



**CLEARY BROS**

ABN: 28 000 157 808

# Amendment Report

**for the**

# Albion Park Quarry Extraction Area Stage 7 Extension

**Major Project  
Application No. SSD 10369**

*Prepared by:*



**RWCorkery&co**

May 2023



## ACKNOWLEDGEMENT

*R.W. Corkery & Co. acknowledge and pay our respects to the Traditional Custodians of the lands in NSW and Australia on which our projects are located. We value the knowledge, advice and involvement of the Elders and extended Aboriginal community that contribute to our Projects and extend our respect to all Aboriginal and Torres Strait Islander peoples.*





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**Prepared for:**

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May 2023

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## Acronyms

AEP	Annual Exceedance Probability
ANZMEC	Australian and New Zealand Minerals and Energy Council
BAM	Biodiversity Assessment Method
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCD	Biodiversity and Conservation Division
BCT	Biodiversity Conservation Trust
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offsets Scheme
BSA	Biodiversity Stewardship Agreement (BSA) Area
CBA	cost benefit analysis
DAWE	Department of Agriculture, Water and Environment
DPE	Department of Planning and Environment
DPIE	Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
ha	hectares
LCZ	Landscape Character Zone
LEP	Local Environmental Plan
LLS Act	<i>Local Land Services Act 2013</i>
MNES	Matters of National Environmental Significance
Mt	million tonnes
PCT	Plant Community Type
RFI	Request for Information
RMP	Rehabilitation Management Plan
RWC	R.W. Corkery & Co. Pty Limited
SEEC	Strategic Environmental and Engineering Consulting Pty Ltd
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SLR	SLR Consulting Australia Pty Ltd
TEC	Threatened Ecological Community
tpa	tonnes per annum
VMP	Vegetation Management Plan
WSP	Water Sharing Plan

## Summary

Cleary Bros (Bombo) Pty Ltd (Cleary Bros) submitted an application for State Significant Development Consent for the proposed Stage 7 Extension of the Albion Park Quarry (the Project). The application was supported by an *Environmental Impact Statement* (EIS) which was exhibited from 20 May 2022 to 16 June 2022. During and following that period, a range of matters have been identified that have supported an amendment to the Project, as exhibited.

The proposed amendments include the following.

- Clarification of the land to which the application applies.
- An amended and reduced Extraction Area footprint.
- Amendments to the nomenclature of the stages of the Project.
- Amendments to the proposed visual amenity mitigation measures.
- An amended final landform to ensure that the final landform would be free-draining.
- Ancillary clarifications related to the following.
  - Clarification that development consent is sought for a maximum period of 30 years.
  - Clarification that the Amended Project would cease and the Amended Project Area would be rehabilitated in the event that an extension or replacement for DA614/2006 which permits transportation from the Amended Project Area is not obtained prior to expiry on 21 February 2036.

The proposed amendments would result in:

- reduced biodiversity-related impacts to the listed *Melaleuca armillaris* Tall Shrubland community, individuals of *Zieria granulata* and avoided impacts upon *Cynanchum elegans*; and
- improved visual-amenity related mitigation providing confidence in relation to the success of the proposed mitigation measures.

Other environmental-related impacts would be largely unchanged from those described in the EIS, as exhibited.

