Dellara

ABN: 26 131 659 339

Orchard Hills Waste and Resource Management Facility

Visual Assessment

Prepared by:

Design Collaborative Pty Ltd

February 2010

Specialist Consultant Studies Compendium
Volume 2, Part 7

This page has intentionally been left blank

Dellara

ABN: 26 131 659 339

Visual Assessment

Prepared for:

R.W. Corkery & Co. Pty Limited
1st Floor, 12 Dangar Road
PO Box 239
BROOKLYN NSW 2083

Tel: (02) 9985 8511
Fax: (02) 9985 8208
Email: brooklyn@rwcorkery.com

On behalf of:

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

Tel: (02) 9299 5400
Fax: (02) 9299 8411
Email: rodericksyd@ozemail.com.au

Prepared by:

Design Collaborative Pty Ltd
Level 4/225 Clarence Street
SYDNEY NSW 2000

Tel: (02) 9262 3200
Fax: (02) 9262 3601
Email: benhaynes@designcollaborative.com.au

February 2010

CONTENTS

Page

FIGURES

PHOTOMONTAGES

CONTENTS

Page

TABLES

PLATES

EXECUTIVE SUMMARY

A visual impact assessment has been undertaken to determine the visual impacts throughout the operational stages and likely outcomes of the final rehabilitated landform resulting from a project application by Dellara Pty Ltd for a Waste and Resource Management Facility at Orchard Hills. The Project Site currently has approval for clay/shale extraction. These operations, however, have not been undertaken for a few years due to a down turn in the brick making industry.

The Project Site has been left by its former owners with significant excavated voids and prominent bund walls skirting the majority of its boundaries. These steep-sided existing bund walls deviate from the undulating topography of the surrounding rural landscape as well as the objectives of the Project Site's current and proposed zonings under the provisions of the relevant local planning instruments.

The bund walls currently have adverse impacts on the visual quality of the existing surrounding rural landscape as well as from a nearby rural residential estate to the north known as "The Vines". The impacts arise largely from their geometric appearance and absence of sufficient vegetation to adequately blend into the rural setting.

This project seeks to rehabilitate the Project Site through the emplacement of general solid waste (non-putrescible) and residual wastes that cannot be recycled at the proposed facility. The focus of the rehabilitation is to create a final landform that is consistent with the surrounding rural landscape and hence, improve the overall amenity of the Project Site when viewed from within the locality.

The creation of the final landform would involve progressively reducing the slopes of the existing perimeter bund walls to create a gentle sloping knoll in the centre of the Project Site with an elevation of approximately of 65m AHD. It is intended that this knoll would be vegetated and be able to be used for grazing purposes. It has been determined in this assessment that the final landform would significantly reduce the current visual impacts that the Project Site has upon the surrounding rural landscape and when viewed from nearby residential properties.

This page has intentionally been left blank

1 INTRODUCTION

Dellara Pty Ltd (the "Proponent") proposes to develop and operate a waste and resource management facility (the "Project) within a 60ha lot at Orchard Hills that has been substantially disturbed by previous clay/shale extraction operations. **Figure 1** displays the local setting of the 60ha lot, referred to throughout this report as "the Project Site".

One of the key benefits that would arise as a result of the project to develop and operate the Orchard Hills Waste and Resource Management Facility is the rehabilitation of the considerable areas of disturbance within the Project Site and the subsequent improvement of its contribution to the visual character and amenity of the locality. At present, views of the Project Site are generally comprised of bund walls skirting its perimeter, which are a by-product of the actions of its previous owners and the extraction operations they undertook. As detailed below, the rehabilitation process that forms part of the Project, aims to re-instate both the topography and landscape so that it is consistent with the relevant objectives of the Project Site's current and proposed zoning.

2 PLANNING CONTEXT

Creating an acceptable visual outcome for the Project Site through its progressive rehabilitation is a fundamental objective of its zoning under the current Penrith Local Environmental Plan No. 201 – Rural Lands (PLEP-RL) and draft Penrith Local Environmental Plan 2008(draft PLEP 2008).

In terms of visual impact, the relevant objectives of the Project Site's current 1(a) (Rural "A" Zone-General) zoning are:

- *To protect and enhance the scenic quality and rural character of the locality.*
- *To ensure that the form, siting and colours of buildings, building materials and landscaping complement the natural scenic quality of these localities.*
- *To ensure those views from main roads and the rural character of the locality will not be adversely affected.*

Similarly, the Project Site's proposed zonings of predominantly RU2 and part E2 under draft PLEP 2008 also provides the following relevant objectives:

- *To maintain the rural landscape character of the land.*
- *To protect views and vistas from main roads and other vantage points.*

As detailed in the visual impact assessment below, the Project would provide significant improvements to scenic qualities of the locality and in doing so, meet those relevant objectives above-mentioned.

