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# Dellara Pty Ltd

## Report for Modifications to Modified Preferred Project

### Overview Report

September 2011

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

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# 1. Introduction

## 1.1 Overview

Project Application No. 09_0074 (as modified), seeks approval to establish a waste and resource management facility at a site adjacent to Patons Lane, Orchard Hills (refer **Figure 1** ) owned by the Proponent, Dellara Pty Ltd.

This development application for the Orchard Hills Waste Management and Recycling Facility was refused by the Minister for Planning on 27 September 2010. The Applicant, Dellara Pty Ltd commenced Class 1 proceedings in the Land and Environment Court against the refusal.

On 11 February 2011, the Court granted the Applicant leave to rely on a modified preferred project report ('MPPR') in these proceedings. The MPP responded to the Minister's reasons for refusal.

The matter was heard in Court from 7-9 August 2011.

This report describes how the Project has been modified to address points raised by the Court, which is now described in the Further Modified Project Report (FMPPR). This report describes the main modifications to the project which are outlined in the FMPPR and describes the environmental impacts associated with these changes, as assessed by the specialist consultants who originally prepared the MPPR.

## 1.2 Structure of Report

Modifications to the project compared to the Modified Preferred Project (MPP) are discussed in **Section 1**. A project overview is provided in **Section 2**.

The methodology for excavating, emplacing waste and stockpiling material in a coordinated fashion is outlined in the FMPPR.

The environmental impacts of these changes on to the project are discussed in **Section 4**, which explains what the amendments are and how those amendments will lead to a better environmental outcome.

The MPPR has been redrafted so that it accommodates the amendments made to the current application before the Court (i.e. reduction in height of final landform, increased extraction of clay/shale resources).

This report also annexes letters received from Dellara's consultants confirming that their position does not change in relation to these modifications to the project.

The report includes:

- a list of all changes and amendments (see above);
- a consolidated set of plans; and
- reports and work methods.

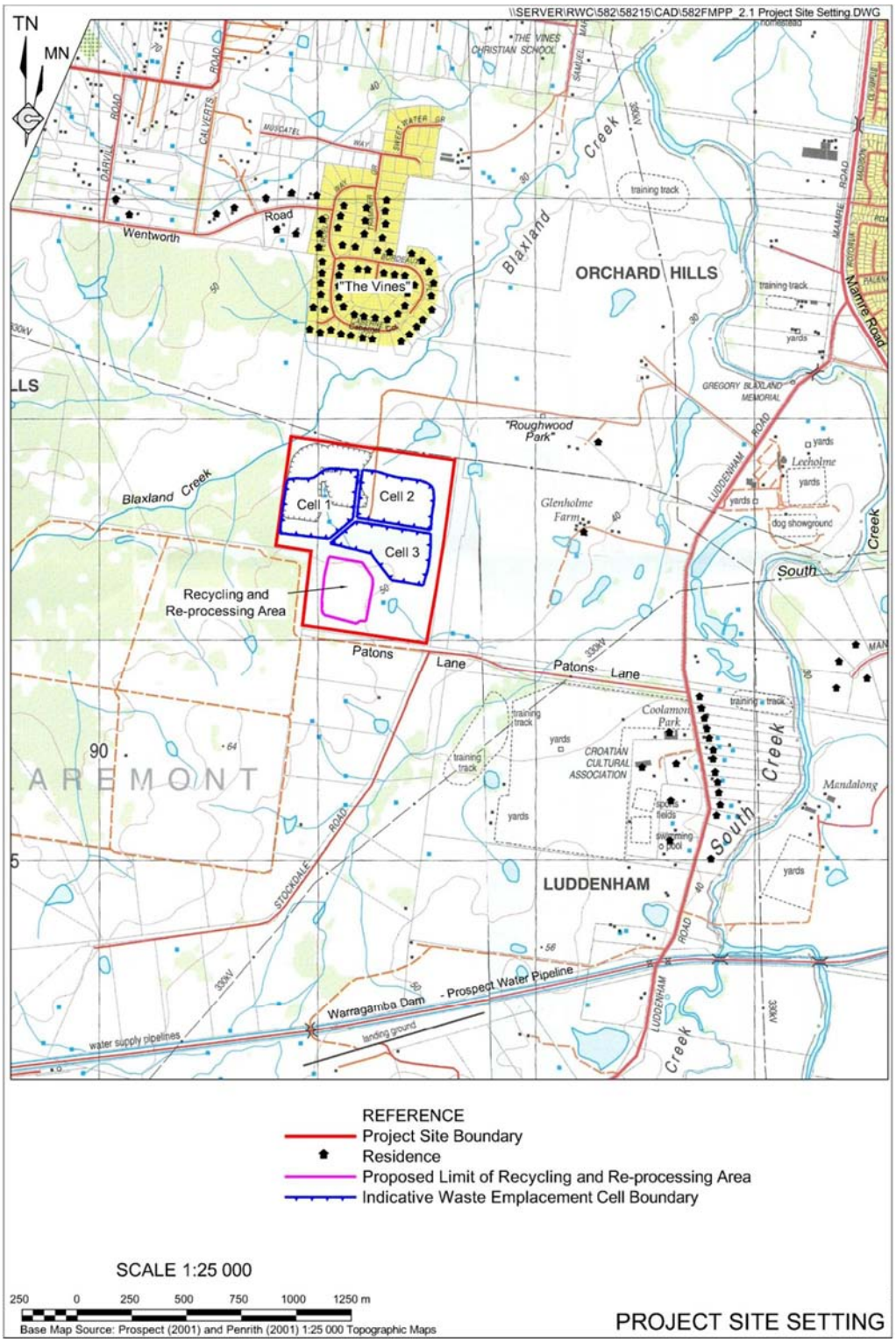


**Figure 1 Project Site Setting**

(Source: FMPPR – Figure 2.1)

## 1.3 Modifications made to the Project

The modifications to the Project include:

1 Reduction in height of the final landform:

- a reduction in the finished level of the northern face from 55m AHD to approximately 44m AHD, 3m to 4m above the pre-existing ground levels (the interim acoustic mound would be at 53m AHD for acoustic purposes);
- a reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and
- the substantial removal of the southwestern, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts.

2 Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):

- extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from 37m AHD to 28m AHD; and
- no emplacement of waste in the final cell. The final cell is to be backfilled with clay/shale.

3 Contingency stockpile:

- a new contingency stockpiling area, which would be located in the southeastern corner of the Project Site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and
- consequential relocation of the site office and light vehicle parking area.

4 The modifications of which the Court granted leave to the Proponent to rely upon on 19 July 2011 as outlined in the Overview of the Amendments to the Modified Preferred Project) dated July 2011.

In summary, notable reductions introduced to the project design include a reduction in waste receipts from 7.8 million tonnes to 4.3 million tonnes (leave to this modification was granted on 19 July 2011) and reduction of the final landform height from 65m AHD to 57m AHD to a level assessed to be appropriate by the independent visual assessment of the project. These reductions would further minimise the impacts upon the noise climate and air quality around the Project Site.

The Proponent's consideration of the issues raised in the assessment report prepared by the Department of Planning and its further investigations have strengthened its commitment to rehabilitate the existing quarry in a cost effective manner using non-putrescible wastes as a filling medium, extracting light-firing shale from the three extraction cells to an elevation of 28m AHD and to provide a valuable contribution to increase waste recycling and resource recovery in Sydney.

## 1.4 Modifications to Project since FMPPR

A Further Modified Preferred Project Report (FMPPR) for Major Project Application MP 09_0074 has been prepared.

Table 1 displays the principal modifications to the Proponent's Project presented in the Further Modified Preferred Project Report (Sept 2011), compared to the Modified Preferred Project Report (MPPR) (January 2011). The differences in the project since the MPP are shown in bold.

**Table 1 Project Modifications made since MPPR**

| Activity | January 2011 Modified Preferred Project Report | Sept 2011 Further Modified Preferred Project Report |
|---|---|---|
| Landfill Capacity (t) | 4.8 million | **4.3 million** |
| Maximum Annual Waste Receipts (t) per annum | 450 000 | 450 000 |
| Maximum Annual Throughput for Recycling and Re-processing (t) per annum | 350 000 | 350 000 |
| Total Clay/Shale Extraction (t) over life of project | 3 850 000 | **5 200 000** |
| Quantity of Extracted Clay/Shale Despatched from Site (t) | 3 150 000 | 3 150 000 |
| Depth of excavation in Cell 2 | 37m AHD | **28m AHD** |
| Filling of Cell 4 | waste | **shale/clay** |
| Maximum Daily Heavy Vehicle Movements | 250 | 250 |
| Final slope of northern bund/northern face | 14% | **5%** |
| Height of northern face (interim) | 55m AHD | **53m AHD** |
| Weekday Operating Hours | 7:00am-6:00pm | 7:00am-6:00pm |
| Saturday Operating Hours | 8:00am-2:00pm | 8:00am-2:00pm |
| Project Life | 25 years | 25 years |
| Maximum Annual Quantity of Extracted Clay/Shale despatched from Site (t) | 160 000 | 160 000 |

It can be seen that the main changes to the project are that the landfilling capacity has been further reduced, the amount of clay and shale extraction has increased (particularly the recovery of light firing shale) and the ability to extract resources from Cell 4 (the Resource Recovery and Recycling Area) has been preserved by not filling this area with waste at the end of the project. In addition, the final elevation of the northern face has been reduced from 55m AHD to 44m AHD, and the final slope of this face has been reduced from 14% to 5%.

A number of the project figures in the Modified Preferred Project Report (MPPR) have been adjusted to show these changes in the project, and are provided in the Further Modified Preferred Project Report (FMPPR). Differences between the two sets of figures are summarised in **Table B** in **Appendix B**.

## 1.5 Reduction in Northern Bund height

The height of the northern face will be reduced from 55m AHD to 44m AHD during the site establishment phase, and the profile of the northern face will be reduced from 14% slope to 5% slope.

The existing bunds at the northern end will be modified to form the final northern face and to provide above that face an acoustic and visual bund for the first phase of the project to provide the necessary topographic barrier to control noise and visibility during rehabilitation of the site. They will then be removed during the project to provide a final landform which has an overall form similar to the pre-extraction landform. This process is illustrated in **Figure 3**.

During the site establishment phase, the existing northwestern and northeastern bund walls would be reshaped to create a single continuous landform referred to as the “northern face”. The western section of the existing northwestern bund wall would be excavated and reshaped with the excavated material recovered, as much as possible, from the southern side and placed on the section of the northern face immediately south of Dam 2.

Further clay and shale would be excavated from within Cell 1 to create the northern face in the manner recommended by Richard Lamb & Associates i.e. ensuring that the slope does not have an engineered appearance. Variations would be provided to gradient and aspect.

**Figure 2** displays three representative sections through the northern face recording the profile of both the existing bund wall and the proposed northern face. Removal of the existing bund material north of the new northern face would occur during the site establishment period. At the completion of this earthworks program, the newly created northern face would have an elevation of approximately 53m AHD along its full length.

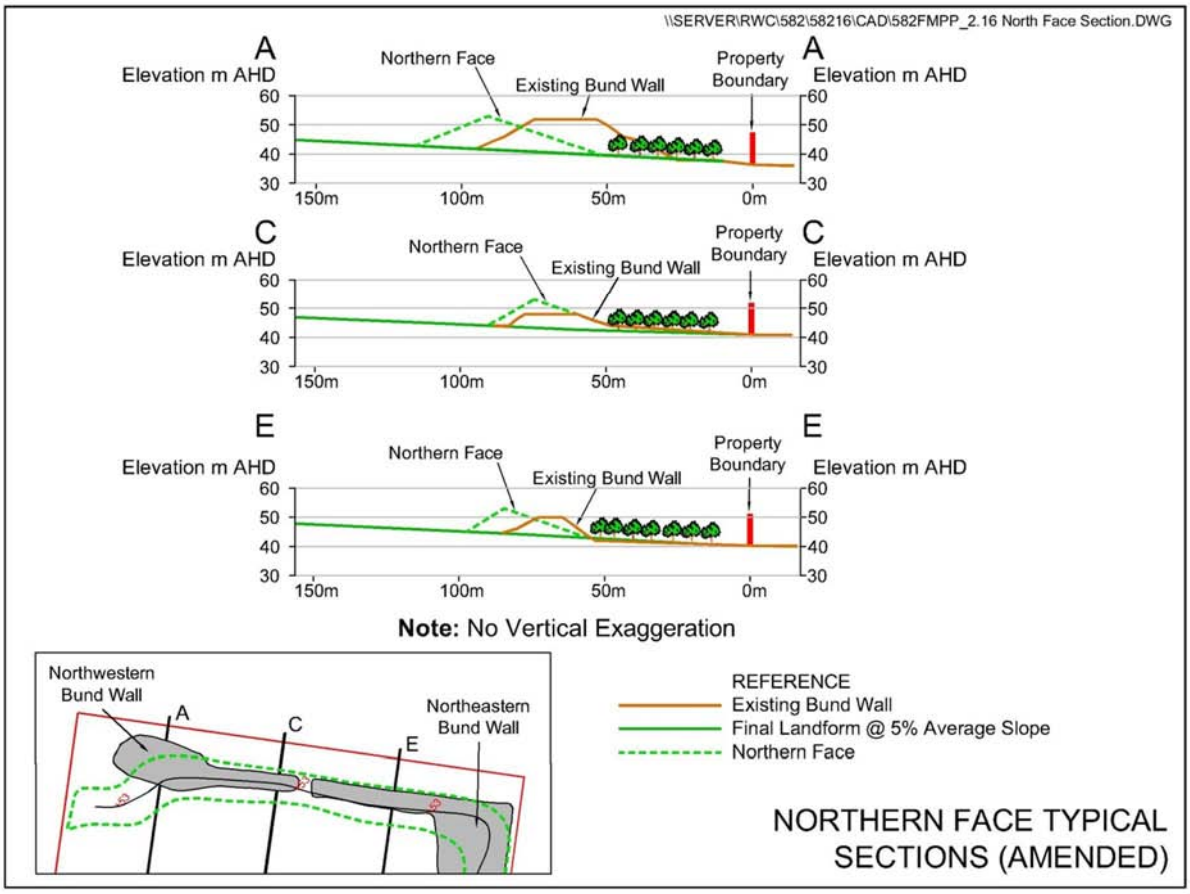


**Figure 2 Northern Face Typical Sections**

(Source: FMPPR – Figure 2.16)

