, recognition needs to be placed upon the integration of both short-term and long-term environmental, economic, social and equitable objectives.

Throughout the design of the Project, the Proponent has endeavoured to address each of the sustainable development principles as identified during the 1992 *Inter-governmental Agreement on the Environment* and defined in Section 6(2) of the *Protection of the Environment Administration Act 1991*.

The following sub-sections draw together the features of the Project that reflect the four principles of sustainable development, namely:

- the precautionary principle

“If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

 - i) *careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
 - ii) *an assessment of the risk-weighted consequences of various options”*
- the principle of social equity

“The present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.”
- the principle of the conservation of biodiversity and ecological integrity

“Conservation of biological diversity and ecological integrity should be a fundamental consideration”
- the principle for the improved valuation and pricing of environmental resources.

“Environmental factors should be included in the valuation of assets and services, such as:

 - i) *polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
 - ii) *the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*

- iii) *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems."*

6.2.2.2 The Precautionary Principle

In order to satisfy this principle of ESD, emphasis needs to be placed on anticipation and prevention of environmental damage, rather than reacting to it. During the planning phase for the Project and throughout the preparation of the *Environmental Assessment*, the Proponent engaged specialist consultants to examine the existing environment, predict possible impacts and recommend controls, safeguards and/or mitigation measures in order to ensure that the level of impact satisfies statutory requirements or reasonable community expectations.

Throughout the development of the Project, the Proponent and its consultants have adopted an anticipatory approach to impacts, particularly that of irreversible ecological damage, by undertaking an analysis of the risks posed by activities of the Project, an appropriate level of research and baseline investigations and environmental evaluation. The controls, safeguards and/or mitigation measures have therefore been planned with a comprehensive knowledge of the existing environment and the potential risk of environmental degradation posed by Project activities.

The implementation of the environmental safeguards, controls and mitigation measures has been formalised by the Proponent as the draft Statement of Commitments presented as Section 5.

A summary of how the precautionary principle has been considered throughout the preparation of the *Environmental Assessment* is outlined as follows.

Objectives of the Project

The Project has been designed with the principal objective of developing and operating the Project in a safe and environmentally responsible manner and which meets the requirements of local and State government agencies, accepted industry standards and, wherever possible, reasonable community expectations. The Proponent recognises that only through comprehensive environmental assessment and an environmentally responsible approach to the design and operation of the Project can the risk of harm to the environment be minimised.

Design of Project Components

A number of design aspects of the Project were modified and additional design aspects incorporated during the planning stages in order to ensure that the requirements of local and State government agencies, accepted industry standards and, wherever possible, reasonable community expectations were met. These included the following.

- The recycling and re-processing facility was positioned in an area most distant from all surrounding residents where additional earth mounds could also be constructed to isolate the operational area.
- The northern bund wall, constructed as part of the site establishment phase has been designed specifically to provide maximum audio-visual screening to residents in "The Vines" estate.



Integration of Safeguards and Procedures

The framework for ongoing environmental management, operational performance and rehabilitation of the Project Site would be provided through the project approval and be managed in accordance with an integrated environmental management plan for the site. This plan would incorporate the following elements.

- The site would be managed and monitoring undertaken in accordance with the commitments listed in Section 5.
- A range of site-specific environmental procedures would be adopted to achieve consistency with specified outcomes and to avoid environmental harm.
- All on-site procedures would be regularly reviewed, particularly in light of the results of monitoring and any feedback through ongoing community consultation.

Rehabilitation and Subsequent Land Use

Long term adverse impacts on the agricultural productivity of the Project Site would be avoided through the design and rehabilitation of the final landform suitable for the return of long term grazing for the site. Improved quality of riparian vegetation adjacent to Blaxland Creek will also be beneficial.

Conclusion

The precautionary principle has been considered during all stages of the design and assessment of the Project. The approach adopted, ie. consultation, specialist investigations and safeguarded design, provides a high degree of certainty that the Project would not result in any major unforeseen impacts.