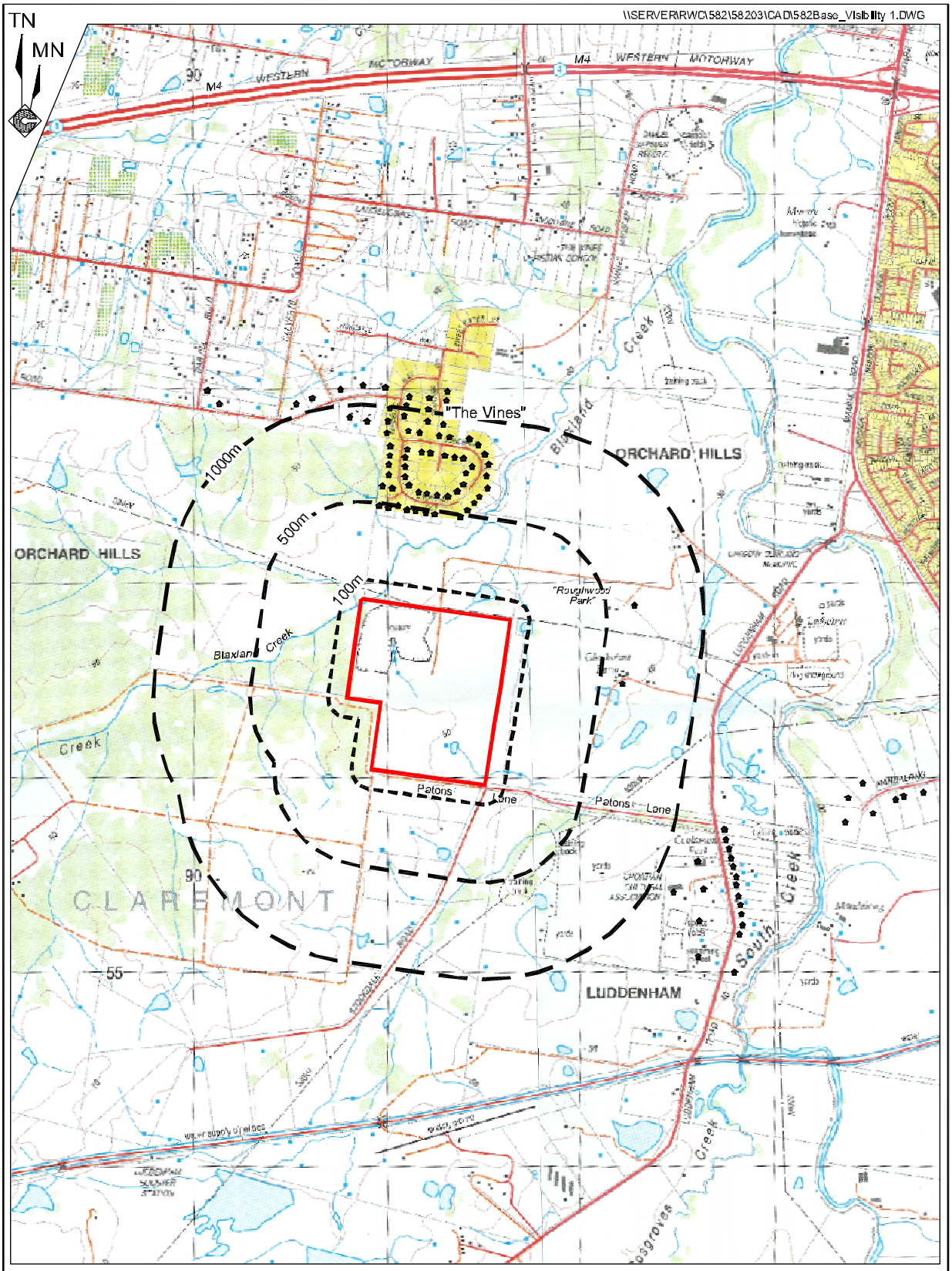


Figure 1
LOCALITY PLAN AND VISUAL ASSESSMENT ZONES

Note: A Colour Version of this figure is available on the project CD

3 VISUAL CATCHMENT AND EXISTING VIEWS

3.1 Visual Catchment

For the purposes of assessing the visual impact of the Project, the Project Site's visual catchment was defined, which is illustrated in **Figure 1**. The visual catchment was defined by determining the extremities from which the Project Site's existing bund walls can be seen within the local area, which is approximately 1km away.

3.2 Description of Existing Views

3.2.1 Views from the North ("The Vines")

Views of the Project Site from the north are from private rural holdings and the more recently established rural-residential estate known as "The Vines", where the closest residence is approximately 500m away from the Project Site. The views of the Project Site from these areas are generally comprised of its northern-western and north-eastern perimeter bund walls. The stockpiles of previously extracted clay/shale located generally in the centre of the site can also be viewed from higher levels within "The Vines".

Only glimpses of the northwestern and northeastern bund walls are viewed from those closest residential properties in "The Vines" estate. This is attributed to two factors, the first being that an extensive tree corridor exists along Blaxland Creek between the Project Site and these residences, which provides effective screening of the bund walls. The second factor is that the topography of "The Vines" estate is that it slopes up from south to north; therefore, the screening provided by the existing tree canopy above-mentioned is further enhanced with respect to those closest residential properties, which are located at elevations lower than the Project Site.

Elevations of residences in Cabernet Circuit are typically approximately 35mAHD in contrast to elevations between 40mAHD and 63mAHD and the Project Site. As illustrated in **Plates 1** and **2**, the tree canopy extends beyond the height of the northern bund wall when viewed from those properties closest to the Project Site.

Plate 1: View of section of the northwestern bund wall approximately 500m from Cabernet Circuit at "The Vines" estate. As illustrated in the photo, the existing tree canopy located along Blaxland Creek screens the northwestern bund wall on the Project Site from this lower elevation within the estate.

Plate 2: View southwards of the Project Site approximately from Bordeaux Place at "The Vines" estate. Only the top of part of the northeastern bund wall is able to be viewed from those residences at the lower elevations within the estate.

For those residences within "The Vines" estate located at higher elevations to the north, views of the Project Site's bund walls become more prominent as the eye line is above the Blaxland Creek tree canopy as illustrates in **Plate 3** below.

Plate 3: View southwards towards the Project Site from approximately 1km away in Verdelho Way at "The Vines" estate. The exposed northern face of the northwestern bund wall and the stockpile of previously extracted clay/shale material on the Project Site becomes more prominent at the higher levels within the estate as the line of sight is projected over the top of those trees along Blaxland Creek.

3.2.2 Views from the East

The catchment area to the east of the Project Site is bounded by Luddenham Road. Public views of the Project Site from Luddenham Road are limited in some parts, as a result of existing vegetation and the natural topography of the land (see **Plate 4** below). Furthermore, given the distance (approximately 1km at its closest point), in some locations it is difficult to distinguish the bund walls from the natural topography of the landscape, particularly since the outer face of the eastern bund wall is well grassed.

Plate 4: View of the eastern bund wall of the Project Site approximately 1km away from Luddenham Road. The bund wall is difficult to differentiate from the natural undulating topography of the landscape surrounding it.

Closer to the Project Site, where views are from private rural holdings, the eastern bund wall becomes more prominent where it is not impeded by an intervening tree canopy. The grassed eastern face of this bund wall also provides some deception in terms of differentiating it from the natural landscape. It is not until within approximately 500m from the Project Site that the bund walls become more visually prominent (see **Plate 5** below).

Plate 5: Views of the Project Site's eastern bund wall from approximately 500m away.

From Patons Lane, which is the existing vehicular access to the Project Site, public views are generally limited as a result of the dense vegetation skirting the northern side of this carriageway. The eastern bund wall and the Project Site entry are not readily viewed until within close proximity to its boundaries.

3.2.3 Views from the West

Views of the Project Site from the west are from a large parcel of land owned by the Commonwealth of Australia and used by the Australian Defence Force. This adjoining land comprises a dense tree canopy, which effectively screens any long distance views of the Project Site from this direction (see **Plate 6** below). Glimpses of the western bund wall, therefore, are limited to areas within approximately 300m to 400m from the Project Site's western boundary.

Plate 6: Views to the west and northwest from the top of the western bund wall on the Project Site. The land to the west of the Project Site is owned by the Commonwealth and access to that area was unavailable. As illustrated however, the land to the west comprises dense vegetation that would significantly screen the western bund walls on the Project Site from more distant locations.

3.2.4 Views from the South

Public views of the Project Site from the south are obtained from Patons Lane although, through agreement of all land owners with direct access to Patons Lane, the lane remains locked and not able to be traversed by the general public. Private views of the Project Site are obtained from Commonwealth of Australia owned land centred on Stockdale Lane (originally approved as a rural/residential subdivision) and other rural holdings. Access to this land to the south was unavailable; however, given the existing vegetation on it, a reasonable assumption can be made that views of the southern bund wall would be limited from 500m and 1km away.

The topography of approximately half of the Project Site's southern boundary is generally unaltered (see **Plate 7** below). For the remaining half, a bund wall approximately 10m high exists (see **Plate 8** below).

Plate 7: View along the Project Site's southern boundary from the west. This photo illustrates that the southeastern corner of the Project Site is generally flat and unaltered except for the small dam wall.

Plate 8: A view along the southern boundary Project Site at the western end where the bund walls are in place.

Glimpses of the southern portion of the Project Site would only be viewed from all of the above-mentioned privately owned land from approximately 500m away as a result of the existing tree canopy, particularly, on Patons Lane. Within 100m of the Project Site, some of the internal bund walls and remaining material stockpiles can also be viewed from private land and the public domain (see **Plate 9** below).

Plate 9: View from the southern boundary at the entry to the Project Site from Patons Lane to the north and/or centre of the Project Site. The photo illustrates clay stockpiles in the centre and the eastern bund wall on the right hand side.