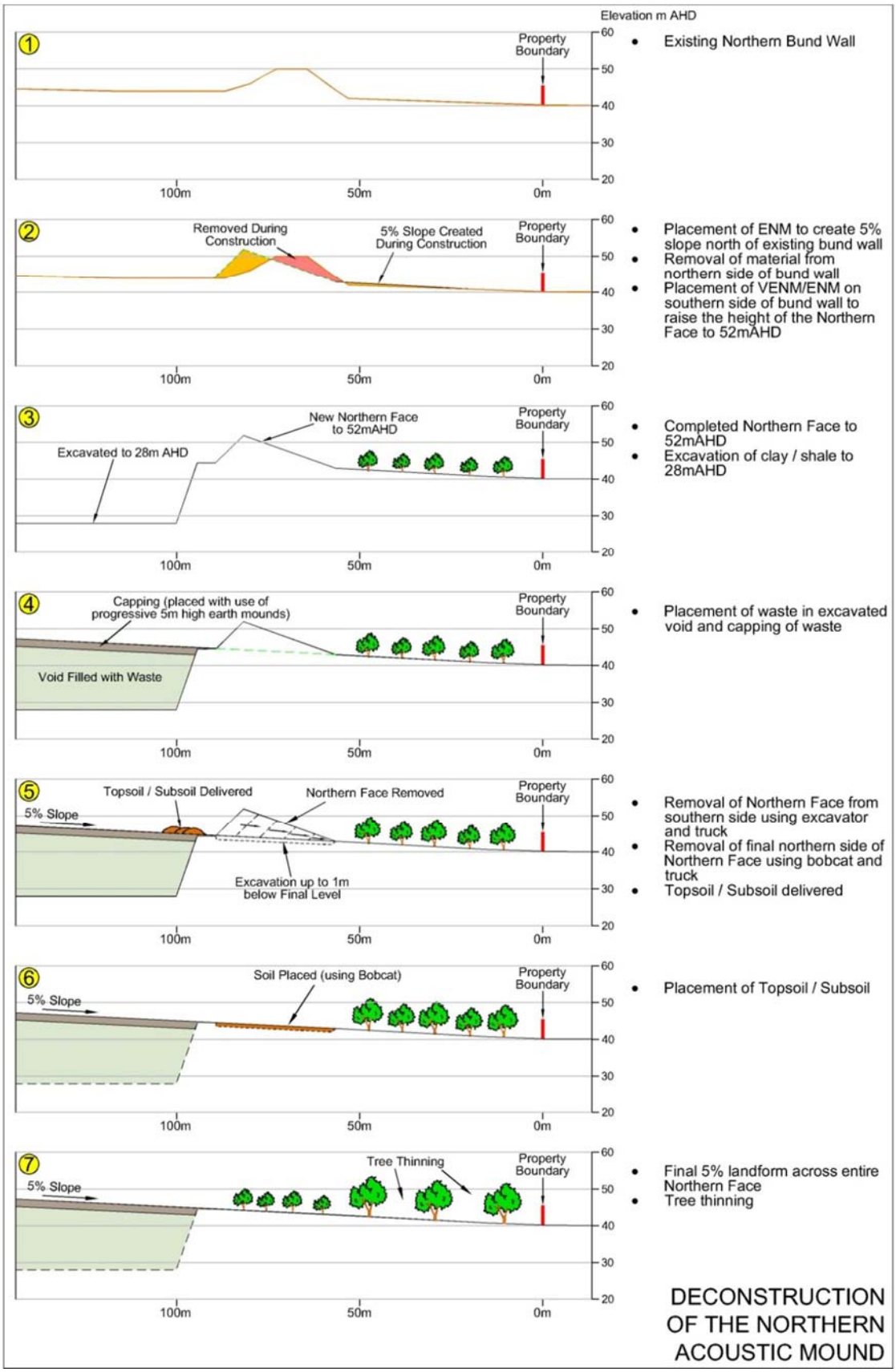


**Figure 3 Deconstruction of the Northern Face**

## 1.6 Lower Final landform

A new, lower final landform has been adopted. This will reduce the final elevation at the northern part of the site to approximately 44m AHD, 3-4 m above the pre-existing ground levels. The final landform of the site is illustrated in **Figure 4,** while **Figure 5** shows the previously proposed landform. **Figure 6** shows the difference in levels between the two landforms.

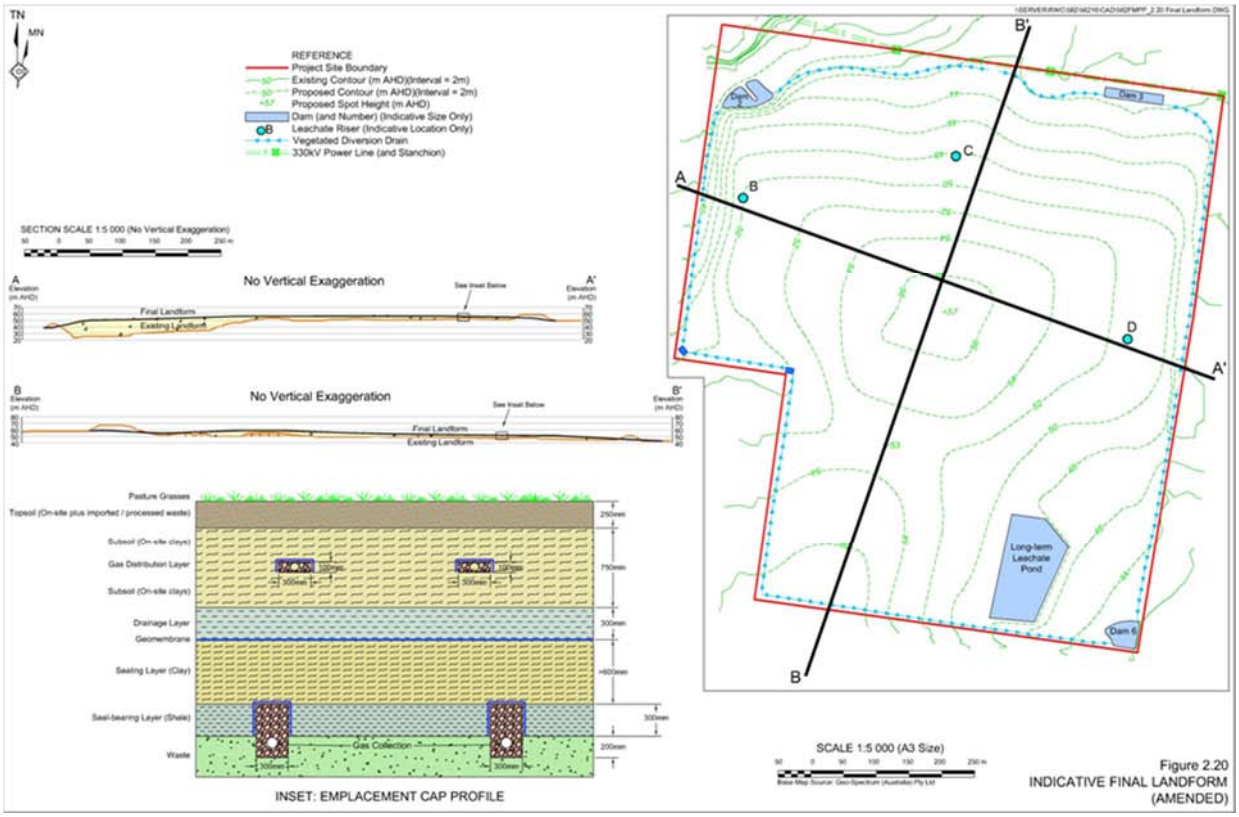


**Figure 4 Further Modified Final Landform with Northern Face – 5% Slope**

(Source: FMPPR – Sept 2011 Figure 2.20)

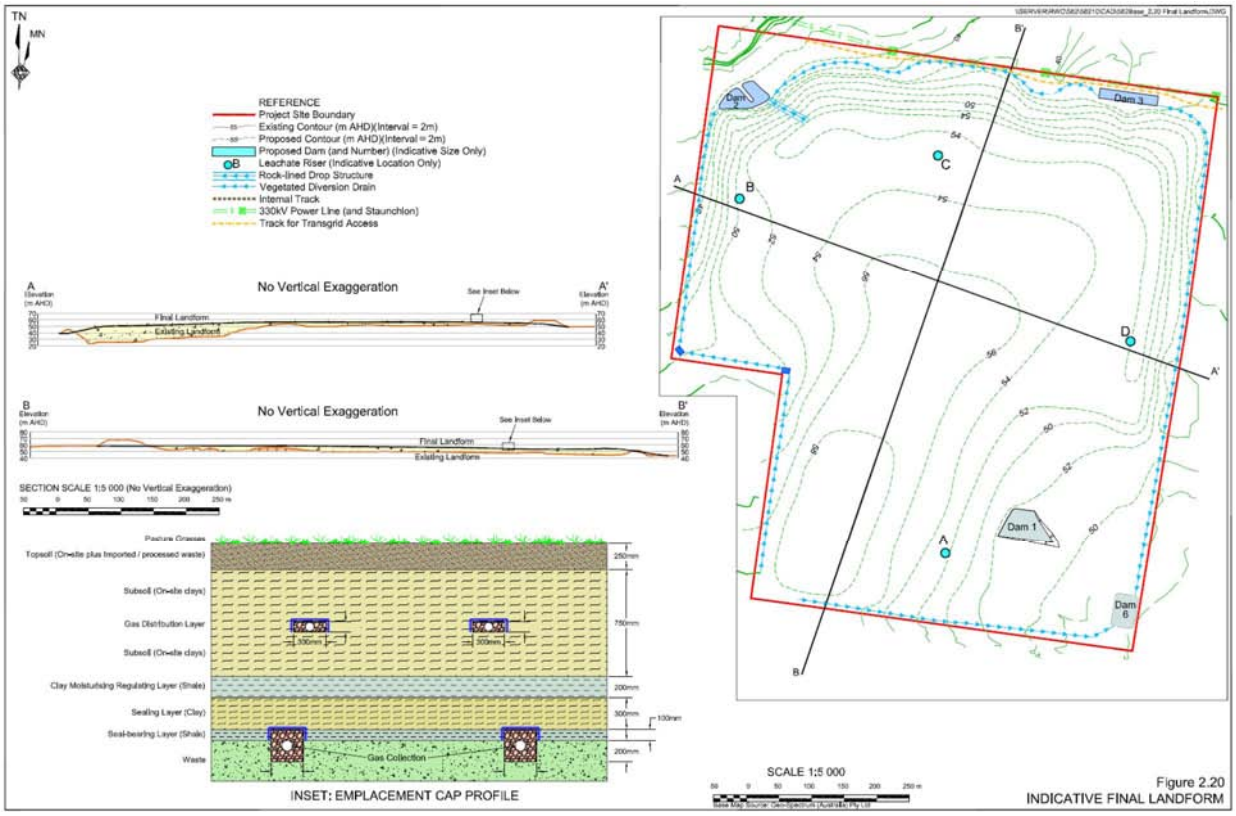


**Figure 5 Indicative Landform presented in the MPPR**

(Source: MPPR – January 2011 Figure 2.20)

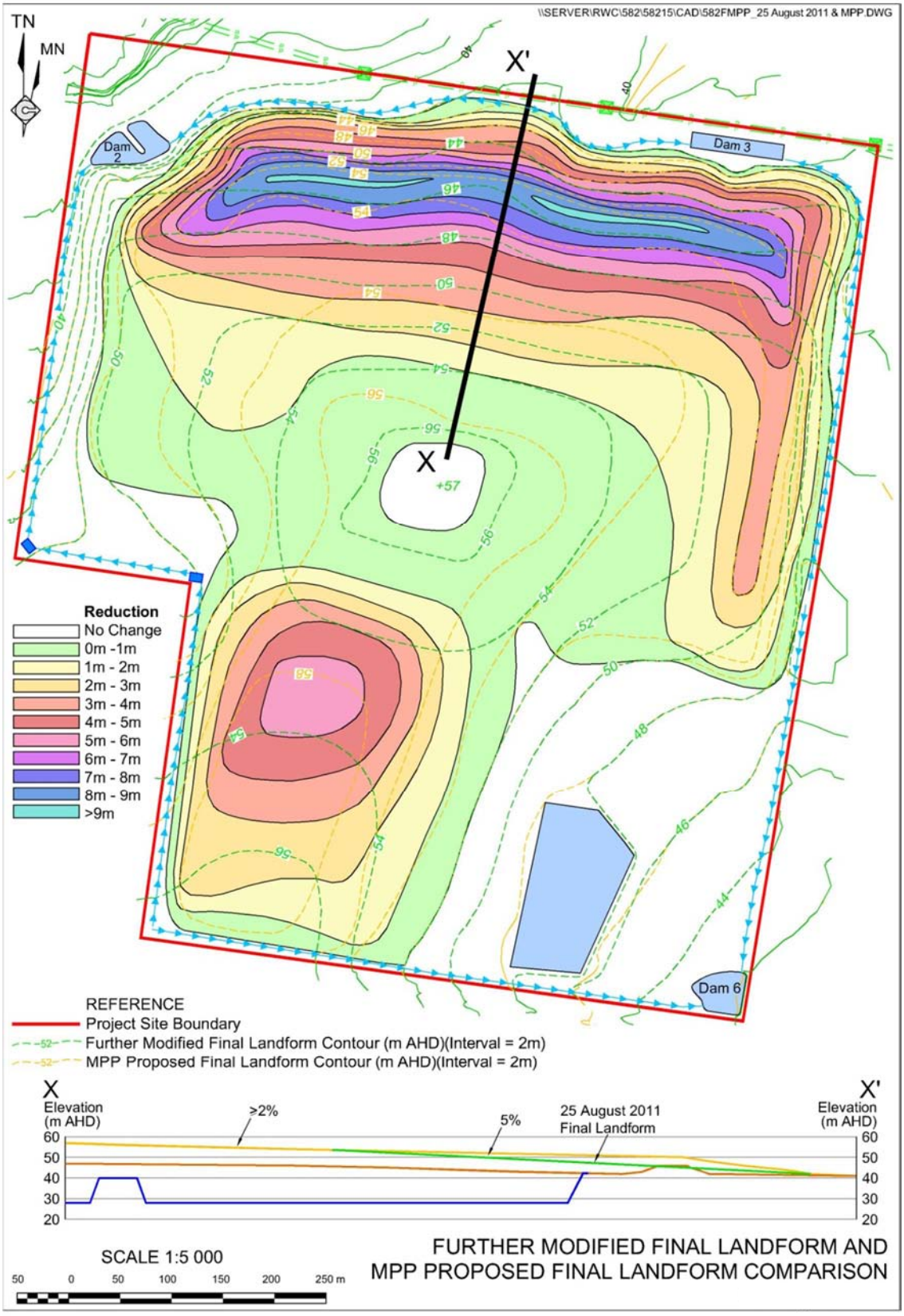


**Figure 6 Further Modified Final Landform and MPP Proposed Final Landform Comparison**

**Figure 6** displays a north-south cross section of the final landform in comparison with the landform presented in the Modified Preferred Project Report (January 2011). The final landform would result in the creation of a gently sloping grassed knoll with an elevation of approximately 57m AHD, as shown in **Figure 4**.

This elevation is marginally lower than the maximum 58m AHD natural elevation near the southern boundary of the Project Site. The final landform has been designed in consultation with Richard Lamb & Associates to ensure its form and slopes are appropriate to achieve a visually unobtrusive area beyond the end of the Project life.

The final landform in the southwestern section of the Project Site would be marginally lower (2m to 4m) than the 1980 landform. This final landform has been intentionally kept low in this area to maximise the opportunity for subsequent clay/shale extraction south of Cell 3.

**Figure 7** displays the extent of back fill within the former recycling and reprocessing area (Cell 4 in the MPPR), which is lower than previously proposed, because this area will be filled with VENM/clay/shale, rather than waste, to allow for future extraction of resources.

Overall, the final landform with the exception of the Recycling area where the profile would be lower than the original landform, would be an average of 4m above the pre-extraction landform. The final landform (i.e. following decommissioning of required leachate management structures) would incorporate four dams and perimeter diversion banks providing long-term water management and storage.

**Figure 8** displays a north-south cross section of the final landform in comparison with the landform presented in the *Environmental Assessment* (April 2010), Preferred Project Report (July 2010) and the Modified Preferred Project Report pre-extraction landform (1980).