# 1. Introduction

## 1.1 Scope

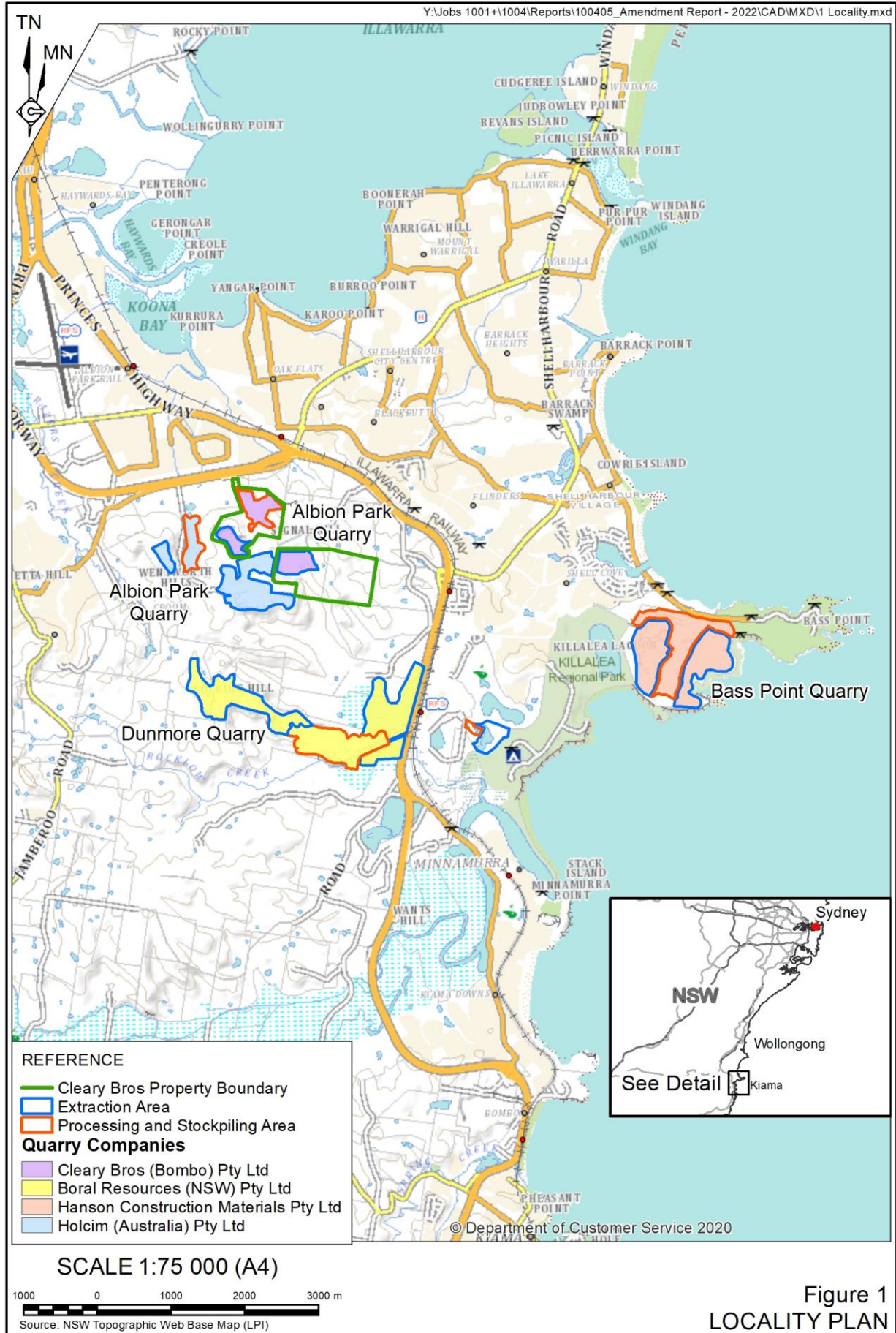
Cleary Bros (Bombo) Pty Ltd (Cleary Bros) proposes to extend the current hard rock extraction area within the Albion Park Quarry (the Quarry) located in the local suburb of Croom, approximately 20km south-southwest of Wollongong and approximately 4km west of Shellharbour (**Figure 1**). An application for State Significant Development Consent for the proposed Stage 7 Extension of the Quarry (the Project) has been submitted. The application was supported by an *Environmental Impact Statement* (EIS) prepared by R.W. Corkery & Co. Pty Limited (RWC). The EIS was exhibited from 20 May 2022 to 16 June 2022. During and following that period, 11 submissions were received by the Department of Planning and Environment (DPE) from Government Agencies and Shellharbour City Council. A total of 61 public submissions supporting the Project and no opposing submissions were received during the exhibition period. A Request for Information was also received from DPE. A number of representations were also received by the DPE following the exhibition period principally relating to historic heritage issues.

A *Submissions Report* which provides an analysis of, and responses to each of the above submissions and advice, as well as an overview of the actions taken since the EIS was exhibited was submitted on 27 October 2022.

An *Amendment Report* which addressed amendments to the Project as exhibited was also submitted on 27 October 2022.

Subsequent to submission of the *Submissions Report* and *Amendment Report*, two further Requests for Information have been received from the Department of Planning and Environment. A range of discussions with the Department and other government agencies have also occurred. As a result of those requests and discussions, further amendments to the Project have been proposed. As a result, the *Amendment Report* dated October 2022 has been withdrawn and a revised *Amendment Report* (this document) has been prepared. This document presents all changes to the design of the Project since the exhibition. These amendments primarily include the following.