4 OVERVIEW OF THE PROJECT

The progressive rehabilitation of the disturbed areas on the Project Site is an integral part of the day to day operations of the Project as well as the desired outcome at the end of the Project Site's life. The rehabilitation will be a progressive process, which will be dependent upon the extraction of clay and shale and more predominantly, the emplacement of general solid waste (non-putrescible) and residual wastes from on-site re-processing activities into each of the cells to create the final landform.

As detailed in Section 2.7 of the *Environmental Assessment*, the waste emplacement process consists of four stages, within defined areas on the Project Site, which are:

- Cell 1
- Cell 2
- Cell 3
- Final Cell

These specific areas along with the staging of the waste emplacement on the site have been used to describe the ongoing rehabilitation processes proposed for the Project Site as well as to assist in the assessment of the visual impacts of the Project during the course of the operations up until the final landform is created. The final landform for the Project Site is displayed on **Figure 2**.

The objective of the rehabilitation process is to create a final landform consisting of a gently sloping, grassed knoll with a maximum elevation of 65mAHD in the centre of the Project Site. This will involve significantly reducing the height and/or outer slope of the majority of the perimeter bund walls such that they marry in and complement the topography that is consistent with the surrounding locality.

The progressive rehabilitation process on the Project Site is best illustrated in the **Figures 3**, **4**, **5** and **6**, which provide visibility cross sections through the site for the existing landform, the early and ongoing operations and the final landform.

The principal visual control to be undertaken to limit visual access of project activities from "The Vines" would be the construction of the northern bund wall. This structure would effectively be created during the site establishment period by placing a considerable quantity of clay/shale from the western end of the northwestern bund wall and Cell 1. The bund wall would effectively join the two existing bund walls and increase their overall height to 55m AHD. Whilst it is recognised it has been noise-related issues that have dictated the height of the northern bund, the fact that it is constructed early in the project life (i.e. during the site establishment period) would have visual benefits throughout the entire life of the project. It is also noteworthy that the outer northern slope of the northern bund would also be vegetated with tree and shrub species that would contribute to limiting views of earthmoving equipment operating on the elevated surfaces of the final landform.

The deconstruction, re-shaping and revegetation of the eastern bund wall (to an elevation of 58m AHD) towards the end of the site establishment period would similarly provide visual shielding of many of the site activities when viewed from Residences A and B and from Luddenham Road.

The initial waste emplacement activities will occur in Cell 1 within the northwestern corner of the Project Site. Some of the material to be emplaced in this area will be obtained from existing waste located in the bund walls on the site that was imported by the former owner. Other waste sources will include those residual materials received during the commencement of the recycling and re-processing plant, which initially will be a mobile operation on the Project Site.

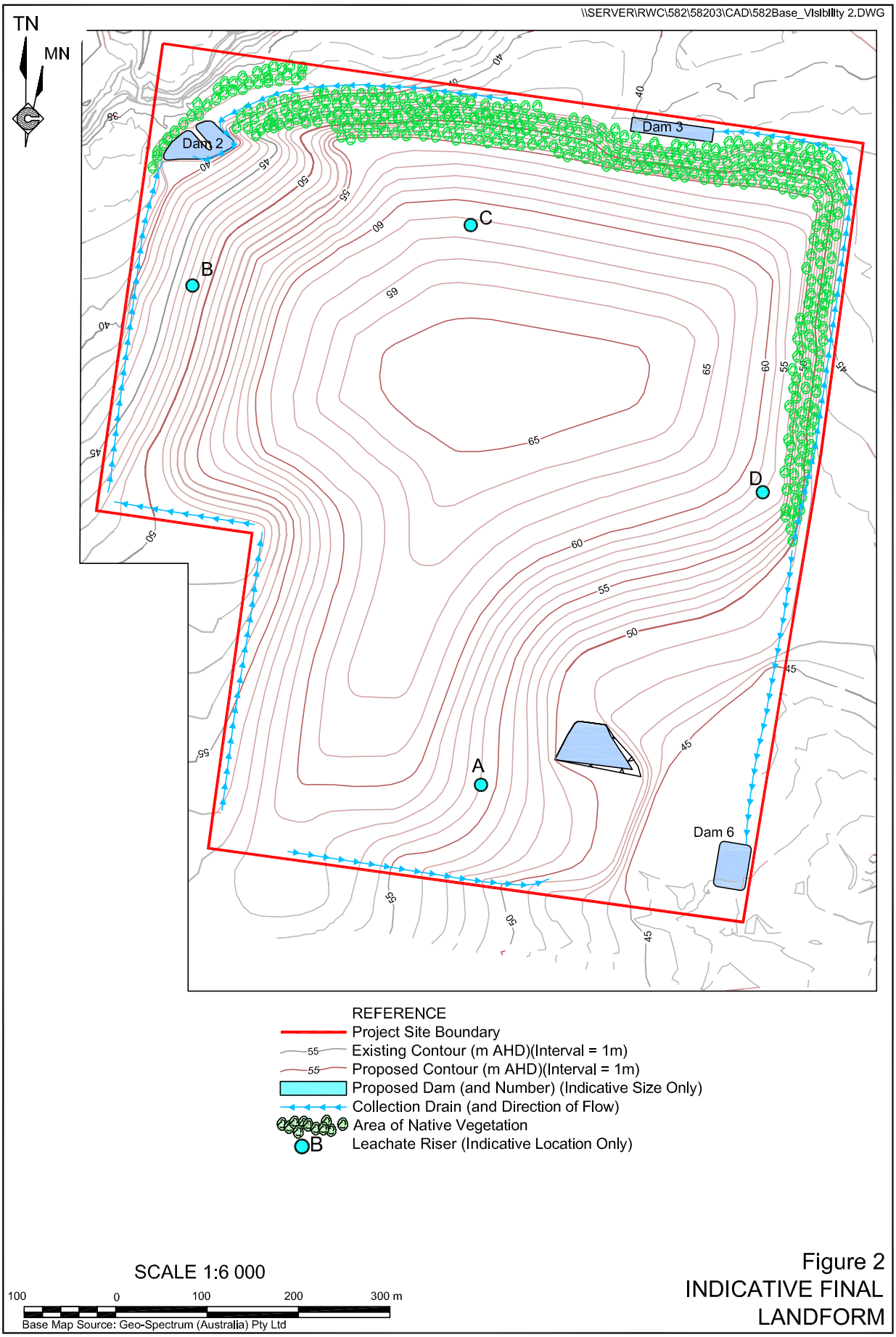


Figure 2
INDICATIVE FINAL LANDFORM

The reason for undertaking the waste emplacement activities in a southerly direction within Cells 1 and 2 is to limit views of operations for those residents within the "The Vines" estate. The waste emplacement would work progressively to the south such that by the time activities reach Cell 3, the final landform in Cells 1 and 2 would substantially shield activities in Cell 3. The last area to be rehabilitated will be the Final Cell occupied by the recycling and re-processing facility. The reason for this is that once the main cells have been filled and rehabilitated, the recycling facility may continue to operate on the Project Site (subject to demand) in conjunction with a waste transfer station operation.

When viewed from various vantage points within the defined visual catchment, the Project Site's final landform will not be identified as a significant deviation from the undulating character of the surrounding rural landscape. It is only likely to be obvious that the Project Site has endured previous disturbances when within close proximity to it and as a result of the proposed landscaping not being fully established.