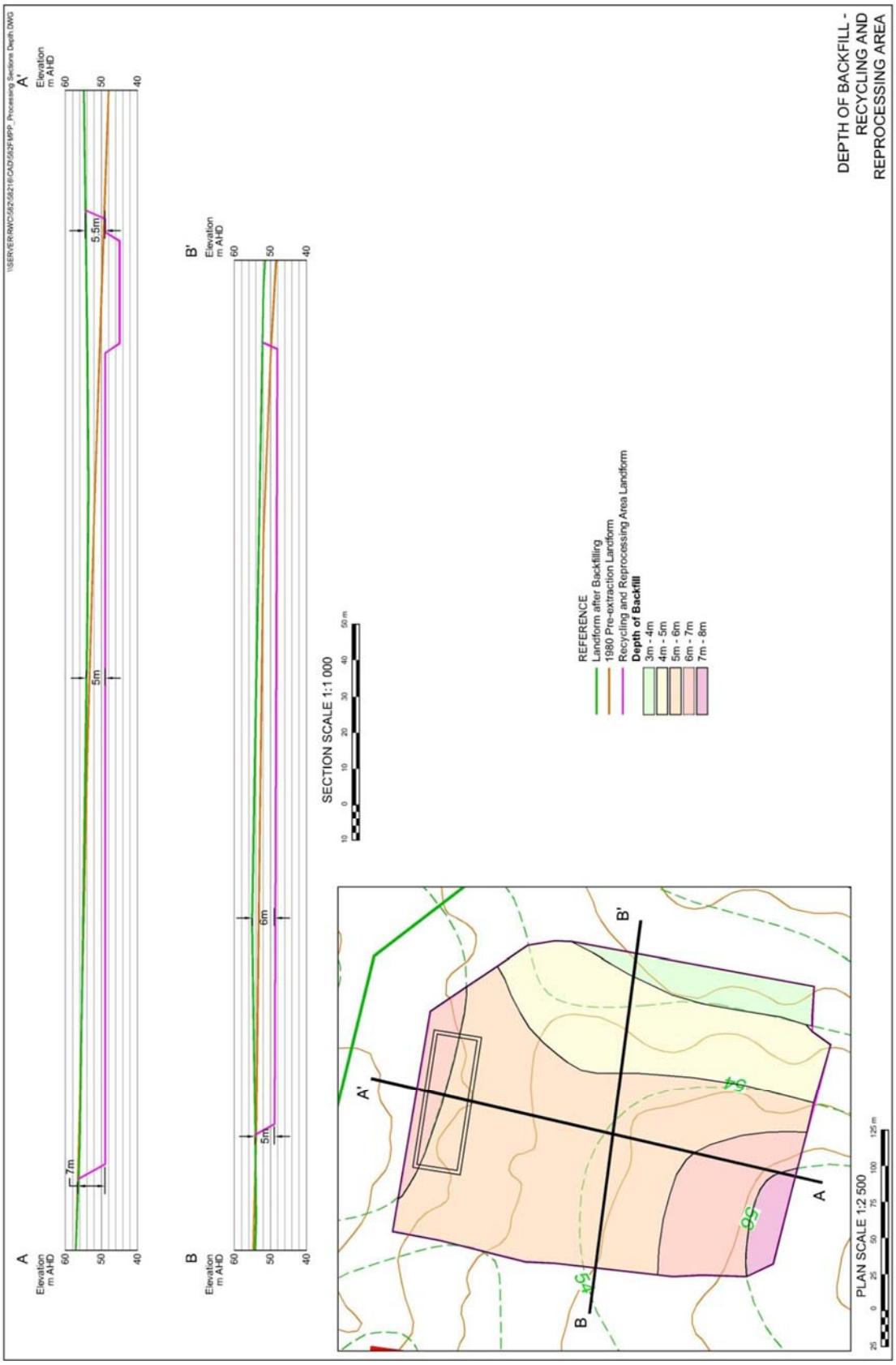


**Figure 7 Depth of backfill - Recycling and Re-processing Area**

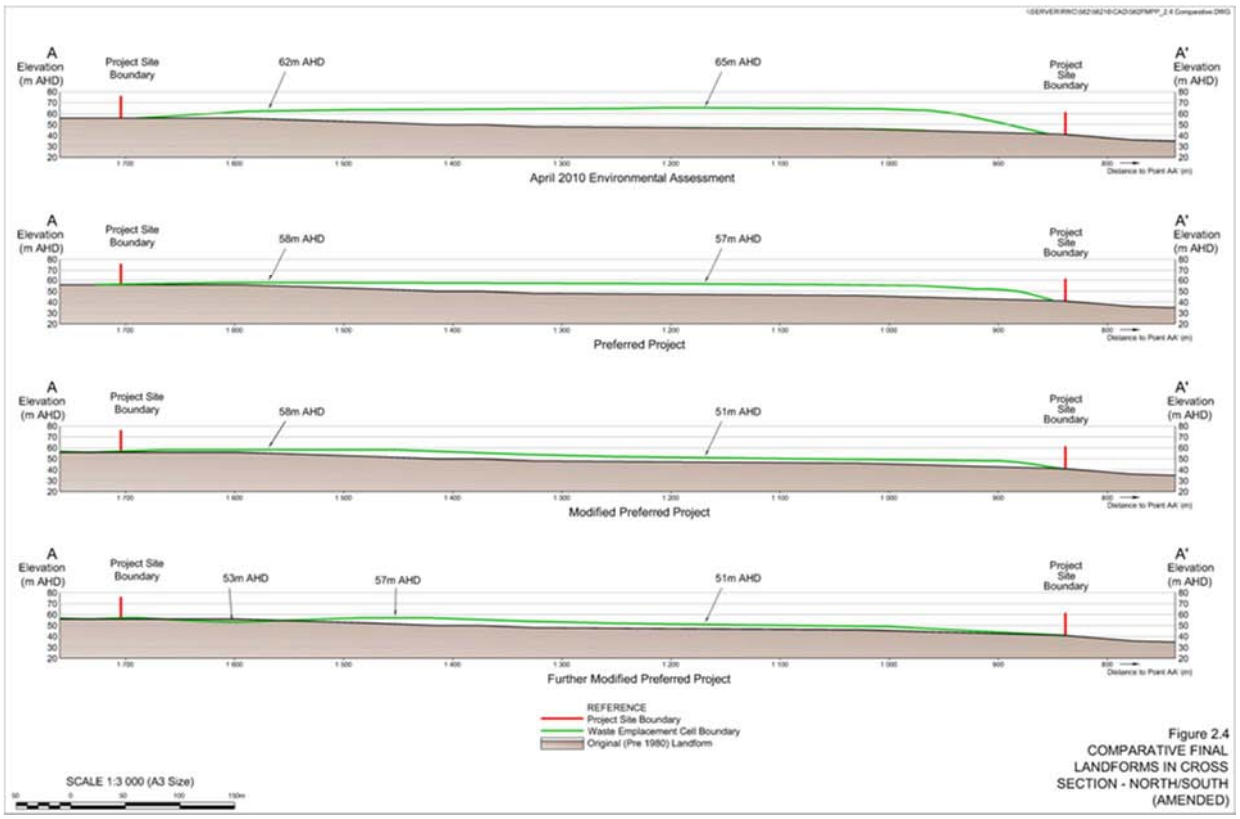


**Figure 8 Comparative Final Landforms in Cross Section – North/South**

(Source: FMPPR – Figure 2.4)

## 1.7 Extraction of clay resources

Additional clay and shale resources will be extracted from within Cell 2, by increasing the level of excavation from 37m AHD to 28m AHD, in these cells.

## 1.8 Buildings for C&I waste storage

As set out in the Overview of Amendments to the Modified Preferred Project dated July 2011, a building will be used to cover C&I waste stockpiles within the Recycling and Resource Recovery Area.

The C&I recycling component would comprise a recycling facility located within an 1 800m$^2$ building open only to the south – see detail on **Figure 9**. The C&I waste would be sorted by a combination of mechanical and manual sorting equipment together with mechanical cleaning.

Raw feed for this facility would be placed within 2 stockpile areas within a purpose-built building south of the warehouse. The northeastern side or closest raw feed stockpile area (covering a maximum area of approximately 2 000m$^2$) would be for the receipt/stockpiling of wastes suited for directly feeding into the recycling facility without sorting. The second, area to the southwest of the building and covering a maximum area of approximately 2 400m$^2$, would be used for the receipt/placement of materials requiring sorting prior to processing.

## 1.9 Contingency stockpile

A new contingency stockpiling area, which would be located in the southeastern corner of the project site with a capacity to store more than 250,000 tonnes of material. This is illustrated on **Figure 10**.

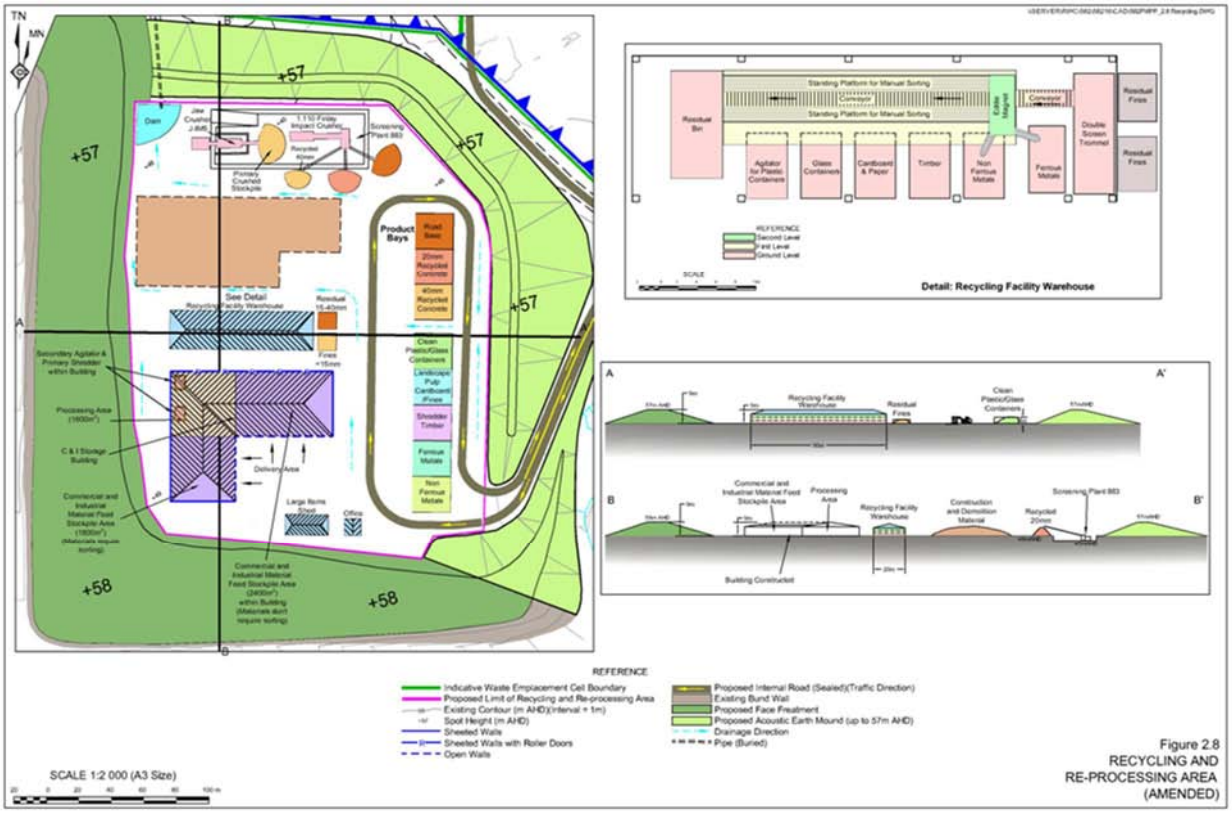


**Figure 9 Recycling and Re-Processing Area**

(Source: FMPPR – Figure 2.8)

# 2. Project Overview

An overview of the further modified preferred project is as follows.

The Project would involve a number of components designed to collectively underpin an environmentally responsible facility able to provide an important resource management service and the ultimate re-instatement of productive rural grazing land in an area zoned for ongoing agricultural production. The principal Project activities would include the following.

- Construction/establishment and operation of a materials recycling facility for C&D and C&I waste.
- Resumption of clay/shale extraction (particularly light-firing clay/shale) to recover raw materials for use by the brick industry and other clay/shale materials as optimal cover material for the on-site waste emplacement and final capping.
- Development and operation of staged waste emplacement cells to contain all residual wastes from the recycling and re-processing facility, other imported wastes (unable to be re-processed) and selected construction and demolition wastes recovered from the existing on-site perimeter bund walls.
- Refurbishment of the former weighbridges and offices together with the construction of a range of on-site infrastructure including a site office for the recycling and re-processing facility, truck wheel wash, site workshop and water management structures.
- Selective removal and on-site disposal of material from the existing perimeter bund walls including disposal of waste materials previously illegally imported to site and incorporated into the bund walls in contravention of the requirements of the *Protection of the Environment Operations Act 1997* and the existing development consent for the site.

The details of the Project are presented in **Table A** in **Appendix A.**

**Figure 10** and **Figure 11** show the key stages of the project, for the FMPP and the MPP respectively.

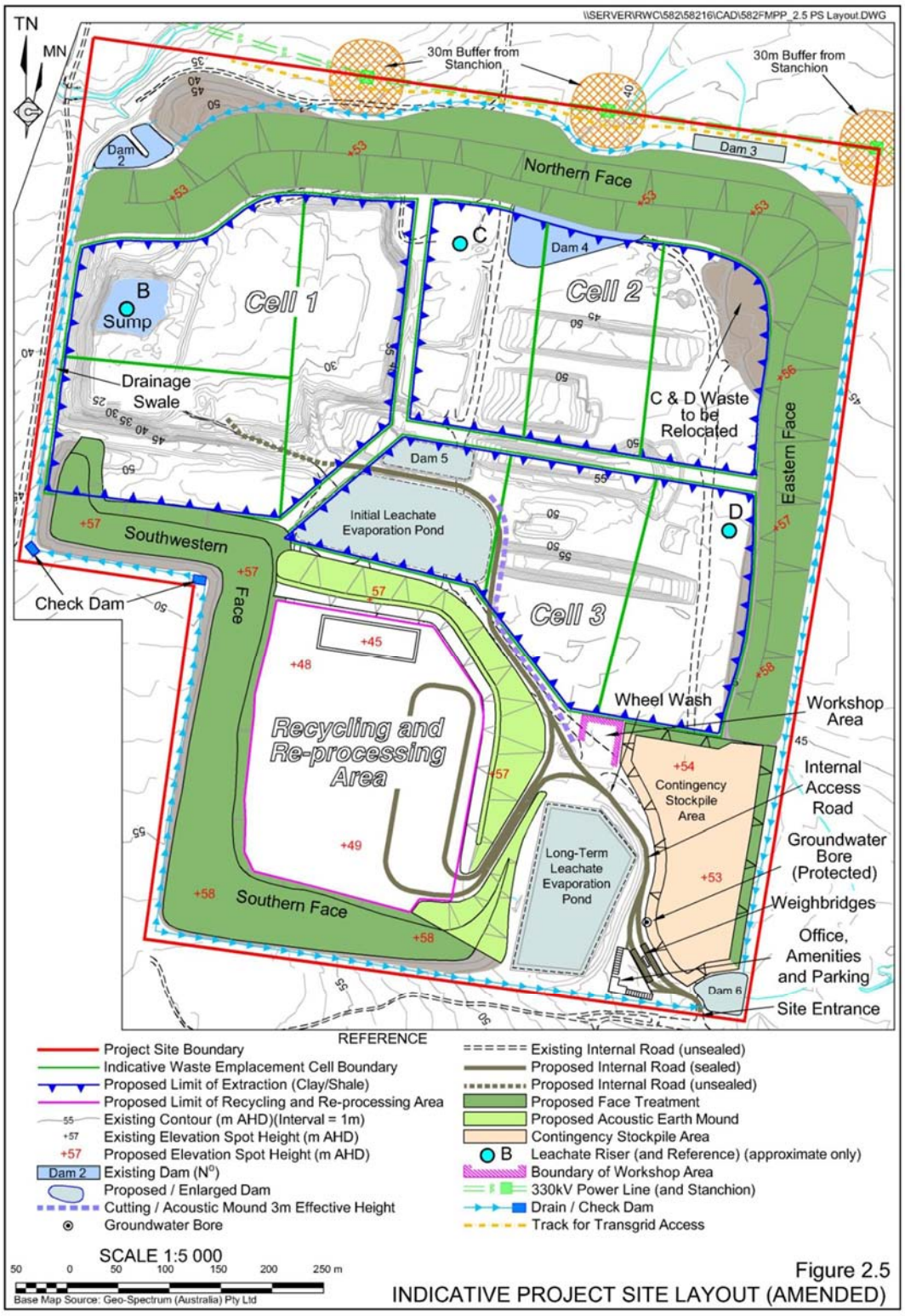


**Figure 10 Indicative Project Site Layout**

(Source: FMPPR – Figure 2.5)


**Figure 11 Indicative MPP Site Layout**

(Source: January 2011 MPPR – Figure 2.5)

# 3. Site logistics

## 3.1 Extraction Sequence

It is proposed that the sequence of extraction would generally follow the staged emplacement cells, namely 1A → 1B → 1C → 2A → 2B → 3C → 3B → 3A. **Figure 12** displays the locations of each of these sub-cells. Staging plans for clay extraction, landfilling and site rehabilitation are shown in **Appendix B**.