- Clarification of the land to which the application applies.
- A reduced Extraction Area to address biodiversity and visual amenity-related impacts, including associated:
  - amendments to the quantum of resource to be extracted and therefore the life of the Project; and
  - adjustments to the design and staging of the Project.
- Minor ancillary amendments, including amendments to the:
  - mitigation measures to minimise visual impacts for observers located to the east and southeast of the Amended Project Area;
  - nomenclature of stages of extraction operations; and
  - final landform to permit improved management of surface water and ensure the final landform would be largely free-draining.



The *Amendment Report* includes the following Appendices.

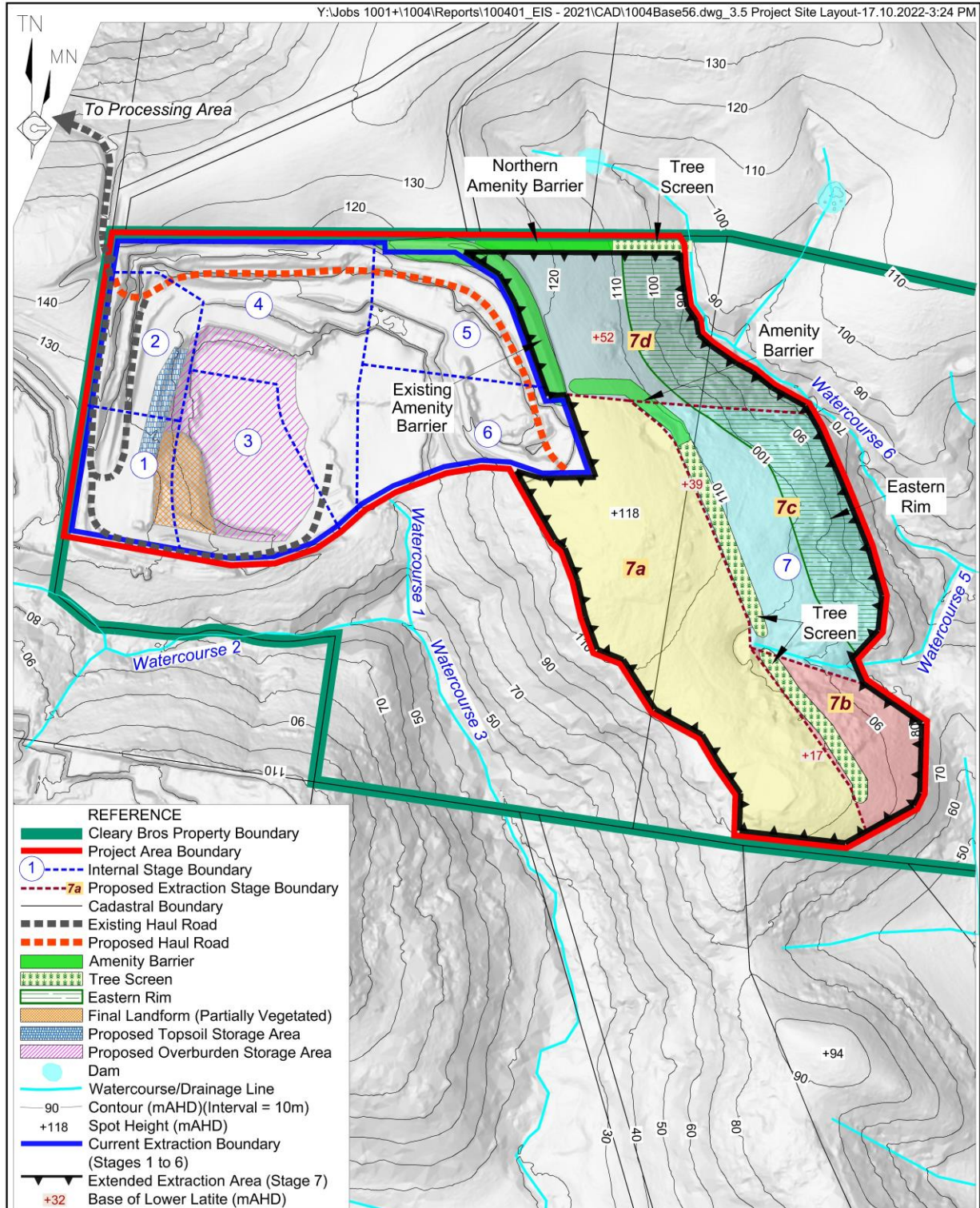
- **Appendix 1** presents the Amended Project Description.
- **Appendix 2** presents an amended statutory compliance table.
- **Appendix 3** presents an amended compilation of mitigation measures.
- **Appendix 4** presents a *Landscape Character Assessment* prepared by Moir Landscape Architecture.
- **Appendix 5** presents an *Amended Visual Impact Assessment* prepared by RWC.
- **Appendix 6** presents a *Historic Landscape and Heritage View Impact Analysis* prepared by Biosis.
- **Appendix 7** presents an *Amended Biodiversity Development Assessment Report* prepared by Niche.
- **Appendix 8** presents an *Economic Assessment of the Amended Albion Park Quarry Extraction Area Stage 7 Extension* prepared by Gillespie Economics.
- **Appendix 9** presents an *Amended Social Impact Assessment* prepared by Element.