5 VISUAL IMPACTS OF THE PROJECT

5.1 Introduction

The visual impacts of the Project have been assessed throughout and at the end of the life of the Project that is, from the existing landform, through the operational stages and the final landform from within the defined visual catchment area detailed in **Figure 1**. To assist with this assessment, visibility cross sections in **Figures 3, 4, 5** and **6** have been prepared. Each of these cross sections has been illustrated at four separate stages of the Project, which include:

- Existing Landform
- Early Operational Stages (Approximately Years 1-5)
- Operational Stages (Approximately Years 6 -27)
- Final Landform (Approximately Years 28-30)

In addition, photomontages have also been prepared with respect to those closest residential properties located within "The Vines" and on rural land to the east. The positions selected for each of the photomontages were selected based on the fact that these locations were the nearest residential properties to the Project Site. A Photomontage Positional Plan is illustrated in **Figure 7** (see Page 7-29). The photomontages illustrate the existing view, what can be expected the early operational stages and the final land form from these positions, which are provided in **Photomontages 1, 2, 3,** and **4**.

The visual impacts upon the defined visual catchment area throughout the life of the Project have been assessed on a qualitative basis as either being negligible, minor, moderate, severe or devastating. Each of these qualitative impact levels are defined as follows:

Negligible – When the Project Site is viewed from within the defined catchment, it upholds the local planning objectives of enhancing the scenic quality and the rural character of the surrounding landscape.

Minor – When the Project Site is viewed from within the defined catchment, it presents some discrete signs that the natural topography of the land has been altered, however, not in a manner that would impede the local planning objectives of enhancing the scenic quality and the rural character of the locality.

Moderate – When the Project Site is viewed from within the defined catchment, it presents more obvious signs that the natural topography of the land has been altered and, therefore, presents some unsatisfactory impact on upholding the local planning objectives of enhancing scenic quality and the rural character of the locality.

Severe – When the Project Site is viewed from within the defined catchment, it presents obvious signs that the natural topography of the land has been disturbed, which results in a failure to achieve the local planning objectives of enhancing the scenic quality and the rural character of the locality.

Devastating - When the Project Site is viewed from within the defined catchment, it presents a landform that has been significantly disturbed to such a high degree that it is unlikely that any rehabilitation could ever reduce the level of adverse impacts to achieve the local planning objectives of enhancing the scenic quality and rural character of the locality.

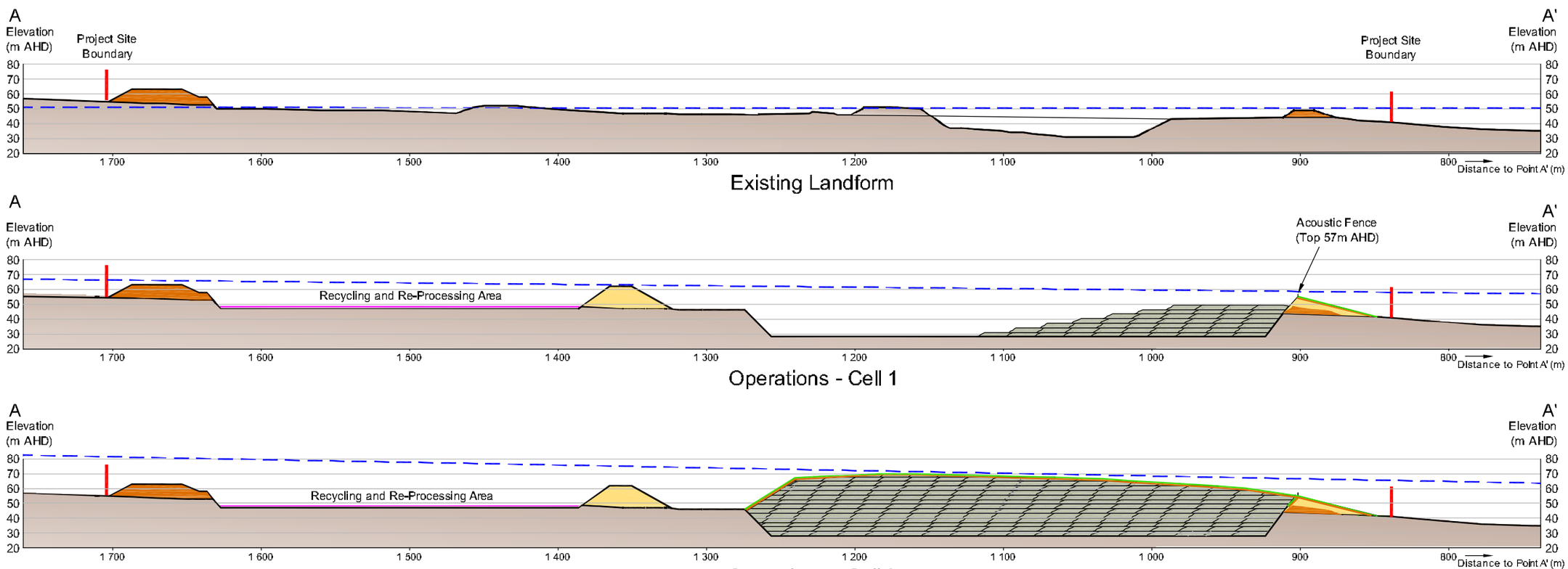
The assessment has been undertaken for the life of the Project from three defined distances of approximately 1km (at the edge of the defined visual catchment), 500m and 100m from the Project Site's boundaries, which are otherwise known as the outer, middle and inner rings. This assessment which has been undertaken from all directions describes the current visual impacts and the likely resultant visual impacts that may occur as a result of the progressive rehabilitation of the Project Site. A summary of the impacts is provided below in **Table 1**.

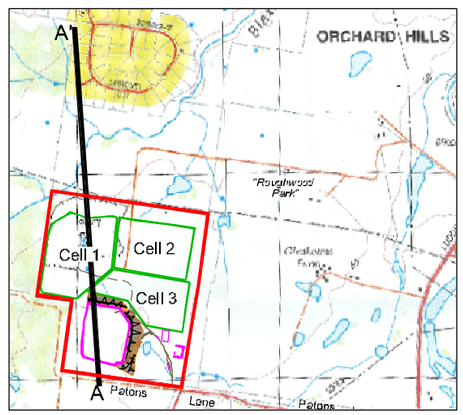
Table 1
Summary of the existing, operational and final landform visual impacts of the Project Site within the defined visual catchment

Distance	1000m (Outer Ring)				500m (Middle Ring)				100m (Inner Ring)			
Project Stage	Existing	Operational (Early)	Operational	Final	Existing	Operational (Early)	Operational	Final	Existing	Operational (Early)	Operational	Final
North	M	M	N	N	M	M	N	N	S	S	M	M
South	N	N	N	N	M	N	N	N	Md	Md	Md	N
East	N	N	N	N	Md	N	N	N	S	M	M	M
West	N	N	N	N	M	N	M	N	M	M	Md	N

Key
N – Negligible
M – Minor
Md – Moderate
S – Severe
D – Devastating

\\SERVER\RWC\582\58203\CAD\582Base_Visibility A.DWG





REFERENCE
- Project Site Boundary
- Emplaced Wastes
- Existing Bund Wall
- Proposed Earth Mound
- Emplaced VENM
- Recycling and Re-processing Area
- Sight Line from Location A' (48.5m AHD)