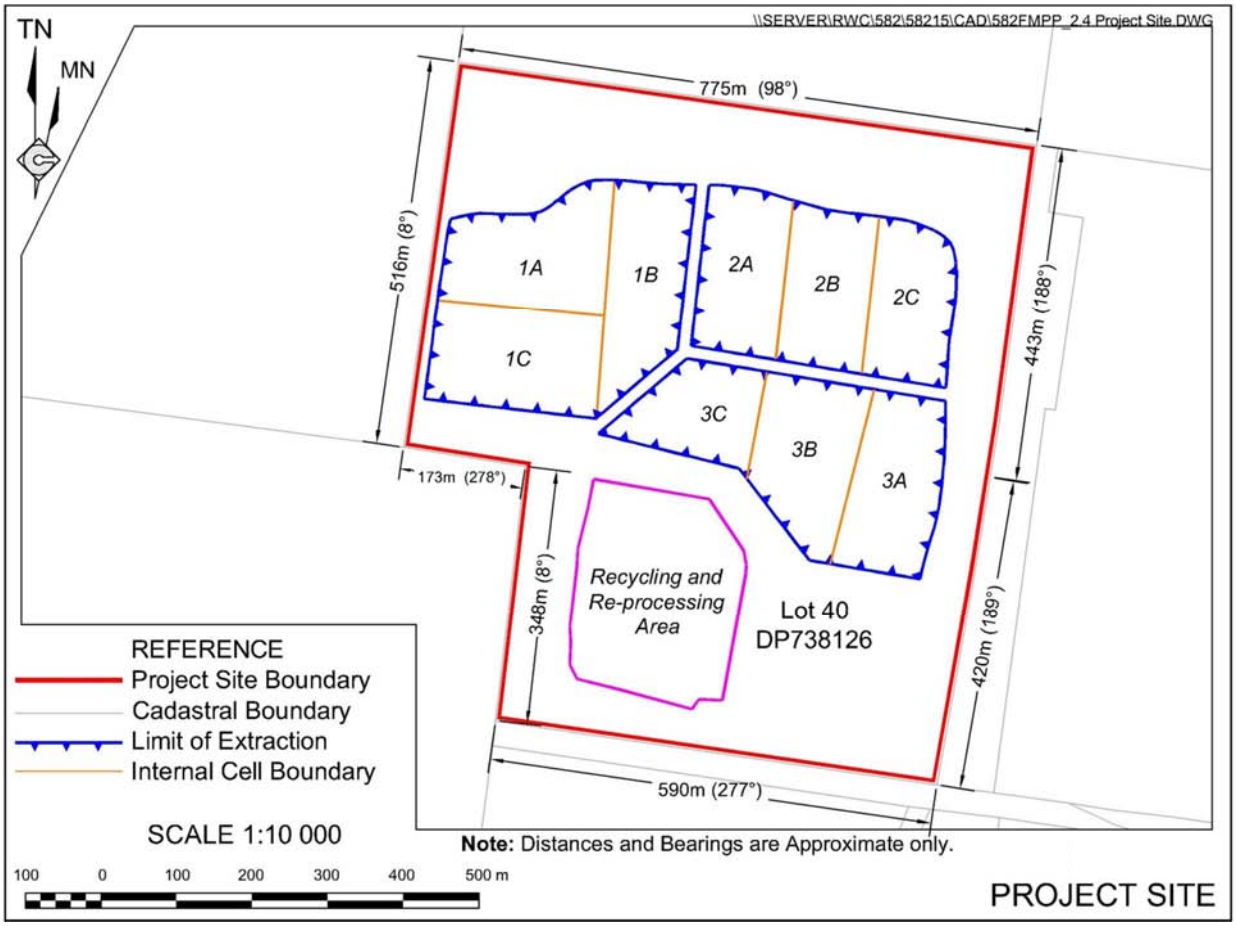


**Figure 12 Project Site**

(Source: FMPPR – Figure 2.3)

## 3.2 Project Staging

The Proponent intends to undertake the site establishment stage in a period of approximately 6 months with the construction of the northern face completed within the first 4 months. The eastern face would be shaped during the final 2 months of the site establishment phase. The recycling and re-processing area would also be excavated and profiled and the surrounding earth mound completed during the site establishment phase.

In summary, the indicative periods for the emplacement of wastes in the various cells on site are as follows.

| | |
|---|---|
| Cell 1: | Years 1 to 7 |
| Cell 2: | Years 8 to 14 |
| Cell 3: | Years 15 to 24 |
| Final Cell: | Year 25 |
| Final Rehabilitation: | Year 25 |

Figures 2.10a to 2.13 in **Appendix F** depict the progressive emplacement and rehabilitation of the Cells 1, 2 and 3. The additional rehabilitation intended for the section of the eastern face adjacent to Cell 3 would be undertaken concurrently with the progressive rehabilitation of Cell 3.

## 3.3 Revegetation

All areas of the final landform would be progressively revegetated soon after the areas are shaped and covered with topsoil.

Revegetation would commence during the site establishment phase principally to stabilise the constructed drainage channels and embankments and the northern and eastern faces. Emphasis would be placed upon rapid stabilisation using hydromulch and a pasture mix with native grass.

Following initial stabilisation, the entire northern face, the nearby riparian zone adjoining Blaxland Creek and the eastern fence would be revegetated with native trees and shrubs. This is illustrated in **Figure 13**.

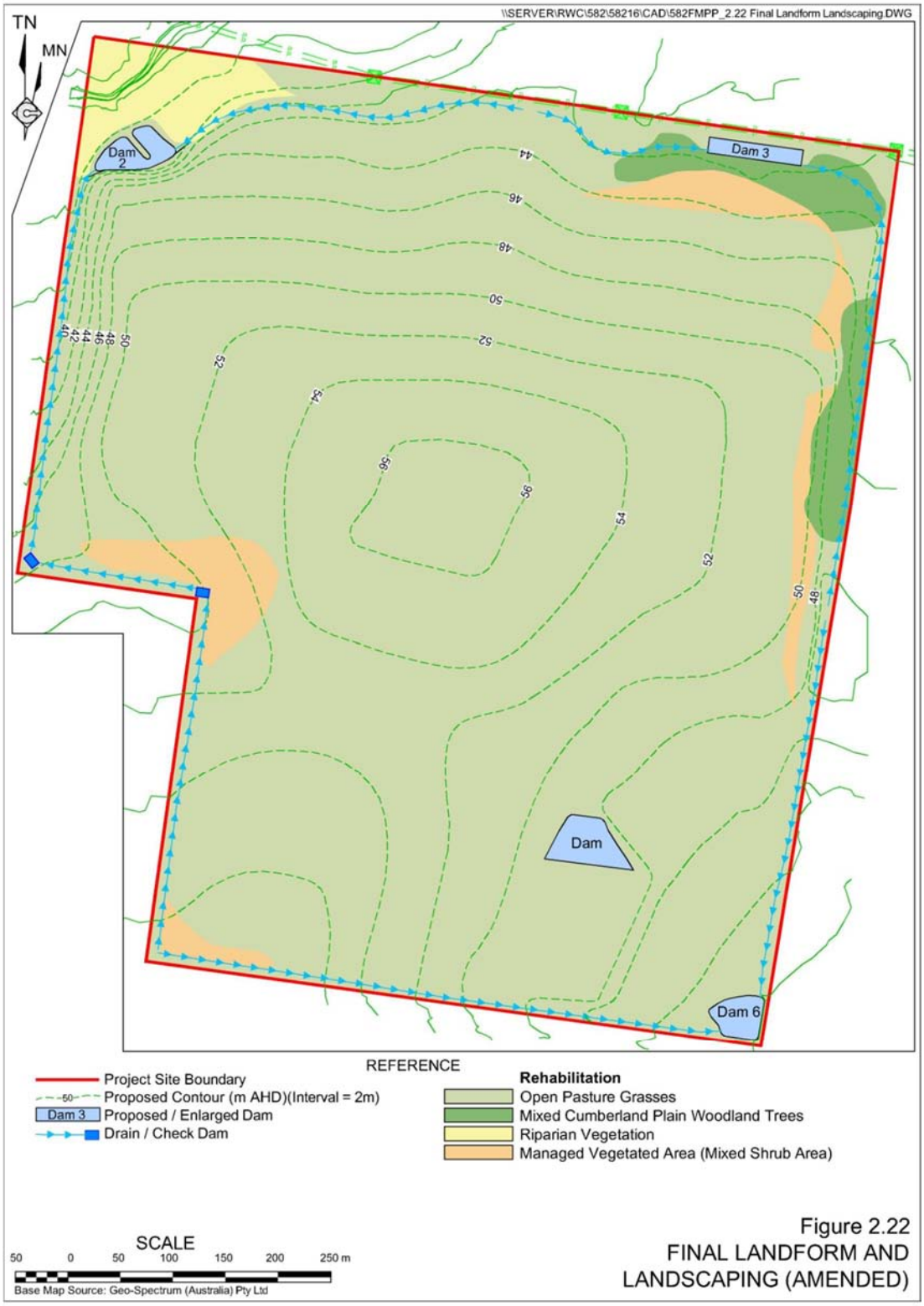


**Figure 13 Final Landform and Landscaping**

(Source: FMPPR – Figure 2.22)

# 4. Overview of Project Logistics

Phil Grace, a former General Manager of WSN Environmental Solutions, was requested to provide advice on the operation of the Orchard Hills Waste and Resource Management Facility with regard to the extraction and emplacement process, specifically with respect to the compatibility of two industrial uses, and how the extraction and emplacement processes and stockpiling can be managed together.

As the General Manager Operations for WSN Environmental Solutions (now Sita Environmental Solutions), the largest waste disposal and recycling organisation in the Sydney Metropolitan Region, Phil had overall operational responsibility for all of these facilities, namely landfills, transfer stations, materials recycling facilities and collection vehicles.

He states in his report, which is provided in **Appendix D**, that the process of extracting material to create void space for the emplacement of waste is a well-established management practice throughout the Australian waste industry. He also states that he believes that there is more than sufficient stockpiling capacity on site for the entire duration of the project. He believes that the facility will be established and operated in a manner similar to that of a typical landfill, and that simultaneous operation of an extraction and emplacement process on the same site is not unusual and regarded as normal in the development of a landfill.

# 5. Environmental Impacts of Modifications

## 5.1 Impacts considered

Consideration of the following impacts of the project modifications has been made:

- Acoustic/noise
- Visual
- Stormwater
- Leachate
- Air quality
- Ecology
- Resource Recovery
- Traffic
- Logistics

Letters from the various specialists address potential impacts in each area. These are contained in **Appendix C**. The consultants conclude that the proposed amendments in the FMPPR are acceptable having regard to their area of expertise.

The noise impacts of the FMPPR have been examined by Wilkinson Murray and found to be acceptable. Their report is contained in **Appendix E**.

Revised staging plans have been prepared for the project to show development of noise mounds and removal of existing bunds on site and stockpiling locations. These are contained in **Appendix F**.

Clarification was sought on a number of issues by the Minister and the Council. Letters from specialists that address these issues are contained in **Appendix G**.

Appendix A

# Project Summary

## Table A – Major Components

**Table A Major Components of the Further Modified Preferred Project**



| *Aspect* | *Description* |
|---|---|
| ***Project Summary*** | **Construction and operation of a waste recovery and disposal facility at the former Erskine Park Quarry site adjacent to Patons Lane, Orchard Hills** |
| *Landfill Area* | Total Capacity: 4.3 million tonnes (excluding landfill caps)<br>Operational Life: 25 years including capping and revegetation<br>Maximum Final Landform Elevation: 57 m AHD<br>Staging: The landfill will consist of three waste cells, divided into various sub-cells. The recycling and re-processing area will be refilled with on-site clay and shale materials. |
| *Waste* | Total Input: up to 450 000 tonnes per annum<br>Waste Recycled: up to 350 000 tonnes per annum<br>Waste Landfilled: up to 205 000 tonnes per annum<br>Types of Waste Received: general solid (non-putrescible) waste, including up to 100 000 tpa of contaminated soil which meets this waste classification. The general solid (non-putrescible) waste would predominantly comprise C&D and C&I wastes.<br>Types of Waste Recycled: C&D wastes such as concrete, bitumen, bricks and roofing tiles; C&I waste such as metals, wood, plastics and cardboard.<br>Types of Waste Landfilled: only waste classified as general solid (non-putrescible) and asbestos recovered from the bund walls on site. |
| *Site Access* | Site access would be via Patons Lane. The Proponent proposes to complete the construction and sealing of the 1.3km section of Patons Lane between Luddenham Road and the Project Site entrance. |
| *Recycling and re-processing area* | Area: approx. 5.6 ha<br>Components: Various buildings (recycling facility warehouse, C&I waste storage building, office, mobile C&D recycling equipment and outdoor product bays |
| *Ancillary infrastructure* | Existing weighbridges (to be refurbished)<br>New site office and car parking areas<br>Site office for recycling facility, truck wheel wash, workshop and water management structures<br>Dams for storage of leachate and collection/storage or stormwater<br>Internal road network |
| *Clay/shale extraction* | Total resources proposed to be extracted from Cells 1, 2 and 3 (following the same sequence as the emplacement cells) to an average depth of 28 m AHD<br>Clay/shale extracted: 5 200 000 tonnes.<br>Clay/shale despatched from site: 3 150 000 tonnes (2 184 000 of light-firing clay/shale).<br>Maximum resource export rate: 160 000 tonnes per annum.<br>Clay/shale on-site use: 2 050 000 tonnes.<br>Cell 4 - 994 000 tonnes light firing shale available for future extraction |

| Aspect | Description |
|---|---|
| *Amenity Bund Walls* | Acoustic mounds and existing bund walls around the perimeter of the operational areas will provide noise protection and visual screening. All mounds and bund walls would be removed when no longer needed for noise mitigation.<br>Details of the mounds and bund walls are as follows.<br>Northern Face and bund – reprofiled during the site establishment phase with on-site VENM<br>Central acoustic mound - VENM<br>Southern acoustic mound - VENM<br>Recycling and re-processing area acoustic mound – VENM to be – constructed during the site establishment phase<br>Eastern face<br>Southern face<br>South-western face |
| *Employment* | Construction: 10-15 people<br>Operation: 20 people full time + up to 10 part-time contractors |
| *Hours of Operation* | Construction:<br>Monday to Friday 7am to 6pm; and<br>Saturday 8am to 2pm<br>Operation:<br>Monday to Friday 7am to 6pm; and<br>Saturday 8am to 2pm |
| *Heavy vehicle movements* | 250 heavy vehicle movements per day |