This Report has been prepared generally in accordance with the requirements of *State significant development guidelines – preparing an amendment report* dated October 2022.

## 1.2 Project Overview – As Exhibited

The Project as exhibited would involve the following (**Figure 2**).

- Extension of the current Stage 1 to 6 Extraction Area to include the proposed Stage 7 Extraction Area.
- Continued extraction of latite, agglomerate and overburden material using free dig and drill and blast extraction methods at the currently approved extraction rate of 900,000 tonnes per annum (tpa) of material exported from the Project Area.
- Continued Primary, and on occasion secondary, processing operations within the Project Area.
- Continued transportation of extracted and processed material to Cleary Bros fixed processing plant for further processing.
- Continued operation of the Quarry between 7:00am and 5:30pm Monday to Friday and 7:00am to 1:00pm Saturday. However, operations in the Stage 7 Area would be reduced to a maximum of 16 Saturdays per calendar year.
- Extraction of up to 33 million tonnes (Mt) of latite and agglomerate.



Note: Some boundaries are coincident and are offset for clarity

SCALE 1:7 500 (A4)

100 0 100 200 300 400m

Contour Data Source: Geoscience Australia (External to Project Area)  
 Cleary Bros (Internal Mapping)

Figure 2  
 INDICATIVE PROJECT LAYOUT  
 - AS EXHIBITED

- Rehabilitation of the final landform suitable for agriculture and nature conservation, including establishment and revegetation of:
  - Quarry extraction benches, including reduced height (7m high) faces on the upper western highwall of the Stage 7 Extraction Area;
  - the floor of the Extraction Area; and
  - three quarry sumps.

## 1.3 Proposed Amendments

The proposed amendments to the original Project include the following (**Figure 3**). The following also includes a brief explanation of the background to the amendments.

- Clarification of the land to which the application applies.  
Additional land was inadvertently listed on the planning portal when the EIS was submitted. The only land to which the Project relates includes the following.
  - Lot 1 DP858245
  - Lot 7 DP3709
- Amended and reduced Extraction Area footprint.  
The southern section of the Stage 7 Extraction Area, as exhibited, included the following.
  - Areas of *Melaleuca armillaris* Tall Shrubland in the Sydney Basin Bioregion vegetation community, a community listed as Critically Endangered under the *Biodiversity Conservation Act 2016* (BC Act).
  - An estimated 2,170 mature *Zieria granulata* individuals, a species listed as endangered under both the BC Act and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
  - One *Cynanchum elegans* individual, a species listed as endangered under both the BC Act and the EPBC Act.

In addition, the Extraction Area, as exhibited, would have permitted views of the upper approximately 38m and 42m of the western and northern terminal faces respectively.

In light of the above, Cleary Bros determined to reduce the footprint of the Stage 7 Extraction Area by relocating the southern and eastern boundaries of the Extraction Area to the north and west respectively. The reduced Extraction Area has resulted in a reduction in the resource to be extracted of approximately 7.7Mt of hard rock and in the life of the Project to 30 years, nominally to 2053.

- Amendments to the nomenclature of the stages of the Project.  
The Project, as exhibited, included an area identified as the “Eastern Rim” that would be extracted last. However, the Eastern Rim included parts of both Stage 7c and 7d. This arrangement resulted in confusion and has been clarified by renaming the Eastern Rim as Stage 7e, and removing this area from Stages 7c and 7d.





- Amendments to the proposed visual amenity mitigation measures.