6.2.2.3 Social Equity

Social equity embraces value concepts of justice and fairness so that the basic needs of all sectors of society are met and there is a fair distribution of costs and benefits to the community. Social equity includes both inter-generational (between generations) and intra-generational (within generations) equity considerations.

Equity within generations requires that the economic and social benefits of the development be distributed appropriately among all members of the community. Equity between generations requires that the non-material well-being or “quality of life” of existing and future residents of the local community would be maintained throughout and beyond the life of the Project.

Both elements of social equity are addressed through the design of the Project itself, the implementation of operational safeguards to mitigate any short-term or long-term environmental impacts, and the proposed rehabilitation of the Project Site. Examples of matters relating to social equity that are relevant to the various stages of the Project are outlined as follows.



Identification of Project Objectives

The primary objective of the Project is to provide a facility to assist in the recovery of materials from waste that would otherwise be land-filled and also provided a repository for residual waste from re-processing. The facility would assist to maximise the recovery of resources for future generations and to extend the operational life of both landfills both off site and on site waste emplacement.

The Project has also been designed with the following objectives.

- Provision of high quality raw materials (light-firing clay/shale) for the brick industry.
- Provision of local employment and economic benefits to the community throughout the life of the Project.
- Progressive rehabilitation to provide a final landform suited for grazing, the planned long term land use for the area.

Design of Project Components

The Project has been designed to maintain inter-generational equity, and to ensure components of the existing biological, social and economic environment available to existing generations would also be available to future generations. Particular design components include the progressive rehabilitation to provide a final landform suitable for long term grazing.

Integration of Safeguards and Procedures

The Proponent recognises whilst the benefits of its Project relate principally to the wider community, the Proponent would continue to consult with the local community and maintain a pro-active approach to issues of interest. This dialogue would also include a system to record, manage and respond to any complaints relating to the Project.

Rehabilitation and Subsequent Land Use

The final landform would be suitable largely for grazing and to a lesser extent for nature conservation.

Conclusion

The principle of social equity has been addressed throughout the design of the Project. The Project would contribute to the economic activity of the Orchard Hills area and the wider region through:

- the generation of employment throughout the Project life; and,
- provision of required raw materials for the brick industry.

The Proponent would also adopt a pro-active approach in identifying and addressing any concerns identified by the local community.



6.2.2.4 Conservation of Biological Diversity and Ecological Integrity

The protection of biodiversity and maintenance of ecological processes and systems are central goals of sustainability. It is important that developments do not threaten the integrity of the ecological system as a whole or the conservation of Threatened species in the short or long term. The Project has been designed to achieve compliance with these principally through the planned enhancement of the section of riparian zone adjacent to Blaxland Creek within the Project Site.

6.2.2.5 Improved Valuation and Pricing of Environmental Resources

The issues that form the basis of this principle relate to the acceptance that the polluter pays, all resources are appropriately valued, cost-effective environmental stewardship is adopted and the adoption of user-pays principle based upon the full life cycle of the costs. A reflection of these issues on the Project is set out below.

Identification of Project Objectives

It is the Proponent's objective to operate the Project in a profitable, safe and environmentally responsible manner, which demonstrates that an appropriate value has been placed on elements of the existing environment.

Design of Project Components and Integration of Safeguards and Procedures

The extent of research, planning and design of environmental safeguards and mitigation measures to prevent irreversible damage to environmental resources, other than the clay/shale to be extracted, is evidence of the value placed by the Proponent on these resources. Importantly, the re-instatement of a landform suitable for grazing would be beneficial.

The Proponent's commitment to contributing to the maintenance of Luddenham Road, a regional road, reflects the understanding of the need for good standard roads for the entire community.

Conclusion

It is planned that the income received from the sale of the clay/shale and recycled/re-processed products and receipt of waste would be sufficient to enable the Proponent to achieve an acceptable profit level whilst undertaking all environmentally-related tasks and meeting all commitments in all approvals and licences and those made to the local community.