Appendix B

# Comparison between FMPPR and MPPR

## Table B – Differences in FMPPR Figures

**Table B Comparison between FMPPR and MPPR Figures**

| Name of Figure | Modified Preferred Project Report | Further Modified Preferred Project Report | Main changes |
|---|---|---|---|
| Project Site | Figure 2.1 | Figure 2.1 | Cell 2 divided into 3 sub cells rather than 2 |
| Project Site Setting | Figure 2.2 | Figure 2.2 | Cell 2 divided into 3 sub cells rather than 2 |
| Average Quantities of Materials Re-processed, Removed off Site and Emplaced on Site | Figure 2.3 | Figure 2.3 | No changes |
| Comparative Final Landforms in Cross Section – North/South | Figure 2.4 | Figure 2.4 | New 5% landform adopted |
| Indicative Project Site Layout | Figure 2.5 | Figure 2.5 | Height of northern bund reduced, contingency stockpile area nominated, workshop shifted to accommodate this |
| Site Establishment Activities | Figure 2.6 | Figure 2.6 | Height of north bund reduced from 55 to 53 AHD |
| Flow sheet | Figure 2.7 | Figure 2.7 | No changes |
| Recycling and Re-processing Area | Figure 2.8 | Figure 2.8 | Buildings provided for C&I stockpiles and processing |
| Leachate Collection System | Figure 2.9 | Figure 2.9 | Cell 2 divided into 3 sub cells rather than 2 |
| Stage 1 to Stage 11 operations | Figures 2.10 to 2.13 | Figures 2.10a to 2.13 | More stages shown than previously, as well as temporary VENM bunds and stockpiles. Deconstruction of northern and eastern faces also illustrated |
| Activities Sequence in Cross Section – North/South | Figure 2.14 | Figure 2.14 | Lower (5%) final profile |
| Activities Sequence in Cross Section – East/West | Figure 2.15 | Figure 2.15 | No changes apart from lower final profile |
| Northern Faces Typical Sections | Figure 2.16 | Figure 2.16 | Revised to accommodate new lower profile |
| Typical Section of Eastern Face | Figure 2.17 | | Figure deleted |
| Indicative Deconstruction of the Northern Face | | Figure 2.17 | Figure did not exist when MPPR was prepared, but deconstruction was in MPPR |

| Name of Figure | Modified Preferred Project Report | Further Modified Preferred Project Report | Main changes |
|---|---|---|---|
| Patons Lane – Approved Road Design | Figure 2.18 | Figure 2.18 | No changes |
| Proposed Transport Routes | Figure 2.19 | Figure 2.19 | No changes |
| Indicative Final Landform | Figure 2.20 | Figure 2.20 | Different (lower) landform due to 5% slope profile and filling of Recycling and Reprocessing Area with on-site clay/shale instead of waste |
| Rehabilitation Status Following Site Establishment | Figure 2.21 | Figure 2.21 | Lower northern bund |
| Final Landform and Landscaping | Figure 2.22 | Figure 2.22 | Lower landform |

Appendix C

# Specialist Consultant Letters

(Excluding Noise and Logistics)

richard lamb & associates

***Privileged and Confidential Communication***

6 September, 2011

Debra Townsend, Partner
Mallesons Stephen Jaques
Level 61 Governor Phillip Tower
Farrer Place
Sydney NSW 2000

By email: Debra.Townsend@mallesons.com

Dear Debra,

**Dellara Pty Ltd v Minister for Planning & Penrith City Council**

**Land and Environment Court of NSW No. 10928 of 2010**

**Further Modified Preferred Project (FMPP)**

I refer to the Proponent's (Dellara Pty Ltd) Further Modified Preferred Project Report (FMPP Report) and supporting additional Information provided by GHD and R W Corkery and Co. Pty Ltd. The document further amends the Modified Preferred Project Report (the MPPR) that is currently before the Land and Environment Court of NSW (the appeal part heard and currently adjourned). The proposed amendments ()Section 2.1.1A of the FMPPR include:

1. Reduction in height of the final landform:
    - a reduction in the finished level of the northern face from 55m AHD to approximately 44m AHD, 3-4m above the pre-existing ground levels (the interim acoustic mound would be at 53m AHD for acoustic purposes);
    - a reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and
    - the substantial removal of the southwestern, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts.
2. Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):

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- extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from RL37 to RL28;
- no emplacement of waste in Cell 4. Cell 4 is to be backfilled with clay/shale;

3 Contingency stockpile:

- a new contingency stockpiling area, which would be located in the southeastern corner of the site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and
- consequential relocation of the site office.

4 The modifications of which the Court granted leave to the proponent to rely upon on 19 July 2011 as outlined in the Overview of the Amendments to the Modified Preferred Project) dated July 2011.

In essence, a significant part of the north west and north east of the northern face will be removed and contoured to a lower gradient in the site establishment phase, to a maximum height of 53m AHD over most of its length, other than the north east corner at 56m AHD, ie. predominantly 4m lower than in the MPPR in that phase. Following capping of Cells 1 and 2 at approximately 15 years, the northern and north eastern face will have been progressively recontoured to a maximum gradient of 5%, reducing the final height to 44m AHD, or approximately 9m AHD lower than in the MPPR.

A temporary acoustic mound (the Central Acoustic Mound) running east-west at 57m AHD, will be constructed after the capping of the northern parts of Cells 1A and 1B, extending progressively east across the centres of Cells 2A-2C as they are excavated. Following filling of Cells 2B and 2C the bund will be removed. After capping of Cells 2B and 2C, the final landform will be complete for all of the north west, north and north east faces.

A further temporary acoustic mound (the Southern Acoustic Mound at 60m AHD) running east-west, will be constructed on the north west and north of Cell 3C as it is extracted, progressively extending to the east as Cells 3B and 3A are extracted and filled. Following the filling and capping of these cells, the bund will be removed, at which time the recontouring of the eastern face of Cell 3 will have been completed. The mound would be in place for between 5 and 7 years.

A contingency stockpile area is proposed in the south east corner of the site in which extracted clay or shale material will be stockpiled temporarily, if necessary.

Mitigation of the visual impacts of the operational phase of the development will be essentially by the same means proposed in the MPPR. The visual impacts of the northern, north eastern and eastern faces of the subject site would be reduced or eliminated by planting of the range of vegetation types proposed in the MPPR in generally the same layout, as had been modified by removal of two areas in the southern half of the site that had been proposed in the MPPR, on the recommendation of leachate and surface drainage experts. The managed vegetated areas shown on the Final Landform and Landscape Plan Figure 2.22 of the FMPPR will be established following the final recountouring and rehabilitation of the northern, north eastern and eastern faces following capping of Cells 1 and 2 at approximately 15 years' operations and east of Cell 3. Further vegetation will need to be provided to partly screen the eastern side of the contingency

stockpile area and can be an extension of the same Cumberland Plain Woodland vegetation proposed for the east face directly to the north of this area, planted in the construction phase.

The lower height of the northern and north eastern faces following completion of the final landform should not lead to the visual exposure of other parts of the operations. This is because the vegetation proposed to be planted in the construction phase and on northern face will be established for up to 15 years by the time the face is recountoured and significantly reduced in height. There will be slightly more space for vegetation to be established and the lower gradients will make it easier for the canopy of both vegetation existing and the time and that which is established after recontouring to disguise or totally block views of activity on site. The temporary acoustic mounds will screen the operations and hide the buildings and contingency stockpile areas, however they will also be significantly screened in themselves by vegetation established for over 15 years on the margins of the site. The mounds will also be grassed and even when seen from the Homestead and Calverts Road intersection area will be able to blend into the surrounding landscape.

The only new component of the development proposed is the contingency stockpile area, which has not been previously been assessed by myself with regard to potential visual impacts. The following matters are relevant to this:

- The area proposed for use is at the greatest distance from viewing places to the north, and north east, compared to other parts of the site.
- By comparison with the footprint area of the existing stockpiles that are in the areas to be occupied by Cells 2 and 3, it can be seen that the area proposed for contingency stockpiles is small. As a result, future stockpiles would not be prominent, even if one ignores other factors that will limit their visibility such as the topography of the site as it develops, the proposed vegetation and the screening effects of temporary acoustic barriers.
- The height of the stockpiles are to be limited to 54m AHD and will not be visible from "The Vines" estate.
- The proposed site of the stockpiles is also of relatively low intrinsic visibility compared to other parts of the subject land.
- From the elevated location in the vicinity of Homestead/Calverts Road the grassed temporary acoustic barriers will block views of stockpiles.
- There is however the potential for the stockpiles to be visible from two short sections of Luddenham Road to the east of the subject land. There are two windows otherwise blocked by vegetation, through which a view toward the south eastern corner of the site is possible and where the eastern face does not exist, exposing the future stockpiles to view.
- It is appropriate to introduce the tree screen to this part of the site that is shown on Figure 2.5 during the construction phase, so that the vegetation planted there is 15 years old before the stockpile area is utilised. The vegetation would in time be perceived to be part of the generally vegetated area along the south side of the

subject land which exists between it and Luddenham Road and in the Patons Lane road reserve.

Thus, I have had regard to my Statement of Evidence in the proceedings and the assessments that I made of the Amended Preferred Project. I have also considered the contentions relevant to visual impacts and the content of the Joint Report of Visual Impact Experts.

I have now considered the potential impacts of the FMPPR and in my opinion there would be no increase in visual impacts of either the construction or operational phases of the development. The final landform is considerably lower on the northwest, north and north eastern sides and even though it would also be of very low visibility generally, to the extent that it may be able to be seen in some cameo views, would be of a more natural form than that which is proposed in the MPPR and include the potential to look across the final grassy landform to the background of trees in Patons Lane.

Yours sincerely,

**Dr Richard Lamb**

Richard Lamb & Associates

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Mallesons Stephen Jaques
Level 61, Governor Phillip Tower
1 Farrer Place
SYDNEY NSW 2000

Project 71102.03
6 September 2011
JMN:lll

Dear Sirs

**Dellara Pty Ltd v Minister of Planning & Penrith City Council**
**Land and Environment Court Proceedings No 10928 of 2010**
**Property: 123-179 Patons Lane, Orchard Hills**

I refer to the Further Modified Preferred Project Report (FMPPR), dated September 2011 in respect to the above application.

From the FMPPR I understand that the proposed modifications to the Project include:

1. Reduction in height of the final landform:
   - a reduction in the finished level of the northern face from 55 m AHD to approximately 44m AHD, 3-4 m above the pre-existing ground levels (the interim acoustic mound would be at 53 m AHD for acoustic purposes);
   - a reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and
   - the substantial removal of the southwestern, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts.

2. Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):
   - extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from RL37 to RL28;
   - no emplacement of waste in Cell 4. Cell 4 is to be backfilled with clay/shale.

3. Contingency stockpile:
   - a new contingency stockpiling area, which would be located in the southeastern corner of the site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and
   - consequential relocation of the site office.

4. The modifications of which the Court granted leave to the proponent to rely upon on 19 July 2011 as outlined in the Overview of the Amendments to the Modified Preferred Project) dated July 2011.

In regard to the above matter my area of expertise lies within the area of site investigations, contamination assessment (including soil and water), waste assessment and waste classification.

In regard to the FMPPR I have reviewed the document as they pertain to my own areas of expertise and I confirm that the proposed modifications are acceptable and do not affect this writer's opinions i.e. as previously provided in my expert report entitled '*Report on Response to Penrith City Council's Issues on the Composition of the Bund Walls and Risks of Contaminated Runoff from the Bund Walls*', dated 22 July 2011, or in the subsequent report from the '*Joint Meeting of Expert Witnesses'* held on 28 and 29 July 2011.

Yours faithfully
**Douglas Partners Pty Ltd**

**J M Nash**
Principal

6 September 2011

Mallesons Stephen Jacques
Level 61, Governor Phillip Tower
1 Farrer Place, Sydney, NSW 2000

**RE: AIR QUALITY IMPACTS OF PROPOSED FURTHER MODIFIED PREFERRED PROJECT TO DELLARA PTY LTD V MINISTER FOR PLANNING & PENRITH CITY COUNCIL – LAND AND ENVIRONMENT COURT CLASS ONE PROCEEDINGS 10928 OF 2010**

Dear Nicola

It is understood that subsequent to the provision of my Statement of Evidence (dated 24th June, 2011), and further amendments addressed in a letter dated 13 July 2011, modifications arising from the Land and Environment Court Proceedings Case 10928 0f 2010 have been made to the project, as detailed in the Further Modified Preferred Project Report (FMPPR) (**R.W. Corkery & Co. Ltd, 2011**).

The modifications made to the Project since the Modified Preferred Project Report (MPPR) was issued in January 2011 are as follows:

1. *Reduction in height of the final landform:*

   - *a reduction in the finished level of the northern face from 55m AHD to approximately 44m AHD, 3-4m above the pre-existing ground levels (the interim acoustic mound would be at 53m AHD for acoustic purposes);*
   - *a reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and*
   - *the substantial removal of the southwestern, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts.*

- This will have no influence on the predicted impacts presented in the Air Quality Impact Assessment (AQIA) completed for the Modified Preferred Project Report (MPPR) (**PAEHolmes, 2011**).
- Further the proposal includes the installation of a real-time air quality management system which as detailed in Section 6 of **PAEHolmes, 2011**, would be used to determine if pre-defined trigger levels have been breached and when action is required. Action levels would require a response from the Site Manager as part of the management system. Associated with each action level is a trigger level or response level, which will determine the course of action, taken by the site manager. These action would be outlined a detailed management plan that would be prepared in accordance with any relevant conditions of consent. The management plan would include detailed information on how the site would be managed to minimise the impacts on air quality. The management plan would include details on all controls measures to be applied, for example, use of water sprays during crushing, watering of unsealed roads, regular cleaning of all paved areas etc.

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Queensland Environment Pty Ltd
Trading as PAEHolmes
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2. *Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):*

   - *extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from RL37 to RL28;*
   - *no emplacement of waste in Cell 4. Cell 4 is to be backfilled with clay/shale; and*

- This will have no influence on the predicted impacts presented in the AQIA completed for the MPPR (**PAEHolmes, 2011**).

3. *Contingency stockpile:*

   - *a new contingency stockpiling area, which would be located in the southeastern corner of the site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and*
   - *consequential relocation of the site office.*

- The new contingency stockpile will have no influence on the predicted impacts presented in the AQIA completed for the MPPR (**PAEHolmes, 2011**), particularly given it would be located in the southeastern corner of the site, away from residences.

In summary, the conclusions reached regarding predicted air quality impacts as presented **PAEHolmes 2011** remain unaltered.