SCALE 1:3 000

50 0 50 100 150m

Prepared by: R.W. CORKERY & CO. PTY. LIMITED

Figure 3
VISIBILITY SECTION A - A'

Design Collaborative Pty Ltd

This page has intentionally been left blank

\\SERVER\RWC\582\58203\CAD\582Base_Visibility 4.DWG

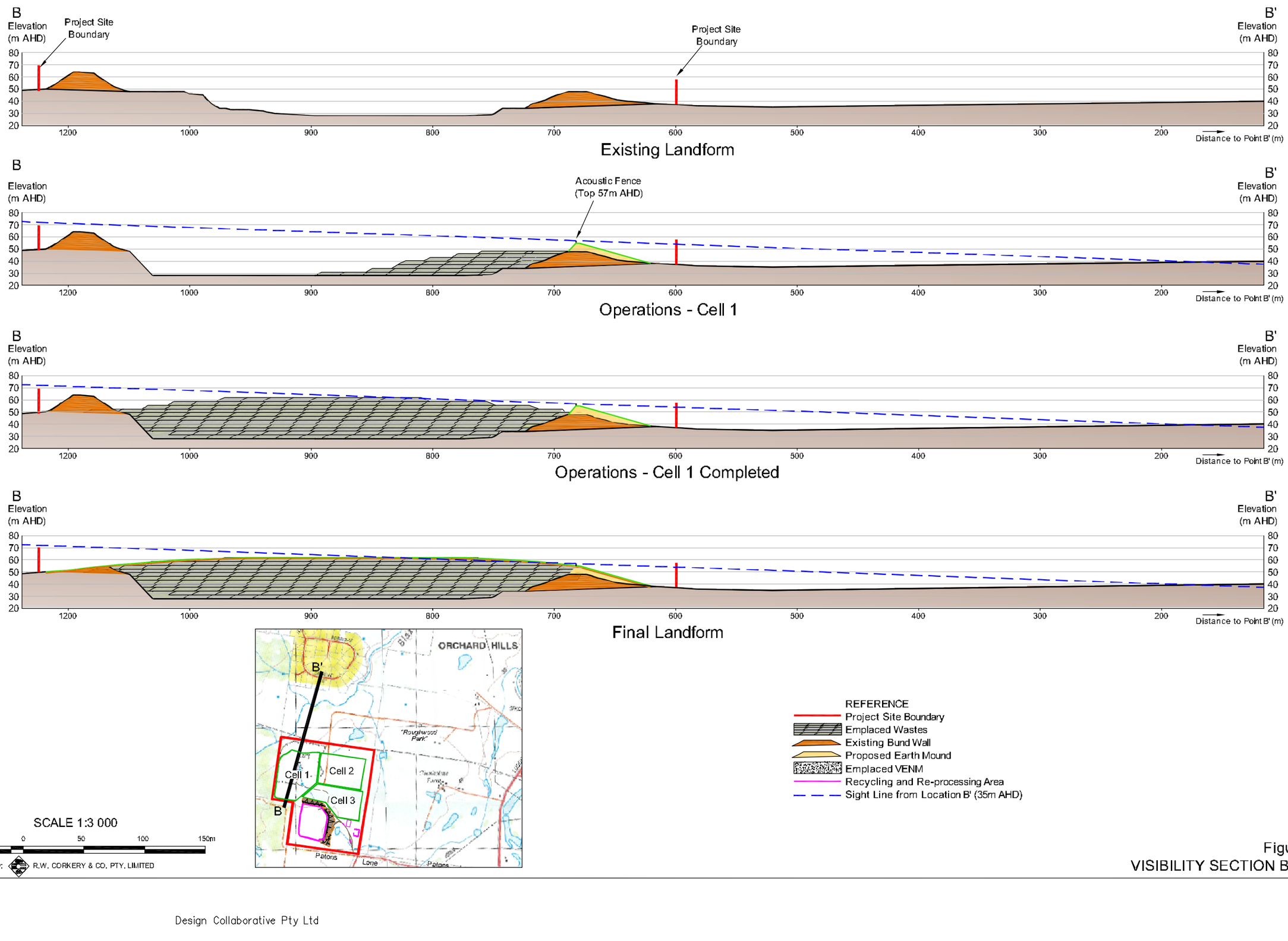


Figure 4
VISIBILITY SECTION B - B'