The Project, as exhibited, included a commitment to reduce the height of the uppermost faces on the western highwall of the Stage 7 Extraction Area from 14m to 7m and a reduction in bench width from 5m to 3m. The reduced height would permit establishment of vegetation on the benches that would assist to screen the western face of the Stage 7 Extraction Area from observers to the east.

Following the exhibition period, it was identified that a section of the northern extraction face would also be visible from locations to the southeast of the Stage 7 Extraction Area.

It was also identified that wider benches would be more likely to support superior rehabilitation outcomes. As a result, Cleary Bros elected to amend the Extraction Area design to include 7m high faces on the visible sections of the northern and western terminal highwalls, and to increase the width of the benches below the visible faces from 3m to 10m.

- Amended final landform

The Project, as exhibited, included two sumps in the Stage 7 Extraction Area in locations that would not permit passive discharge to natural drainage. As a result, potential existed for substantial quantities of water to accumulate post-closure. As this volume would exceed the relevant Harvestable Right and suitable licences are not available for the captured water, the final landform has been amended to include construction of a low flow discharge pipe to a nearby watercourse to the west of Stage 7.

- Ancillary clarifications and amendments

A range of clarifications and ancillary amendments to the Project are proposed, including the following.

- Clarification that development consent is sought for a maximum period of 30 years.
- Clarification that the Amended Project would cease and the Amended Project Area would be rehabilitated in the event that an extension of the current consent, or a new consent, for transportation of extracted materials from the Project Area across Lot 2 DP 858245 is not obtained prior to expiry of DA614/2006 on 21 February 2036.
- Confirmation that the Northern Amenity Barrier and Tree Screen would no longer be constructed in accordance with an agreement with a neighbouring landholder.

## 2. Strategic Context

### 2.1 Introduction

The strategic context of the Amended Project would remain unchanged from that of the original Project, as presented in the EIS. This Section presents an overview of the State and Regional Strategies, Policies and Plans considered as part of the EIS for the Project.

### 2.2 Government Strategies, Policies and Plans

The EIS considered the following Government Strategies, Policies and Plans.

- *Greater Sydney Region Plan.*
- *Infrastructure Strategy and Freight and Ports Plan.*
- *Illawarra-Shoalhaven Regional Plans.*
- *Illawarra-Shoalhaven Regional Transport Plan*

The Amended Project would continue to be consistent with each of the documents reviewed for the following reasons.

- The Amended Project would result in the continued supply of quarry products within the Greater Sydney, Illawarra and Shoalhaven Regions, thereby supporting the economic and social development of those regions.
- The Amended Project would continue to supply important infrastructure projects, ensuring a high quality, competitively priced product essential to the successful delivery of the projects.
- The Amended Project would ensure continued direct employment of approximately 27 individuals, with numerous additional positions reliant upon the Amended Project, thereby supporting the economic and social setting of the local area.
- The Amended Project would result in continued economic contributions for a period of 30 years, thereby supporting local businesses and would promote economic activity.
- The Amended Project would result in reduced environmental impacts, including reduced impacts to two threatened ecological communities and one listed plant species.

The Amended Project is considered by Cleary Bros to be consistent with the overall strategic context of the Project, as exhibited.

## 3. Description of the Amendments

### 3.1 Overview of Amendments

**Table 1** presents an overview of the proposed amendments to the original Project. An Amended Project description is presented as **Appendix 1**.