Kind regards

JUDITH COX – SENIOR ENVIRONMENTAL CONSULTANT

PAEHOLMES

DESIGN COLLABORATIVE
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J Lidis
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MPIA CPP

6 September 2011
Ref: 109621.3L

Mallesons Stephen Jaques
via email

Attention: Ms M Astridge

Dear Sir,

**Re: Dellara Pty v Minister for Planning & Penrith City Council**
**Land and Environment Court Proceedings No. 10928 of 2010**
**Further Modified Preferred Project Report**

We refer to the above matter and note that Design Collaborative prepared the Planning Assessment Report that formed part of the Modified Preferred Project Report dated January 2011 and that the writer subsequently prepared a Statement of Evidence on behalf of the Applicant and participated in the preparation of an Expert Witness Joint Report with the First and Second Respondents' Town Planning Experts. The writer is also aware of the manner in which the further modifications to the Preferred Project have been formulated, in particular, as a consequence that matters that arose during the Land and Environment Court proceedings, the Site Inspection component of which was attended by the writer.

In this context the writer notes that he has reviewed the Further Modified Preferred Project Report prepared by R W Corkery & Co. Pty Limited with assistance from GHD Pty Ltd, in which the details of the further modifications to the Preferred Project are set out.

The modifications to the Project include:

1 Reduction in height of the final landform:

- a reduction in the finished level of the northern face from 55m AHD to approximately 44m AHD, 3-4m above the pre-existing ground levels (the interim acoustic mound would be at 53m AHD for acoustic purposes);
- a reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and
- the substantial removal of the southwestern, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts

2 Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):

- extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from RL37 to RL28; and

- no emplacement of waste in Cell 4. Cell 4 is to be backfilled with clay/shale.

3 Contingency stockpile:

- a new contingency stockpiling area, which would be located in the southeastern corner of the site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and
- consequential relocation of the site office.

4 The modifications of which the Court granted leave to the proponent to rely upon on 19 July 2011 as outlined in the Overview of the Amendments to the Modified Preferred Project) dated July 2011.

The writer can confirm that the nature of the further modifications that have been made to the Preferred Project would not lead to any material changes to the assessment that was made of the town planning issues relating to the Preferred Project, as was set out in the Planning Assessment that accompanied the Modified Preferred Project Report. Nor would those changes lead to the writer altering any of the opinions that he expressed or conclusions that he drew in either the aforementioned Statement of Evidence or Expert Witness Joint Report in respect of the Preferred Project, as it has now been further modified.

Yours faithfully,
DESIGN COLLABORATIVE PTY LTD

H M Sanders
Director

**Geoff Cunningham Natural Resource Consultants Pty Ltd**
**9 The Crest**
**Killara NSW 2071**

6th September, 2011

Ms Michelle Astridge
Senior Associate
Mallesons Stephen Jaques
Level 61, Governor Phillip Tower,
1 Farrer Place,
Sydney NSW 2000

Dear Ms Astridge

**Re LAND AND ENVIRONMENT COURT PROCEEDING NO. 10928 OF 2010**

I am aware that an alternative proposal for the Dellara Pty Ltd Orchard Hills site has recently been prepared and is proposed to be submitted to the Land and Environment Court.

I understand that this Further Modified preferred Project [FMPP] proposal would involve a certain number of modifications to the proposal considered by the Court in the recent hearing. The modifications to the Project include:

1 Reduction in height of the final landform:

- a reduction in the finished level of the northern face from 55m AHD to approximately 44m AHD, 3-4m above the pre-existing ground levels (the interim acoustic mound would be at 53m AHD for acoustic purposes);
- a reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and
- the substantial removal of the southwestern, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts.

2 Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):

- extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from RL37 to RL28;
- no emplacement of waste in Cell 4. Cell 4 is to be backfilled with clay/shale.

3 Contingency stockpile:

- a new contingency stockpiling area, which would be located in the southeastern corner of the site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and
- consequential relocation of the site office.

4 The modifications of which the Court granted leave to the proponent to rely upon on 19 July 2011 as outlined in the Overview of the Amendments to the Modified Preferred Project) dated July 2011.

Having regard to the FMPP, which I have read, and my previously prepared Statements of Evidence, namely,

- Response to Item 1 [E] in Short Minutes of Order – 12 May 2011 in the Land and Environment Court Proceeding N 10928 of 2010, and
- Expert Statement – Geoffrey Mc Iver Cunningham Relating to the MPP for the Proposed Orchard Hills Waste and Resource Management Facility Which is Subject to Land and Environment Court Proceeding No. 10928 of 2010,

I am of the opinion that the FMPP proposal would not result in any different impact on the Endangered Ecological Communities at, and adjacent to, the Project site.

These communities are the Cumberland Plain Woodland [Cumberland Plain Shale Woodland] on the Defence lands and the Sydney Coastal River-flat Forest that occurs on the Defence lands as well as on the Project site.

In my previous Statements of Evidence I have been of the opinion that the proposed activities at the Project site would not have any significant impact on these endangered communities if the procedures outlined in the Further Modified Preferred Project proposal with regard to weed, dust, leachate and surface water management are followed. This opinion still stands.

Geoff Cunningham B.Sc.Agr.[Hons]; FAIAST
Managing Director and Principal Ecologist
Geoff Cunningham Natural Resource Consultants Pty Ltd

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6-Sep-11
Ref. 08.09.117

Ms Michelle Astridge
Senior Associate
Mallesons Stephens Jaques
Level 61, Governor Phillip Tower
1 Farrer Place
Sydney NSW 2000

Dear Michelle

**Dellara Pty Ltd v Minister for Planning and Penrith City Council – Proceedings No. 10928 of 2010 for 123 – 179 Patons Lane, Orchard Hills**

As requested I have reviewed the Further Modified Preferred Project Report for the Orchard Hills Waste and Resource Management Facility.

I understand the you require a review of my work undertaken on this case given the modifications which include:

1 Reduction in height of the final landform:

- A reduction in the finished level of the northern face from 55m AHD to approximately 44m AHD, 3-4m above the pre-existing ground levels (the interim acoustic mound would be at 53m AHD for acoustic purposes);
- A reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and
- The substantial removal of the south western, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts.

2 Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):

- Extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from RL37 to RL28;
- No emplacement of waste in Cell 4. Cell 4 is to be backfilled with clay/shale.

3 Contingency stockpile:

- A new contingency stockpiling area, which would be located in the south eastern corner of the site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and
- Consequential relocation of the site office.

4 The modifications of which the Court granted leave to the proponent to rely upon on 19 July 2011 as outlined in the Overview of the Amendments to the Modified Preferred Project) dated July 2011.

My review of the Further Modified Preferred Project Report reveals that modifications are all on site and that:

1. The number of daily truck movements remains at 250.

2. The type of trucks proposed to be used is unchanged

3. And the heavy vehicle approach and departure routes remain unchanged.

Accordingly, the conclusions and opinions that I have presented to the Court in my evidence and in the Joint Statement with the respondents experts remain the same.

Yours sincerely

Craig Hazell
Director

**GSS ENVIRONMENTAL**
Environmental, Land and Project Management Consultants

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2nd September 2011

Our Ref: RWC14-003 (Lt_RWC14003_FMPP_02 Sep 2011_ Rev4)

*Privileged & Confidential Communication*

Mallesons Stephen Jaques
Ms Debra Townend, Partner
Level 61 Governor Phillip Tower
Farrer Place
Sydney NSW 2000

*Transmitted via email*

Dear Debra,

Re: Dellara Pty Ltd v Minister for Planning & Penrith City Council Land and Environment Court Proceedings No. 10928 of 2010 - *Further Modified Preferred Project (FMPP)*

I refer to the Proponent's Further Modified Preferred Project (FMPP) as detailed within supporting documentation from RW Corkery and GHD in a *Further Modified Preferred Project Report,* September 2011 (herein referred to as the *'FMPP Report'*). The document is effectively a further modified version of the *Modified Preferred Project Report,* which itself was modified from the project description of the *Environmental Assessment*. The further modified version incorporates a range of modifications to the Project arising from the Land and Environment Court Proceedings (Case 10928 of 2010), Individual Expert Witness Reports, Joint Expert Conference Reports, Draft Conditions of Consent issued by Penrith Council and the NSW Department of Planning and Infrastructure (DP&I) and reasons relied upon raised by the DP&I in its Assessment Report of the Preferred Project. The *FMPP Report* outlines how the Proponent proposes to effectively address each of the key issues raised in the Court proceedings.

I have reviewed the project modifications proposed in the FMPP Report and in my opinion, the modifications will not significantly alter key aspects influencing the original Surface Water Assessment (GSS Environmental & BMT WBM, 2010) prepared for the Environmental Assessment for the project.
In assessing the appropriateness of the current surface water designs, management and assessment in documentation to date (particularly sediment dam sizing capacities and management and site water balance), the following is noted:

- Following discussions with Mr Anthony Dixon of GHD regarding potential interaction with groundwater by the deeper extraction for the FMPP, we understand that volumetric inflow of groundwater to the exposed surface would likely be insignificant (particularly in comparison to surface runoff volumes) with respect to any potential impact to sediment dam sizing (we understand that groundwater inflows will be of the order of 25m$^3$ per *month* in Cell 2). Accordingly dam sizing capacities are considered to remain appropriate;
- I understand that no significant increase would be expected for water usage supplied either from sediment dams (primary source) or the licenced groundwater bore onsite, primarily for dust suppression (and also noting otherwise that any decrease in water usage would further improve the water balance and reliance of the above mentioned water sources for an improved environmental outcome);

- Should the floor surface material type alter with the increased depth, it is noted that during our designs GSSE adopted the *most conservative* surface runoff volumetric coefficient (Type D hydrologic group Cv value) for the design rainfall characteristics as required and provided by the relevant design guidelines ('Blue Book' Volumes 1 and 2B Waste Landfills)[1&2], such that no significant change to surface runoff in sediment dam sizing would be expected;
- I understand that no significant increase in the areas delivering runoff to sediment dams during operations or final landform will occur from the proposed FMPP (and also note that any decrease in runoff generation area is a conservative position with respect to sediment dam performance and water quality);
- A 'free-draining' final landform for the FMPP will be maintained. This includes the effective shedding of stormwater runoff in the southwestern corner of the site (previous Cell 4 area). The design inclusion of a 'saddle' (ridge) around 53mAHD will effectively and stably shed water generally eastward and westward into receiving drainage lines. Given that this area will not overlie significant areas of waste (unlike previous designs proposed), the lower grades in the immediate surrounding area of the saddle of above 1% will not present a major settlement management consideration and significant ponding issues can be avoided - water can still free drain into the receiving catchments. Water management controls will be used wherever required on the final landform to ensure stable delivery of runoff (particularly in steeper areas), including contour banking to minimise slope length and drop structures in steep areas to minimise erosion where required;
- Catchment areas considered for the final landform within the Surface Water Assessment (GSSE, BMT WBM, 2010) can be maintained by the FMPP such that the existing designs, capacities and assessments will not be significantly affected and remain appropriate;
- The potential change in stockpiling of recovered clay shale materials can be appropriately controlled with respect to erosion and sediment control and will not significantly influence runoff volumes to sediment dams (dam capacity would not be significantly affected and design function can be maintained);
- The covering of stockpiled C&I material in the recycling area within a dedicated building will provide a further potential source of 'clean' water from rainfall runoff (from the building roof) which can be utilised to reduce the site water deficit resulting in improved environmental outcomes for the proposed project;Proposed erosion and sediment controls including sediment dams will not be significantly affected by any proposed change in sub-cell sequencing in the FMPP;
- We understand that the *slope* of the floor is likely to be maintained and managed similar to that previously proposed such that erosive pressures are similar. Notwithstanding this, it is acknowledged that sediment zone component in sediment dam sizing is secondary to the major water runoff (settling zone) component which is also not expected to alter significantly.

Accordingly, it would not be expected that any significant change or impact will occur as a result of the FMPP with respect to runoff and sediment delivery compared to that assessed and designed for within the original Surface Water Assessment (GSSE and BMT WBM, 2010), and subsequently the existing sediment dam sizing, management and assessments are considered adequate. The existing surface water assessment and evidence and documentation to date provided by myself (including all resulting from the Court proceedings) are deemed appropriate in such case.



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www.gssenvironmental.com

We trust this information meets your requirements. Please do not hesitate to contact me with any queries at all.

Regards,

Craig Bagnall

Associate Environmental Engineer

GSS Environmental

References:

1. Landcom (2004), *Managing Urban Stormwater: Soils and Construction – Volume 1, 4th Edition*, (commonly referred to as 'The Blue Book' guidelines, Volume 1);
2. Department of Environment and Climate Change (DECC) (2008), *Managing Urban Stormwater: Soils and Construction – Volume 2b Waste Landfills* (commonly referred to as "the Blue Book" guidelines, Volume 2);



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06 September 2011

Michelle Astridge
Mallesons Stephen Jaques
Level 60, Governor Phillip Tower 1 Farrer Place
SYDNEY NSW 2000

Our ref: 21/20649/173548
Your ref:

Dear Ms Astridge,

**Dellara Pty Ltd v Minister for Planning and Anor**
**Landfill Design and Leachate Assessment of the Further Modified Preferred Project**
**Land and Environment Court Proceedings Case 10928 of 2010**

We refer to the Further Modified Preferred Project Report (R.W. Corkery & Co. Ltd & GHD) and the modifications it details since the Modified Preferred Project Report (MPPR) was issued in January 2011.

The purpose of this letter is to advise that we have reviewed the Further Modified Preferred Project Report and we advise that the findings and recommendations in our Statement of Evidence (dated 8 July 2011) and the Joint Expert Conference Report (Dixon, Dever Nash, Ife and Bagnall dated 28 and 29 July 2011) in respect of leachate remain unchanged. Similarly the findings in the Joint Expert Conference Report (Dixon & Currey 29 July 2011) remain unchanged.

The modifications made to the Project and our comments on these modifications are as follows.

**Modification**

Reduction in height of the final landform:

- a reduction in the finished level of the northern face from 55m AHD to approximately 44m AHD, 3-4m above the pre-existing ground levels (the acoustic mound would be at 53m AHD for acoustic purposes);
- a reduction in the elevation of the northern face to a 5% slope profile to integrate more closely with the existing ground level; and
- the substantial removal of the southwestern, southern and eastern bund walls and the forming of part of the final landform during the course of the project, to reduce visual impacts.

**Comment**

This modification does not result in any changes to our findings in terms of the design and maintenance of the capping and revegetation layer of the temporary (ie, bunds) or final landform.

**Modification**

Increased extraction of clay/shale resources (as outlined in the Alternate Draft Conditions in Reply - Shale/Clay Resources filed with the Court):

- extraction of additional clay/shale resources in Cell 2 by increasing the level of extraction from RL37 to RL28; and

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- no emplacement of waste in Cell 4. Cell 4 is to be backfilled with clay/shale.

**Comment**

Deepening of Cell 2 will result in landfill operations in Cell 2 occurring over the same period of time compared to the MPPR. Even though the floor of Cell 2 will be lowered its overall volume has not changed as lowering the final landform has balanced the volume of Cell 2 to the volume in the MPPR.

However, as Cell 4 (the final cell) will no longer be utilised as a waste disposal cell, the total capacity of the site has decreased as has the area of the proposed landfill footprint. Consequently there will be no need to install an engineering barrier on the base and side walls of the final cell and nor will there be the need to include a leachate collection system or engineered low infiltration cap over this cell. The reason is that only natural clay/shale or VENM would be placed in this area of the site.