Design Collaborative Pty Ltd

This page has intentionally been left blank

\\SERVER\RWC\582\58203\CAD\582Base_Visibility 5.DWG

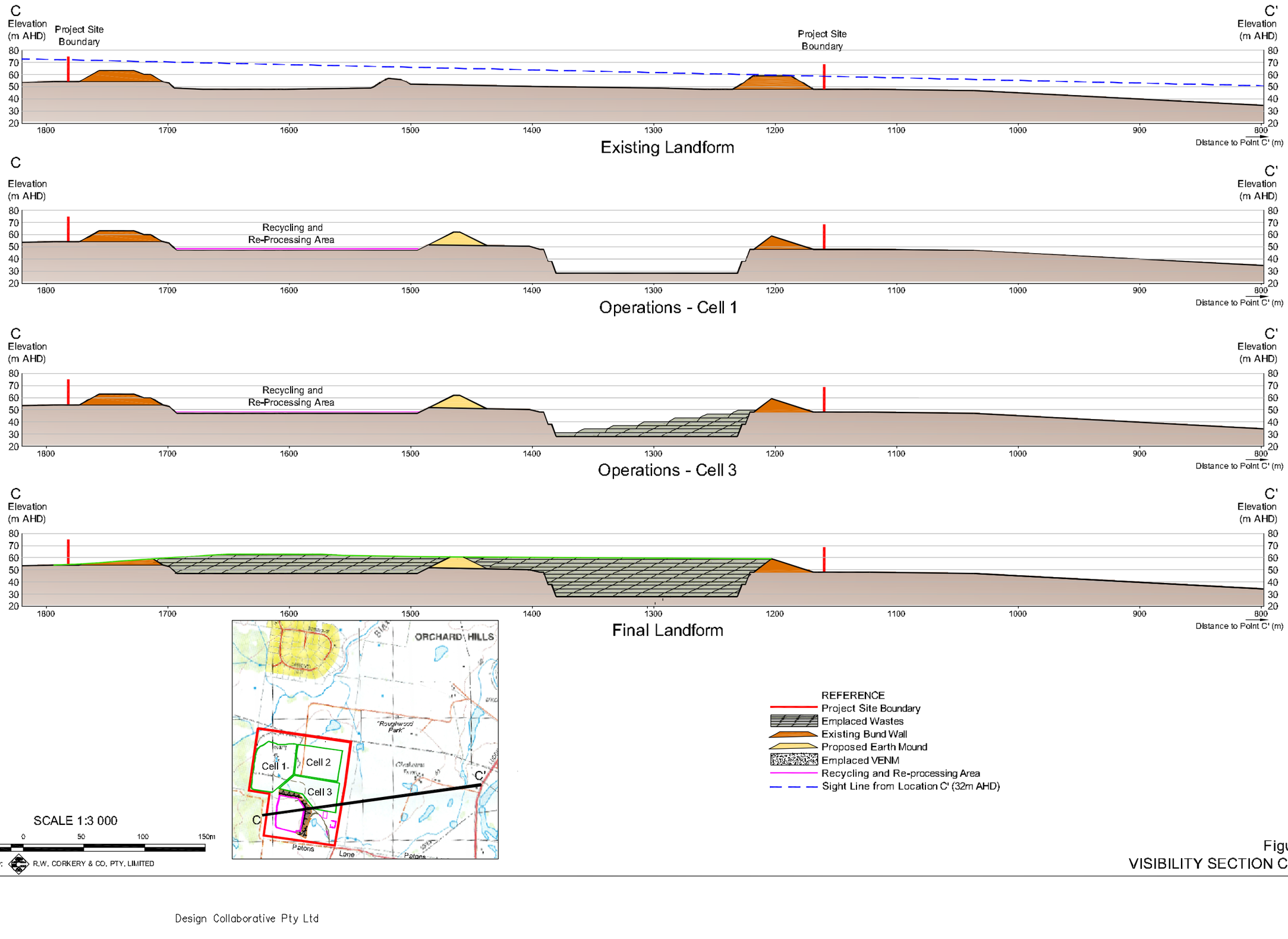


Figure 5
VISIBILITY SECTION C - C'

This page has intentionally been left blank

\\SERVER\RWC\582\582.03\CAD\582Base_Visibility 6.DWG

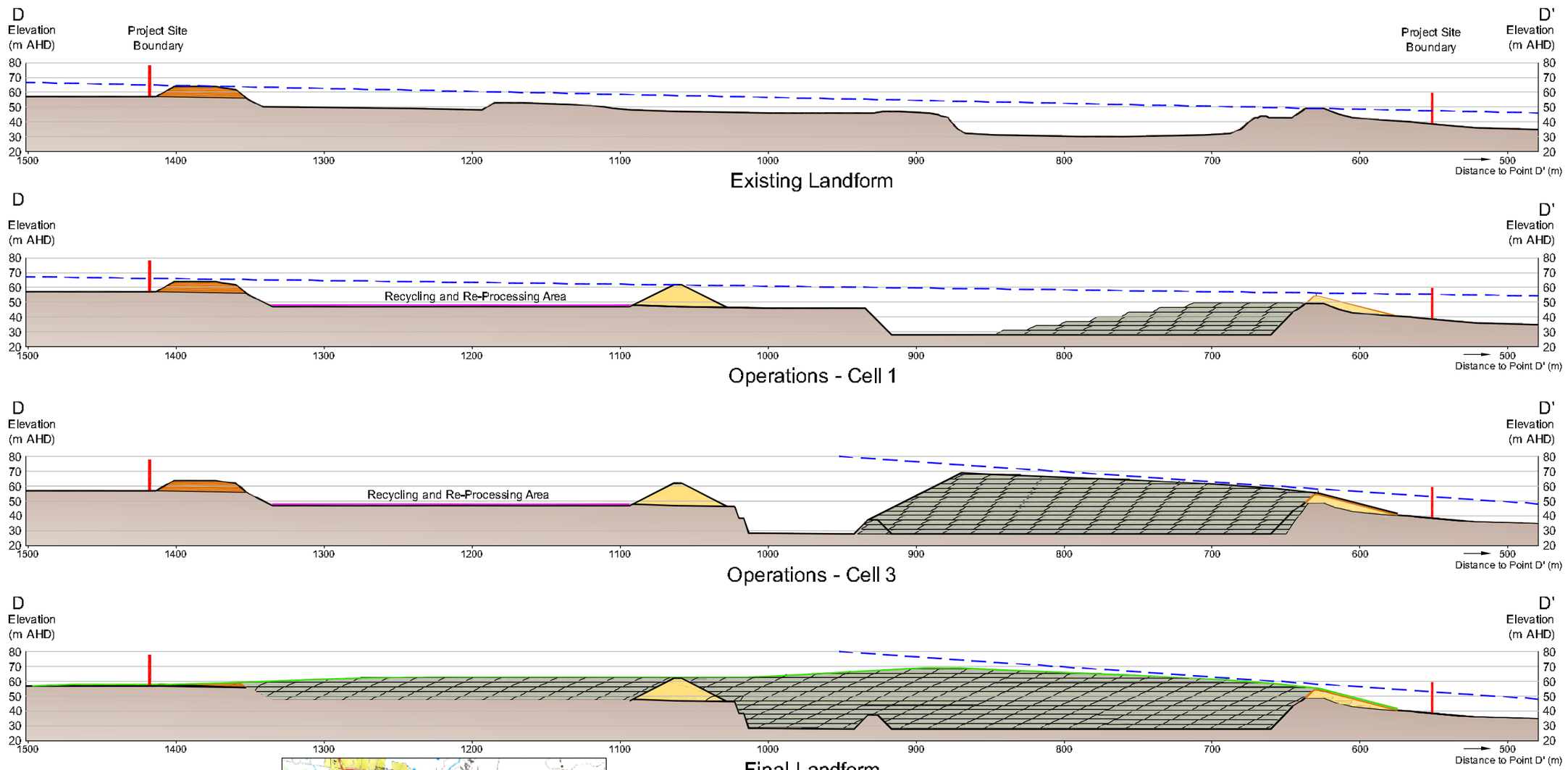


Figure 6
VISIBILITY SECTION D - D'