**Table 1**  
**Amended Project Summary**

Element	Original Project	Amended Project																				
Project Area	Lot 1, DP858245 Lot 7, DP3709 Lot 2, DP858245 Lot 420, DP 1252087 Lot 421, DP1252087	Lot 1, DP858245 Lot 7, DP3709																				
Global Resource (Stages 1 to 7)	<table border="1"> <thead> <tr> <th>Rock Type</th> <th>Million Tonnes</th> </tr> </thead> <tbody> <tr> <td>Upper Latite</td> <td>12.8</td> </tr> <tr> <td>Lower Latite</td> <td>11.1</td> </tr> <tr> <td>Agglomerate</td> <td>8.1</td> </tr> <tr> <td><b>Total Rock</b></td> <td><b>32.0</b></td> </tr> </tbody> </table> <p>Adjusted for Stages 1-6 resource extracted to: May 2019</p>	Rock Type	Million Tonnes	Upper Latite	12.8	Lower Latite	11.1	Agglomerate	8.1	<b>Total Rock</b>	<b>32.0</b>	<table border="1"> <thead> <tr> <th>Rock Type</th> <th>Million Tonnes</th> </tr> </thead> <tbody> <tr> <td>Upper Latite</td> <td>9.1</td> </tr> <tr> <td>Lower Latite</td> <td>7.6</td> </tr> <tr> <td>Agglomerate</td> <td>4.9</td> </tr> <tr> <td><b>Total Rock</b></td> <td><b>21.5</b></td> </tr> </tbody> </table> <p>Adjusted for Stages 1-6 resource extracted to: March 2023 Apparent arithmetic inconsistencies are due to rounding</p>	Rock Type	Million Tonnes	Upper Latite	9.1	Lower Latite	7.6	Agglomerate	4.9	<b>Total Rock</b>	<b>21.5</b>
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Lower Latite	7.6																					
Agglomerate	4.9																					
<b>Total Rock</b>	<b>21.5</b>																					
Project Area Footprint	<table border="1"> <thead> <tr> <th>Project Area</th> <th>Approximate Area (ha)</th> </tr> </thead> <tbody> <tr> <td>Stages 1 to 6</td> <td>18.0</td> </tr> <tr> <td>Stage 7</td> <td>19.3</td> </tr> <tr> <td><b>Total</b></td> <td><b>37.3</b></td> </tr> </tbody> </table>	Project Area	Approximate Area (ha)	Stages 1 to 6	18.0	Stage 7	19.3	<b>Total</b>	<b>37.3</b>	<table border="1"> <thead> <tr> <th>Project Area</th> <th>Approximate Area (ha)</th> </tr> </thead> <tbody> <tr> <td>Stage 1 to 6</td> <td>18.0</td> </tr> <tr> <td>Stage 7</td> <td>16.1</td> </tr> <tr> <td><b>Total</b></td> <td><b>34.1</b></td> </tr> </tbody> </table>	Project Area	Approximate Area (ha)	Stage 1 to 6	18.0	Stage 7	16.1	<b>Total</b>	<b>34.1</b>				
Project Area	Approximate Area (ha)																					
Stages 1 to 6	18.0																					
Stage 7	19.3																					
<b>Total</b>	<b>37.3</b>																					
Project Area	Approximate Area (ha)																					
Stage 1 to 6	18.0																					
Stage 7	16.1																					
<b>Total</b>	<b>34.1</b>																					
Amended Visual Amenity Mitigation Measures	<p>7m high faces with 3m wide benches on uppermost 14m of the western highwall of the Stage 7 Extraction Area. Amenity Bunds and/or Tree Screens on:</p> <ul style="list-style-type: none"> <li>eastern and northern boundary of Stage 7a; and</li> <li>northern boundary of Stage 7d.</li> </ul>	<p>7m high faces with 10m wide benches on visible sections of the western and northern terminal highwalls of the Stage 7 Extraction Area. Amenity Bund and/or Tree Screens on:</p> <ul style="list-style-type: none"> <li>eastern and northern boundary of Stage 7a;</li> <li>eastern boundary of the amended Stage 7e; and</li> <li>on a ridgeline approximately 200m east of the amended Stage 7e.</li> </ul>																				
Amended Final Landform	Internally draining Stage 7 Extraction Area.	Externally draining Stage 7 Extraction Area via a dedicated sump and discharge pipe.																				
Amended Staging Nomenclature	Four Stages (Stages 7a to 7d) with the Eastern Rim across and incorporating parts of Stages 7c and 7d.	Five Stages (Stages 7a to 7e) with the former Eastern Rim renamed "Stage 7e." Stages 7c and 7d reduced to exclude Stage 7e.																				
Ancillary Amendments	<p>Project life = 30 years Project to cease in 2036 if DA614/2006 not extended/replaced. Construction of Northern Amenity Barrier and Tree Screen.</p>	<p>Project life = 30 years Project to cease in 2036 if DA614/2006 not extended/replaced. Northern Amenity Barrier and Tree Screen no longer proposed.</p>																				

## 3.2 Clarification of the Project Area

Additional lots were inadvertently included in the application for development consent completed on the Department of Planning and Environment Planning Portal. As identified in the Amended Project Description (**Appendix 1**), the Amended Project Area would only include the following Lots.

- Lot 1, DP858245
- Lot 7, DP3709

For the avoidance of doubt, the following Lots are not included within the Amended Project Area.