These changes are predicted to result in a smaller volume of leachate being generated by the proposal and requiring disposal. This is mainly because the leachate volumes would be less as the footprint of the landfill would be reduced and correspondingly the area contributing to leachate generation is also reduced. To confirm this view we have re-run our revised leachate model as presented in our Statement of Evidence dated 8 July 2011. This re-run model includes groundwater inflow into Cell 2 and the amendments agreed with Mr David Ife at the Joint Conference, and the discussions with Mr David Ife on the draft conditions of consent in terms of the areas of the active cell which contribute rainfall run-off and overlapping operations for a three month period of time when each cell is capped and revegetated and operations commence in the following cell. The results of this re-run model are presented in **Figure 1**.

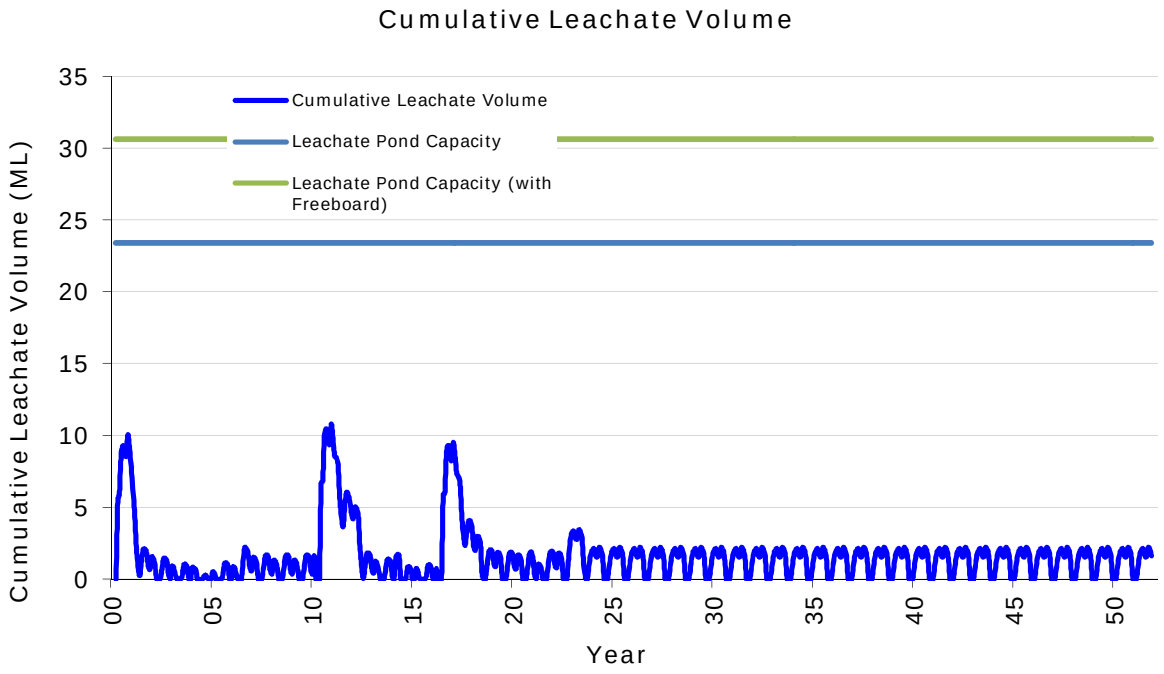


**Figure 1 – Cumulative Leachate Volume**

It can be seen from **Figure 1** that at all times during the operation of the landfill or during the post closure period that the volume of leachate predicted to be generated is able to be managed on-site. This

confirms our view that there would be potentially less leachate generated at the site and the proposed leachate management system is adequate to prevent leachate polluting waters off-site.

As detailed in our Statement of Evidence and Joint Conference Report (Dixon, Dever Nash, Ife and Bagnall), monitoring of leachate generation, storage and disposal volumes is recommended to be undertaken to calibrate the leachate model and confirm that at all times in the future that the volume of leachate generated at the site is able to be managed. Contingency measures are available in the unlikely event that leachate volumes are greater than the predictions and additional disposal capacity is needed.

In conclusion, should the Project be approved as detailed in the Further Modified Preferred Project Report our conclusions in our Statement of Evidence Report and in the Joint Conference Report remain unchanged.

**Modification**

Contingency stockpile:

- a new contingency stockpiling area, which would be located in the southeastern corner of the site, enabling stockpiles of clay and shale destined for export to be stored as far from residents as possible; and
- consequential relocation of the site office.

**Comment**

This modification has no bearing on our advice as the stockpile will not be located over emplaced waste.

**Modification**

The modifications of which the Court granted leave to the proponent to rely upon on 19 July 2011 as outlined in the Overview of the Amendments to the Modified Preferred Project dated July 2011.

**Comment**

Our views in regard to the modifications detailed in the Overview of the Amendments to the Modified Preferred Project dated July 2011 are unchanged. These modifications were addressed with Mr David Ife at the Joint Conference on 28 and 29 July 2011 and with Ms Currey at the Joint Conference on 27 and 29 July 2011.

Yours faithfully
GHD Pty Ltd

**Anthony Dixon**
Principal Environmental Engineer

**Stuart Dever**
Principal Engineer

Appendix D

# Project Logistics Report

By Phil Grace

# Phil Grace Contracting Pty Ltd

## Consulting Services

**4 Warrawong St**
**Eastwood NSW 2122**
**Tel: 02 9874 0895**
**Mob: 0429 985 162**
**ABN: 86 001 516 865**


Date: 05 September 2011

Dellara Pty Ltd
Suite 2, Level 9
171 Clarence Street
Sydney NSW 2000

Dear Mr Miller

**Re: Dellara Pty Ltd v Minister for Planning & Penrith City Council Land and Environment Court Proceedings No 10928 of 2010 – Further Modified Preferred Project (FMPP)**

I have been provided with documentation concerning the Orchard Hills Waste and Resource Management Facility and have been requested to provide advice on the operation with regard to the extraction and emplacement process, specifically with respect to the compatibility of two industrial uses, and how the extraction and emplacement processes and stockpiling can be managed together.

This Statement has been prepared having regard to Division 2 of Part 31 of the Uniform Civil Procedure Rules 2005 and the Expert Witness Code of Conduct in Schedule 7 of those Rules, and I agree to be bound by them for the purposes of giving evidence in the proceedings.

The process of extracting material to create void space for the emplacement of waste is a well established management practice throughout the Australian waste industry.

Landfills are generally developed from used quarries which require further design and excavation to convert them into waste emplacement cells. The existing quarry is an ideal site because it has some void space as a result of the extraction process and affords the opportunity to be used as a landfill as a means of rehabilitation of the site.

There are a number of such sites around NSW which have been given a Development Approval for the extraction of quarry products and at the end of their useful life are filled with waste to bring them up to their natural level. The land is effectively restored to a landform more closely reflecting a natural form and used for agricultural purposes.

As the General Manager Operations for WSN Environmental Solutions (now Sita Environmental Solutions), the largest waste disposal and recylcing organisation in the Sydney Metropolitan Region, I had overall operational responsibility for all of these facilities, namely landfills, transfer stations, materials recycling facilities and collection vehicles. A copy of my CV is attached as reference.

The most important aspect of my role was to develop facilities which were capable of receiving and processing over 2.0 million tonnes of Sydney's waste. Development of landfills for disposal of Sydney's household waste was a priority.

The most import task associated with landfill management was to ensure that sufficient landfill void space was available at all times for acceptance of Sydney's waste material. This meant that the waste cells had to be constructed well ahead of the need for waste emplacement.

The landfills were designed and constructed ahead of time to ensure that the expected annual quantities of waste being delivered to the sites could be accepted and processed.

The waste cells were constructed in advance of the waste being accepted. The cell construction was staged to ensure that as one cell was reaching the end of its life the next cell was ready to come on line. The construction process not only included extraction of material, it also included management of stockpiles, marketing of the extracted material and use of the extracted material for lining and capping of the cells.

The two largest landfills operated by WSN were Lucas Heights and Eastern Creek, both of which involved the extraction of material for the creation of waste emplacement void space. The design of Lucas Heights involved the preparation of waste cells through the excavation of the existing sandstone material. The Eastern Creek waste cells were prepared by excavating the insitu clay/shale at the site.

**Landfill Design and Operation**

The most important issues to address in the extraction and emplacement process are the following:

- excavation and management of the extracted material including:
    - use on site for engineering purposes such as haul roads, daily cover, cell lining and final capping;
    - exporting the valuable clay resources to markets;
    - managing the transport logistics when materials are exported; and
    - temporary storage of the surplus material during the life of the site.
- preparation of the waste cells using the extracted materials and other engineering products such as leachate collection pipes and drainage gravel;
- acceptance of the waste material for reprocessing (resource recovery), disposal of residual waste material and temporary storage of waste; and
- finally the capping of the cells in stages as part of the rehabilitation process.

**Comments on the Further Modified Preferred Project Report**

I have reviewed the Further Modified Preferred Project Report prepared by R.W.Corkery and GHD and have taken into consideration the limitations contained in the Draft Conditions put forward by the Minister.

In making my assessment of the Report I have taken into consideration the Minister's Draft Conditions of Approval with regard to:

- the maximum quantity of clay to be extracted over the life of the site;
- the maximum quantity of clay to be exported from the site;
- the maximum quantity of waste accepted at the site each year;
- the target for recovery of resources from the waste accepted at the site.;
- the maximum number of daily heavy vehicle movements; and
- the operational hours for the facility.

The information provided in the Further Modified Preferred Project Report (FMPPR) is sufficient to satisfy me that the facility will be established and operated in a manner similar to that of a typical landfill.

Simultaneous operation of an extraction and emplacement process on the same site is not unusual and regarded as normal in the development of a landfill.

The information referred to below has been prepared in support of the confirmation that the two processes are compatible at Orchard Hills.

## 1. Establishment Stage

Prior to commencement of operations a number of tasks have to be undertaken to prepare the site. This is known as the site establishment period in which the site will be prepared in accordance with the Conditions of Approval.

The tasks that have to be undertaken are set out in Section 2.3 of the FMPPR.

This work will be undertaken during the first six months.

During the same period works will also be undertaken to prepare the first waste emplacement cell and establishing internal acoustic mounds.

## 2. Extraction Process

The extraction process and cell construction is generally undertaken using heavy earth moving equipment such as Caterpillar excavators, scrappers and dump trucks. This equipment is capable of moving the quantities of material required during the extraction, cell construction and stockpiling process.

The extraction process includes cell construction, onsite use for engineering purposes, the exporting of clay material to markets and the temporary stockpiling of surplus material. The temporary stockpiles are created because excavation of material is carried out faster than it can be moved off site (a maximum of 160,000 tonnes per annum). The capacity of the scrapers and dump truck working on the site means that up to 260,000 tonnes of clay and shale would be excavated from the site each year. About 5.2 million tonnes would be excavated from the site, and 3.15 million tonnes exported over the life of the project. Approximately 2 million tonnes of this material will be used on site for lining, daily cover, capping and revegetation of completed landfill cells (Refer **Table 1** below).

Materials will be stockpiled on site in defined areas until exported off site. The attached Material Movements Spreadsheet shows the staging of the extraction process and estimates the use of materials during the cell construction and rehabilitation (lining daily cover, capping) and amount of material stockpiled each year. The maximum size of the stockpile is approximately 183,000 tonnes (in year 21) as shown in Table 1 below. The FMPPR states that material would be stockpliled in areas yet to be developed for waste emplacement (which is common practice at landfill sites) and that there is also a contingency stockpile area that can store up to 250,000 tonnes of material. On this basis, I believe that there is more than sufficient stockpiling capacity on site for the entire duration of the project.

The cells will be constructed in the order set out in **Table 1** below. The construction staging has been developed to ensure that the extraction process is ongoing and therefore keeps pace with the requirements for void space to accept waste.

**Table 1: Extraction Process (Clay)**

| Years | Cells Construction Staging | Excavation (t) | Clay Export | Daily Cover | Clay Lining of Cells | Capping Material | Stockpiles |
|---|---|---|---|---|---|---|---|
| 0 | | 100,000 | 18,164 | | | | |
| 1 | 1A | 260,000 | 50,000 | | 29,000 | | 21,000 |
| 2 | 1B | 260,000 | 160,000 | 35,000 | 30,486 | | 55,514 |
| 3 | | 260,000 | 160,000 | 35,000 | | | 120,514 |
| 4 | | 260,000 | 160,000 | 35,000 | 56,450 | 101,724 | 27,340 |
| 5 | 1C | 260,000 | 160,000 | 35,000 | | | 92,340 |
| 6 | | 250,000 | 160,000 | 35,000 | | 103,492 | 53,848 |
| 7 | | 250,000 | 160,000 | 35,000 | 55,712 | | 53,136 |
| 8 | 2A | 250,000 | 160,000 | 35,000 | | 102,138 | 5,998 |
| 9 | | 250,000 | 160,000 | 35,000 | 48,940 | | 12,058 |
| 10 | 2B | 270,000 | 160,000 | 35,000 | | | 67,058 |
| 11 | | 250,000 | 160,000 | 35,000 | 45,784 | 89,724 | 6,550 |
| 12 | | 250,000 | 150,000 | 35,000 | | | 71,550 |
| 13 | | 250,000 | 150,000 | 35,000 | 44,044 | | 92,506 |
| 14 | 2C | 250,000 | 150,000 | 35,000 | | 83,936 | 73,570 |
| 15 | 3C | 250,000 | 150,000 | 35,000 | 40,360 | | 98,210 |
| 16 | | 230,000 | 150,000 | 35,000 | | | 163,210 |
| 17 | | 230,000 | 150,000 | 35,000 | 52,248 | 80,748 | 75,214 |
| 18 | 3B | 230,000 | 140,000 | 35,000 | | | 130,214 |
| 19 | | 230,000 | 120,000 | 35,000 | 51,740 | 73,994 | 79,480 |
| 20 | | 230,000 | 120,000 | 35,000 | | | 154,480 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21 | | 130,000 | 70,000 | 35,000 | | 95,788 | 183,692 |
| 22 | 3A | | 67,000 | 20,000 | | | 131,836 |
| 23 | | | 64,836 | 20,000 | | | 64,836 |
| 24 | | | | 10,000 | | 94,856 | |
| 25 | | | | | | | |
| | | **5,200,000** | **3,150,000** | **750,000** | **454,764** | **826,400** | |
| **Total Quantity Used For Daily Cover, Lining and Capping** | | | | **2,031,164** | | | |

Over the life of the site the stockpiled material will be moved off site to brick companies who have entered into long term contracts. The normal practice is to reduce the size of the stockpiles progressively throughout the year so that the site will be cleared and ready for its final use as grazing land.

### 3. Movement of Materials

I have reviewed the information provided in the Further Modified Preferred Project Report Section 2.10.3.2 – Operations Heavy Vehicles and am confident that the material movements will be achieved within the limitations stated in the FMPPR, which are a maximum 250 truck movements per day.

Consideration has been given to the operating hours for the facility and the number of days available per year has been determined after allowing for public holidays and wet days. After consideration has been given to the time lost due to public holidays, weekends and wet weather, there is a contingency of 13% which will ensure compliance with the approved 125 truck movements per day one-way, or 250 truck movements per day. .

The type of heavy vehicles that would be used in the operation will be truck and dog combinations capable of carrying 30 tonne payloads.

### 4. Acceptance of Waste

Waste acceptance will be in accordance with the Conditions of Approval and OEH requirements.