This page has intentionally been left blank

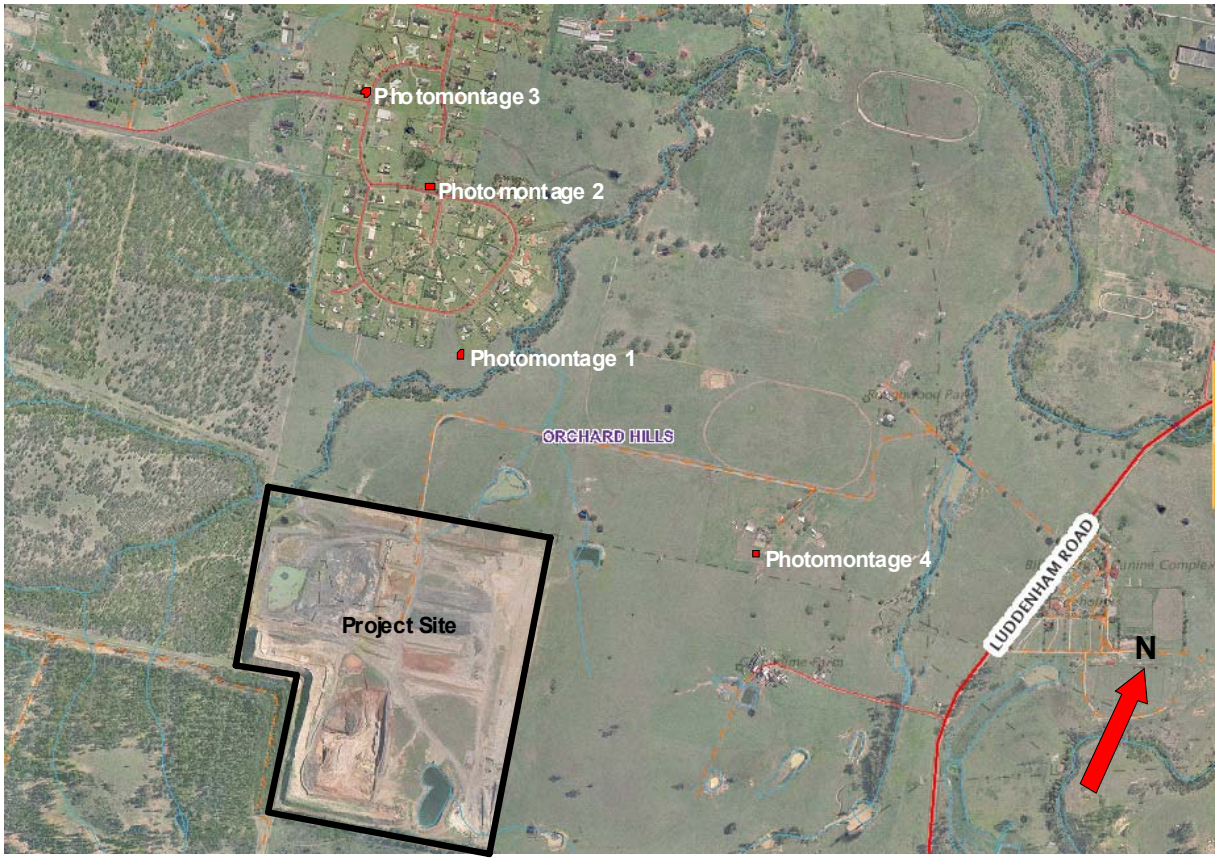


Figure 7
Photomontage Positional Plan

Source: NSW Department of Lands – Spatial Information eXchange

\\SERVER\RWC\582\58203\CAD\582Base_Visibility Montage 1.DWG

Existing View

View after Construction of Visual Bund

View of the Final Landform

Photomontage 1

\\SERVER\RWC\582\58203\CAD\582Base_Visibility Montage 2.DWG

Existing View

View after Construction of Visual Bund

View of the Final Landform

Photomontage 2

\\SERVER\RWC\582\58203\CAD\582Base_Visibility Montage 1.DWG

Existing View

View after Construction of Visual Bund

View of the Final Landform

Photomontage 3

\\SERVER\RWC\582\58203\CAD\582Base_Visibility Montage 4.DWG

Existing View

View after Construction of Visual Bund

View of the Final Landform

Photomontage 4

Typical Acoustic Barrier

FIGURE 8
Close up view of proposed relocatable 4m acoustic barrier to be moved around the face of the northern bund wall depending on the location of which will be dictated by where work is being undertaken

5.2 Visual Impact Assessment

The visual impact assessment outlined in detail below describes how the Project Site will be viewed from the three established distances from all directions within the defined visual catchment area. An assessment is provided for each of the stages in the life of the Project Site.

5.2.1 Views from the North

Existing Landform

Views of the Project Site from the north, particularly from the closest residential properties within "The Vines" estate, currently incur moderate to minor view impacts as a result of the 10m to 13m high bund wall along its northwestern and northeastern boundaries. The severity of these existing views is reduced by the existing non-deciduous tree canopy located along Blaxland Creek that screens the Project Site from this area. Views of the Project Site from other and/or the southern side of Blaxland Creek where there is no vegetation screening however, accentuates the appearance of the bund walls in comparison to the surrounding topography.

Early Operation Stages

As illustrated in **Figure 3** and **Figure 6,** the early operation procedures will involve constructing two audio-visual earth mounds that will shield the activities within the Recycling and Re-Processing Area / Final Cell.

The new earth mounds to be constructed around the Recycling and Re-Processing Area / Final Cell would ensure that noise generated from the recycling and re-processing plant is maintained at appropriate levels, and that the associated plant cannot be viewed from outside the Project Site's boundaries.

The early operational stages will see the commencement of waste emplacement in the northwestern part of Cell 1. The existing northern bund wall towards the western side of the Project Site is at its highest at this point (53m AHD). The height of this existing northwestern bund wall would be increased to 55m AHD across the bulk of the northern bund wall.

As illustrated in **Figure 3** the combined northwestern and northeastern bund walls will be reshaped and battered in order to provide a gradual slope up away from the northern boundary as opposed to the steep walls of the bunds at present. Revegetation of the northern bund wall with various native canopy trees would also be undertaken once the outside of this wall has been reshaped.

The reshaped bund wall will also elevate the sight lines from those properties at a higher elevation within "The Vines" estate to the top of what will be the eventual height of the final landform was well as to contain any adverse noise spill from the Project Site.

The appearance of the northern bund wall in the early operational stages from within "The Vines" at approximately 500m, 800m and 1km from the Project Site is illustrated in the "View after Construction of Visual Bund" presentations in **Photomontages 1, 2** and **3**.

Some of the key features to note in the early operation photomontages include the 2m high timber acoustic fence on top of the reshaped northern bund wall. Also, a 4m high mobile acoustic barrier will be located along different positions of the northern bund wall to reduce noise from machinery operating in this area during the construction phase. The mobile barrier would also be used when undertaking earthworks on the final landform above the 55m level of the northern bund wall (and the 58m level of the eastern bund wall).

The view impacts of the Project Site from the north that would be incurred from "The Vines" estate in the outer and middle rings of the visual catchment would remain minor. Similarly, when the site is viewed from the inner ring, the visual impact would remain severe.

Operational Stages

Once the activity on the Project Site has significantly increased, the waste emplacement along the western and in the north-western corner of Cell 1 will have reached the final landform level and capped. The northern bund wall that is constructed during the site establishment stage would blend into the background of the final landform and will read like a gradual slope up from the northern boundary of the Project Site (see **Figure 3**).

Further toward the centre of the Project Site, along its northern boundary, **Figure 6** illustrates that the elevated northern bund wall will assist to shield much of the activities on site. The landform will rise gradually towards the centre of the site as the waste emplacement increases to its capacity in Cells 1 and 2.

An indicative location of the 4m-high acoustic barrier when operating at the higher levels has been provided corresponding with the view from the location of **Photomontage 3**. A close up view of a typical acoustic barrier that would be used is shown in **Figure 8**. The mobile acoustic barrier itself would be painted in a mottle green hue to limit its visibility. The ends of the barrier would be noticeable providing a contrast to the skyline.

Therefore, the view impacts of the Project Site from the north that would be incurred from the outer and middle rings of the visual catchment will be reduced to negligible and to minor from the inner ring.

Final Landform

The rehabilitation will result in the visual impact of the majority of the northern bund wall being progressively reduced as it blends into the gradual slope towards the centre of the Project Site approximately 350m from its northern boundary. The views from the north will be significantly improved and when combined with the existing tree canopy located along Blaxland Creek, the visual impact would be reduced to negligible from outer and middle rings, which comprise "The Vines" estate.

Photomontages 1, 2 and **3** also illustrate the final landform when viewed from the north within "The Vines" estate from the same locations as the early operations photomontages above mentioned. As illustrated in the photomontages, the views of the site would be consistent with the surrounding rural landscape and represent a significant improvement from those locations, particularly within "The Vines", where the bund walls can currently be seen. Some of the key points to note in these photomontages are the removal of the acoustic timber fence and mobile acoustic barrier and the mature vegetation screening that would be provided by the landscaping implemented in the early operational stages.