6.2.3 Conclusion

The project has been justified given the approach taken in planning the Project has been multi-disciplinary, involved consultation with potentially affected local residents and various government agencies with emphasis on the application of safeguards to minimise potential environmental, social and economic impacts. The design of the Project has addressed each of the sustainable development principles, and on balance, it is concluded that the Project achieves a sustainable outcome for the local and wider environment.



After a full evaluation of the potential environmental impacts of the Project, there are no activities or features for which there is a level of uncertainty in achieving an acceptable level of environmental performance. The procedures necessary to achieve good and responsible emplacement practices are well known and benchmarked by the DECCW, together with a proactive response to on-site environmental management and a co-operative and open approach to all issues with the appropriate government authorities, should lead to protection of the surrounding environment. Features of the local environment such as water quality, noise climate, air quality and the Blaxland Creek riparian zone would be managed throughout the life of the Project.

It would remain a guiding principle for the Proponent when operating the Project to remain proactive and anticipate problems rather than allow problems to develop.

In general, the ESD concept promotes reducing, re-using and recycling of wastes. The project is consistent with the continued efforts of the NSW Government to encourage community waste reduction, recycling and greater recognition of wastes as resources. Additionally, the focus upon recycling and re-processing on the Project Site is intended to ensure that where possible, resources are reprocessed into useful products, hence increasing the sustainable life span of those resources and limiting the amount of wastes destined for emplacement.

Ultimately, however, there are residual or other wastes that cannot be reused, recycled or reprocessed, and waste emplacement is the only feasible alternative. The on-site emplacement would assist in contributing a proportion of the void space required to satisfy the justifiable demand for these materials.

6.3 CONSEQUENCES OF NOT PROCEEDING WITH THE PROJECT

The consequences of not proceeding with the Project include the following.

- i) The Proponent would not be able to establish a recycling and re-processing facility which is ideally located in terms of accessibility between Sydney's planned northwest and southwest growth sectors.
- ii) The lost opportunity to provide necessary infrastructure to contribute to the achievement of the 2014 recycling performance targets outlined within the Waste Strategy 2007.
- iii) The landform of the Project Site would not be returned to an optimal state suitable for productive grazing and could potentially remain unproductive.
- iv) The high grade light-firing clay/shale resources may not be recovered for the brick industry.
- v) The disposable wages for workforce and ongoing expenditure associated with the Project would be foregone.
- vi) The biophysical, economic and social impacts, both positive and negative identified throughout this document, would not occur.



It is considered that the benefits of proceeding with the Project therefore far outweigh the minor impacts on the environment that would result if the Project proceeds. The consequences of not proceeding with the Project also weigh heavily in favour of proceeding with the Project.

6.4 CONCLUSION

This *Environmental Assessment* has been prepared by R.W. Corkery & Co. Pty. Limited on behalf of Dellara Pty Ltd to assist in the assessment of the likely environmental impacts of the Orchard Hills Waste and Resource Management Facility. The project has, to the extent feasible, been designed to address the issues of concern to the community and all levels of government.

The *Environmental Assessment* has assessed the potential environmental, economic and social impacts that the construction and operation of the Project would have on the surrounding environment including adjoining and nearby residents. This assessment included the potential for impacts relating to noise, air quality, traffic, surface and groundwater, surrounding land use, flora, fauna, Aboriginal and European heritage, and the social and economic climate. Principles of ecologically sustainable development were also considered.

The *Environmental Assessment* concludes that the Project is consistent with best practice approaches which reflect an ecologically sustainable approach to the management of waste and extraction of clay/shale over the next 30 years.

The *Environmental Assessment* also concludes that the potential for adverse impacts during the construction and operation of the Project would be mitigated through the implementation of a range of appropriate safeguards and management measures.

In light of these conclusions, it is assessed that the project, as presented in this *Environmental Assessment*, could be constructed and operated in a manner that would satisfy all relevant statutory goals and criteria, environmental objectives and reasonable community expectations.