Yours truly

Phil Grace

**Orchard Hills Waste and Resource Management Facility**

**Materials Movements: Excavation - Exporting Clay - Site Use - Stockpiling**

Existing Stockpiles: 200,000 tonnes
Total Excavation: 5,200,000 tonnes
Total Exported Clay: 3,150,000 tonnes
Project life: 25 years
Clay Use: Sale(export) - Daily Cover - Lining - Capping(Vegetative Layer, Seal Bearing Layer) - Haul Roads
Excavation Rate: Maximum 260,000 tpa
Daily Cover: 35,000 tpa

Assume 2: 1 Density

| Establishment Period | | Cell 1A | | Cell 1B | | | Cell 1C | | | Cell 2A | | Cell 2B | | Cell 2C | | Cell 3C | | Cell 3B | | | Cell 3A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Export Exist Material | | | | | | | | | | | | | | | | | | | | | | |
| -1 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| 200,000 | 100,000 | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | 250,000 | 250,000 | 250,000 | 250,000 | 270,000 | 250,000 | 250,000 | 250,000 | 250,000 | 250,000 | 230,000 | 230,000 | 230,000 | 230,000 | 230,000 | |
| 200,000 | 18,164 | 50,000 | 160,000 | 160,000 | 160,000 | 160,000 | 160,000 | 160,000 | 160,000 | 160,000 | 160,000 | 160,000 | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 | 140,000 | 120,000 | 120,000 | |
| | | | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | |
| | | | Cell 1A | | Cell 1B | | | Cell 1C | | Cell 2A | | Cell 2B | | Cell 2C | | Cell 3C | | Cell 3B | | | Cell 3A | |
| | | 29,000 | 30,486 | | 56,450 | | | 55,712 | | 48,040 | | 45,784 | | 44,044 | | 40,360 | | 52,248 | | | 51,740 | |
| | | | | | Cell 1A | | Cell 1B | | Cell 1C | | | Cell 2A | | | Cell 2B | | | Cell 2C | | | Cell 3C | |
| | | | | | 101,724 | | 103,492 | | 102,138 | | | 89,724 | | | 83,936 | | | 80,748 | | | 73,994 | |
| 0 | | 21,000 | 55,514 | 120,514 | 27,340 | 92,340 | 53,848 | 53,136 | 5,998 | 12,058 | 67,058 | 6,550 | 71,550 | 92,506 | 73,570 | 98,210 | 163,210 | 75,214 | 130,214 | 79,480 | 154,480 | |
| | | 105,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | |

Excavation

Clay Exported

Daily Cover

Clay For Liner

Clay Used for Capping & Seal Bearing Layer

Stockpiled Clay On Site

Waste Received


21
22
23
24
25
Totals
130,000
5,200,000
70,000
67,000
64,836
3,150,000
35,000
20000
20000
10000
750,000
454,764
2,031,164
Cell 3B
Cell 3A
95,788
94856
826,400
183,692
131,836
64,836
0
1,834,154
155,000
100,000
100,000
50,000
4,300,000

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# Phil Grace

## Education

**Bachelor of Science (Engineering)**

1966 - 1971 Mechanical Engineering - University of NSW, Sydney, NSW

**Electrical Trades Course (Licence No EA65611)**

1985 - 1988 Electrical Trades and Contractors qualifications - TAFE, Goulburn, NSW

**Executive Development Program**

1994 Management and Leadership - University of NSW, Sydney, NSW

**Management Development Program**

1996 -1998 Management and Leadership - Australian Institute of Management, Canberra, ACT

**Diploma of Business Management (Accounting)**

1997 - 2000 Accounting Certificate - Canberra Institute of Technology, Canberra ACT

**Graduate Diploma Employee Relations**

2000 Industrial and Employee Relations - University of Canberra, Canberra, ACT

## Developed Skills

- Leadership and Management
- Business acumen
- Private and Public Sector management experience
- Financial management, P&Ls and Balance Sheets
- Client relationships and Client liaison
- Industrial Relations - Negotiation with unions and employees
- Facilities Management
- Change Management
- Enterprise Bargaining Agreements
- Contract management and preparation
- Project Management
- Tender submissions and evaluations
- Communication, verbal and written
- Presentations
- Contract documentation development
- Operational problem analysis and solutions

## Work History

**May 2010 – December 2010 – Consultant (Self Employed)**
Change Management Project for Auburn City Council

**July 2008 – February 2010 – AECOM (Maunsell) Australia**
Project Management, Environmental/Waste Management Advice and Infrastructure Design

**Sept 2006 – July 2008 - Consultant (Self Employed)**
Environmental Projects for Waste Industry

**July 2005 – Sept 2006 - National Business Development Manager, Veolia Environmental Services**
Business Development, Marketing, Tendering, Presentations

**2000 – 2005 - General Manager Operations, Waste Service NSW**
Waste Operations, Facility Management and Environmental Compliance

**1996 – 2000 - General Manager - CityScape Services, Canberra, ACT**
Horticulture, Waste and Cleaning and Industrial Relations

**1994 – 1996 - Manager, Operations - City Parks, Canberra, ACT**
Horticulture, Engineering Services and Change Management

**1993 – 1994 - Manager, Engineering Services Unit - City Parks, Canberra, ACT**
Engineering support

**1980 – 1993 - Self Employed Consultant/Contractor - Grace Electrical Contracting, Sydney and Canberra**

**1974 – 1980 - Manager, Transport - Mobil Oil Australia, Sydney, NSW**
Logistics, Industrial Relations

**1973 – 1974 Transport Engineer - Mobil Oil Australia, Melbourne, Vic**
Purchasing and Engineering Support

**1971 – 1973 - Research and Development Engineer - Transpec Limited, Sydney, NSW and Melbourne, VIC**
Design and Engineering Support

**1966 – 1971 - Trainee Engineer – Australian Consolidated Industries**

## Professional experience

### May 2010 – December 2010 – Consultant to Auburn City Council Change Management

Engaged by Auburn City Council to temporarily fill the role of Works & Services Operations Manager while a permanent employee was being recruited. Total of 75 employees.

Responsibilities included:

- Implementation of improved efficiency and work methods across all areas;
- Preparation of Capital and Operational Budgets;
- Management of roads maintenance and capital projects;
- Waste management including litter, cleanups and domestic collection;
- Management of the mechanical workshop including maintenance and purchase of new plant and equipment;
- Delivery of waste management strategies and sustainability projects; and
- Management of Waste Rangers responsible for regulation of amenities.

### July 2008 – February 2010 – AECOM (Maunsell) Australia

Employed in the Environment, Water and Civil Infrastructure Division, now Water and Infrastructure Services. Primarily engaged in Business Development, Project Management and professional advice/mentoring. Projects included:

NSW Investment Pty Ltd/Wanless Wastecorp:

- Due Diligence Report on Swanbank Landfill, QLD;
- Environmental Reports and Advice for Kemps Creek Landfill including Cell Design, Remediation Work on Cells, Stormwater Management Plan,

BHP Billiton Newcastle Property Group responsible for the Hunter River Remediation Project including:

- Preparation of Environment Protection Licence for Kooragang Island Waste Emplacement Facility, now Kooragang Island Emplacement Cells (KIEC);
- Prepare Landfill Environmental Management Plan;
- Prepare Excavated Materials & Cell Monitoring Plan; and
- Review various environmental documents.

Thiess Services – Engaged by BHP Billiton to design and construct the Mayfield/Kooragang Island Remediation area and Kooragang Island Emplacement Cell (KIEC) facility. AECOM engaged by Thiess Services to be head designer and provide engineering consulting services for the US$500 million project.

Project Management role included:

- Project Manager for the design and inspection of Mayfield Remediation Infrastructure Project which processed 750,000 cubic meters of sediment dredged from the Hunter River; and
- Project Manager for the Design of KIEC Project which was the placement cell for the immobilised sediment.

Various projects including:

- Southern Councils Group – Prepare costing spreadsheets for Alternative Waste Treatment Options for the Group;
- Waste Management Plans for Buildings Sections. Projects include PBL, State Theatre/Gowings Building Revival,
- Tender Responses and Fee Proposals

### Sept 2006 – July 2008 - Consultant (Self Employed)

EarthPower (Green Power Technology)

- Review of operations in Sydney including:
    - Auditing of waste streams to improve resource recovery;
    - Improvement in resource recovery processes to increase organic digestion process and power generation; and
    - Recommendation of plant and equipment modifications.

Sita Environmental Solutions (NSW)

- Preparation of Tender documents;
- Review and update of LEMP for Kemps Creek Landfill Facility; and
- Preparation of contract documents.

Sita Environmental Solutions (WA)

- Project Management of Resource Recovery Centre and Landfill in Perth including
    - Design of leachate collection systems
    - Landfill extension design
    - Management of landfill operations
    - Management of Site Contractors

Veolia Environmental Services

- Preparation of National Tenders including Toll, Mirvac, Coles
- Preparation of presentations and tenders for the Queensland and Victorian Industrial Services Division;
- Review of Woodlawn Bioreactor Landfill Operations;
- Analysis of waste market trends across NSW Government Councils;
- Review of competitor operations and market share; and
- Feasibility Study of Woodlawn Bioreactor Landfill Projects including:
    - Aquaculture;
    - Horticultural; and
    - Alternative Waste Technologies.

SEMF Pty Ltd (Engineering and Management Consulting Company)

- Business Development role involving
    - New opportunities with environmental companies;
    - Preparation of Tenders; and
    - Project Management of Landfill Remediation sites.
- Liaison with Regulatory Authorities, Councils and community stakeholders.

## July 2005 – Sept 2006 National Business Development Manager, Veolia Environmental Services

Provide new business opportunities and review operational activities that will improve the performance and compliance of the various business units across Australia.

Management of major account customers and liaison with all NSW Government Councils.

New business opportunities achieved through:

- Preparation of Tender/EOI submissions to NSW Councils as well as National Commercial enterprises such as Queensland Aluminium, Queensland Nickel, Boyne Smelter (Gladstone)
- Analyse financial information of Commercial Organisations to provide cost saving initiatives associated with resource recovery and waste management.
- Present business opportunities to large National organisations through rationalisation of services resulting in cost savings and operational efficiencies.
- Assessment and feasibility study of Alternative Waste Treatment technologies.

Management of major account customers includes:

- Liaison with Councillors, General Managers and Council Officers.
- Presentations to Councils regarding new technologies.
- Ensuring service delivery from operational sections within Collex.

Operational activity reviews include:

- Providing consulting advice to State operations to improve performance.
- Review operational activities across all NSW facilities.
- Preparation of cost analysis and cost estimates for new projects across Australia.
- Presentations to State Managers of emerging technologies, i.e. Alternative Waste Treatment, Resource Recovery Technologies.

## 2000 – 2005 General Manager Operations, Waste Service NSW

A Member of the Executive Team at Waste Service NSW participating fully in corporate/business planning, policy setting and decision making and accountability for the implementation of decisions within the Business.

- Direct and lead the Operations Division of the business; 10 direct reports and an expenditure budget of $130m
- Management of the organisations assets including four operational landfills, five closed landfills, seven transfer stations and two materials recycling facilities.
- Design and construction of landfills including preparation of excavation and filling plans, calculations for mass balance between excavation materials and waste accepted, bund walls, leachate management and final capping;
- Management of all excavated materials (shales, clays, topsoil) through negotiated sale to the market (brick companies, RTA), stockpiling for lining system and capping reuse (clays and topsoils), engineering use on site (haul roads) and environmental management (cover material);
- Complete responsibility for compliance across all facilities including environmental, OH&S, regulatory and statutory requirements.
- Motivate staff and contractors to deliver services in a cost effective, flexible, and compliant manner.
- Development, setting and implementation of the operational strategies, budgets, plans, policies and practices for the Operations Division.
- Review and monitoring of the Divisions performance.
- Deliver projects to budget, timelines and performance expectations.
- Implementation of internal operating capability strategy.
- Ensure that approved financial, staffing and other resource allocations and reallocations are within budget to meet operational needs.
- Provide the Chief Executive Officer, the Executive and the Board with timely and accurate information, advice and regular reports on the Operations KPIs.

## 1996 – 2000 - General Manager - CityScape Services, Canberra, ACT

CityScape Services is a service provider to the ACT Government's Department of Urban Services providing horticultural, cleaning, waste management and maintenance (trades) services to the community.

The business had a permanent staff of 350 in 1996 and following restructuring and preparation for competition the business was transformed to a competitive organisation with fewer staff and lower overheads.

Services provided include:

- maintenance of all horticultural assets such as sports fields, parks, trees, playgrounds
- cleaning of shopping centres and public facilities
- operation of two landfill sites
- general maintenance services (trades)

Provide strategic direction and guidance for the business and take responsibility for the financial position of the unit and its productivity

- lead a change program as part of the National Competition Policy to achieve increased productivity, operational efficiency and financial savings and therefore compete with the private sector
- lead a reform process to achieve improved productivity by changing the public sector focus
- manage and control an annual budget of $24.0 million and maintain profitability
- lead a dynamic business team to ensure delivery of municipal open space services
- provide high level advice to the Chief Executive and the Minister
- Enterprise Bargaining negotiations, discussions with unions and staff
- overall management of 150 permanent employees and more than 120 seasonal people after restructuring
- development of client relationships
- grow the business and expand into new markets

## 1994 – 1996 - Manager, Operations - City Parks, Canberra, ACT

City Parks was part of the Department of Environment, Land and Planning with a staff of 150 trade's people, 300 horticultural people and 90 cleaning staff.

Responsibilities included:

- Maintaining all of Canberra's horticultural assets such as parks, sports fields, playgrounds, and trees
- Management of a team of 150 trades personnel responsible for maintaining and purchasing plant and equipment, irrigation plumbing, carpenters and paints/signwriters

Provide strategic direction and guidance for operations and take responsibility for productivity and service delivery.

- overall management of field operations consisting of 390 staff and an engineering service unit consisting of 150 staff
- lead a reform process to achieve improved productivity and efficiency
- manage an engineering services unit and deliver maintenance services to the field operations
- manage $1.5 million capital expenditure on the purchase of plant and equipment
- manage and control the annual engineering service unit recurrent budget of $7.0 million
- overall management of an engineering operation consisting of 150 staff to service trades and $15.0 million in plant and equipment assets

## 1993 – 1994 - Manager, Engineering Services Unit - City Parks, Canberra, ACT

Provide strategic direction and guidance for the Engineering Service Unit which provided engineering services to City Parks. Take responsibility for the financial position of the unit and its productivity

- manage and lead a reform process to achieve improved productivity
- management of a team of 150 trades personnel
- ensure service delivery to the City Parks personnel

## 1980 – 1993 - Self Employed Consultant/Contractor - Grace Electrical Contracting, Sydney and Canberra

Established a business and competed in the building industry across NSW and ACT.

Responsibilities included:

- management of contracts and preparation of tenders
- development of the business and expansion of the operation to include Sydney, country NSW and Canberra
- provide consulting services to the building industry
- undertake hands on electrical and building work
- development of client relationships

**1974 – 1980 - Manager, Transport - Mobil Oil Australia, Sydney, NSW**

Provide strategic direction and guidance for a team of 100 employees in the delivery of petroleum products through out NSW

- ensure customer satisfaction
- negotiation with unions and staff for improved productivity and efficiency
- develop client relationships

**1973 – 1974 Transport Engineer - Mobil Oil Australia, Melbourne, Vic**

- design, recommendation and purchasing of road transport equipment for the oil industry
- provide engineering support for State operations
- preparation of budgets for replacement road transport equipment

**1971 – 1973 - Research and Development Engineer - Transpec Limited, Sydney, NSW and Melbourne, VIC**

- design and construction of road transport vehicles and equipment
- research and development of new equipment for the road transport industry