Closer to the Project Site, the visual impact would be reduced from severe to minor as a result of the redefined landform, particularly with the reshaping and revegetation of the northern bund wall. In this regard, it is important to note that those views of the Project Site from the north will be one of the first aspects that will be improved as a result of the Project's progressive rehabilitation program in order to provide some visual amenity relief to a number of the residents within "The Vines" estate.

5.2.2 Views from the South

Existing Landform

Views of the Project Site from the south include an existing bund wall, which is approximately 10m high (see **Figures 3** and **6**). This bund wall occupies over half of the length of the Project Site's southern boundary. The existing landform for the remainder of the Project Site's southern boundary is generally flat and at the natural ground level.

The existing visual impacts of the Project Site, when viewed from the outer and middle rings from the south, are barely discernable given the extent of existing vegetation that exists within this visual catchment area. From the inner ring, the existing visual impact of the Project Site is best described as moderate.

Early Operational Stages

The early operational stages will not see any changes to the existing landform along the site's southern boundary and, therefore, the view impacts will be unchanged in the early stages of the operations.

Views of the site will only slightly change when viewed from the south east and from the inner ring of the visual catchment. The changes that would be viewed will include the new audio visual earth mounds that will be constructed around the Recycling and Re-Processing Area / Final Cell area. The visual impact of these changes would not change the moderate rating.

Operational Stages

When the Project is in the peak of its operations, the existing bund wall located along the site's southern boundary will be retained. The main purpose of this is that it forms part of the audio-visual shielding around the recycling and re-processing area in order to assist with minimising any adverse noise spill and to also screen the associated plant from the public domain. The view impact from the southern outer and middle rings will, therefore, remain unchanged for the majority of the Project's life.

From the inner ring, some changes to the Project Site's landform when viewed from the south-east will be evident and will consist of the commencement of the final landform being created in Cell 1. This landform however will be over 400m away from the Project Site's southern boundary and, therefore, is unlikely to significantly change the visual impact from moderate.

Final Landform

The removal of the southern perimeter bund walls as well as encompassing existing internal bunds within the overall final landform would result in a negligible visual impact when the Project Site is viewed from the south.

5.2.3 Views from the East

Existing Landform

As illustrated in **Figure 5,** three quarters of the Project Site's eastern boundary is occupied by an existing 10m high bund wall. The remainder of the area along the Project Site's eastern boundary is at the natural ground level.

The Project Site is difficult to differentiate from the surrounding rural landscape at the outer ring of the visual catchment area and, therefore, the impact is negligible. From the middle ring, the visual impact of the existing bund walls is moderate increasing to severe when viewed from the inner ring.

Early Operational Stages

The height of the eastern bund wall will be increased marginally (to 58m AHD) in the early operational stages principally to attenuate noise levels. As a result of the increase in the bund wall height, the visual impact from the middle ring will be reduced to negligible and to minor from the inner ring.

Photomontage 4 provides an illustration the reshaped eastern bund wall as well as the reshaped northern bund wall with early stage vegetation planting approximately 500m from the Project Site at the nearest residential property in this direction. At the top of the northern bund wall and slightly wrapping around at the northern end of the eastern bund wall is a 2m high timber acoustic fence.

Operational Stages

The Project Site's landform will not dramatically change from that displayed during the early operational stages. The eastern bund wall would be reshaped towards the end of the operation in Cells 2B and 3A which, in turn, would blend with the overall slope of the final landform. The visual impact from within the eastern catchment area will, therefore, not change during the majority of the life of the Project, which is predominantly negligible.

Final Landform

As illustrated in **Figure 3,** the views from within the catchment area from the east will generally not change from the early stages of the operations. The visual impact status from within the catchment area will, therefore, also remain unchanged once the final landform is in place.

Photomontage 4 also illustrates how the final landform would be viewed from the nearest residential property to the east of the Project Site, which will be a gently sloping, grassed knoll that is consistent with the character of the surrounding rural landscape. The vegetation planted along the site's northern bund wall is also illustrated at maturity, which blends well with the existing tree canopy along Blaxland Creek. The acoustic fence and acoustic barrier would be removed from the Project Site.

5.2.4 Views from the West

Existing Landform

The Project Site is not viewed from the outer ring in the western part of the visual catchment area given the extent of tree canopy on the adjoining land owned by the Commonwealth of Australia. Only glimpses of the Project Site's existing 13m high bund wall located along the southern half of its western boundary are possible in the middle and inner rings. Overall, the existing visual impact of the Project Site when viewed from the west is negligible and minor.

Early Operational Stages

The early operational stages will result in no changes to the visual impacts from the west given that the existing western bund wall will not be altered. This bund wall is being retained to screen and mitigate noise impacts from operations within the Recycling and Re-processing Area / Final Cell.

Operational Stages

Once the operations have significantly progressed, some changes to the visual characteristics of the site that will be noticeable from the inner ring and to a lesser degree the middle ring will be the waste emplacement and the associated establishment of the final landform in Cell 1. As this situation arises, the visual impacts are likely to change from negligible to minor for the middle ring and from minor to moderate for the inner ring.

Final Landform

As illustrated in **Figures 4** and **5**, the bund wall skirting the western boundary of the Project Site will predominantly be removed as part of the final rehabilitation process. The bund wall will be battered down and form part of the final landform. The benefit of this will be that the visual impacts when the Project Site is viewed from the middle and outer rings would be reduced back to negligible and minor.

6 CONCLUSION

In order to assess the visual impacts of the Project Site, a defined visual catchment was first determined. The visual impacts of the Project Site were then determined at distances of 1km (outer ring), 500m (middle ring) and 100m (inner ring) from all directions for the four stages of the Project, which include:

- Existing Landform
- Early Operational Stages (Approximately Years 1-5)
- Operational Stages (Approximately Years 6-27)
- Final Landform (Approximately Years 28-30)

The visual impacts were assessed having regard for the objectives in the local planning framework for the Project Site's current rural zoning, in which includes to protect and enhance the scenic qualities of the rural character of the locality.

The primary visual impacts of the Project Site in its current form are the perimeter bund walls that were constructed by its former owners. These bund walls can be viewed from within the surrounding rural landscape, up to approximately 1km away. Whilst the visual impacts of the Project Site in its current form are severe when viewed from the inner ring of the visual catchment area, the overall visual impact has been determined as minor to moderate.

The Project will achieve the objectives of the local planning framework for its rural context via its proposed progressive rehabilitation of the Project Site through residual non-putrescible waste emplacement and VENM within its cells and landscaping.

During the early operation and operational stages of the Project, the existing bund walls will be altered and used to provide both visual and acoustic barriers, in particular, with respect to those closest residential properties in rural-residential estate known as the "The Vines" to the north and also residents to the east.

The initial phase of the waste emplacement associated with the Project will be concentrated in the northern part of the Project Site in order to enable the commencement of the rehabilitation and subsequent creation of the final landform. The purpose of this sequence is to ensure that the improvements in terms of the Project Site's visual impact will be to the benefit of those closest, established residents first.

The progressive rehabilitation will move generally from north to south in order to enable the recycling and reprocessing plant to continue to operate even at the end of the residual waste emplacement capacity of the Project Site's main cells. By this stage, the visual impacts of the site from the north and east within the visual catchment area would, overall, be categorised as minor.

At the end of the life of the Project Site, the final landform will be a landscaped, gently sloping knoll that will be consistent with the surrounding rural character and the objectives of the relevant local environmental planning instruments.