- Lot 2, DP858245
- Lot 420, DP 1252087
- Lot 421, DP1252087

## 3.3 Amended Resource

Section 3.4 identifies and provides the background for the amended Extraction Area footprint. Section 3.3 of the Amended Project Description (**Appendix 1**) presents the amended resource estimate which is reproduced as **Table 2**. In summary, taking into account the amended Extraction Area as well extraction of the resource within the Stages 1 to 6 Extraction Area the depleted or remaining hard rock resource within the Amended Project Area is 21.5Mt. Allowing for the proposed rate of extraction of 750,000tpa, the amended resource provides sufficient material for approximately 29 years of production.

**Table 3** presents a comparison of the available resource within the as exhibited and as amended Stage 7 Extraction Area designs. In summary, the proposed amendment to the Stage 7 Extraction Area would result in a reduction of the contained resource of 7.7Mt of hard rock.

## 3.4 Amended Extraction Area Footprint

**Figure 2** presents the Stage 7 Extraction Area as exhibited. During consultation with the Department of Planning and Environment and other relevant government agencies following exhibition, the following was identified.

- The Extraction Area as exhibited would impact on the following.
  - 2.92ha of PCT720 – *Melaleuca armillaris* Tall Shrubland, a Threatened Ecological Community.
  - An estimated 2,170 mature *Zieria granulata* individuals, a species listed as endangered under both the BC Act and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
  - One *Cynanchum elegans* individual, a species listed as endangered under both the BC Act and the (EPBC Act).

**Table 2**  
**Amended Resource Volume and Tonnage Estimates**

Design	Density (t/bcm)	Stages 4,5 and 6 (May 2019)		Stage 7 (Amended)		Total Resource (May 2019)		Production May 2019 to March 2023		Depleted Resource (March 2023)	
		Volume (bcm)	Tonnes	Volume (bcm)	Tonnes	Volume (bcm)	Tonnes	Volume (bcm)	Tonnes	Volume (bcm)	Tonnes
Overburden	2.30	0.3 M	0.7 M	1.0 M	2.2 M	1.3 M	2.9 M	0.3 M	0.7 M	1.0 M	2.2 M
Upper Latite	2.65	0.5 M	1.3 M	3.3 M	8.7 M	3.8 M	10.0 M	0.4 M	0.9 M	3.4 M	9.1 M
Agglomerate	2.30	0.7 M	1.6 M	1.9 M	4.3 M	2.6 M	5.9 M	0.5 M	1.0 M	2.1 M	4.9 M
Lower Latite	2.65	1.1 M	2.9 M	2.2 M	5.8 M	3.3 M	8.6 M	0.5 M	1.1 M	2.7 M	7.6 M
<b>Total Latite</b>		<b>1.6 M</b>	<b>4.1 M</b>	<b>5.5 M</b>	<b>14.5 M</b>	<b>7.0 M</b>	<b>18.6 M</b>	<b>0.9 M</b>	<b>2.0 M</b>	<b>6.1 M</b>	<b>16.6 M</b>
<b>Total Latite + Agglomerate</b>		<b>2.3 M</b>	<b>5.8 M</b>	<b>7.3 M</b>	<b>18.8 M</b>	<b>9.6 M</b>	<b>24.5 M</b>	<b>1.4 M</b>	<b>3.0 M</b>	<b>8.2 M</b>	<b>21.5 M</b>
<b>Total Waste (Overburden &amp; Loss)</b>		<b>0.3 M</b>	<b>0.7 M</b>	<b>1.0 M</b>	<b>2.2 M</b>	<b>1.3 M</b>	<b>2.9 M</b>	<b>0.3 M</b>	<b>0.7 M</b>	<b>1.0 M</b>	<b>2.2 M</b>

Note: Apparent arithmetic inconsistencies are a result of rounding  
Source: After Lee (2020), RPM Global and Cleary Bros

**Table 3**  
**Original and Amended Stage 7 Resource**

Rock Type	Stage 7 Resource		
	As Exhibited (April 2022) <sup>1</sup>	As Amended (March 2023) <sup>2</sup>	Lost Resource
	(tonnes)	(tonnes)	(tonnes)
Overburden	2.5 M	2.2 M	0.3 M
Upper Latite	12.0 M	8.7 M	3.3 M
Agglomerate	6.1 M	4.3 M	1.8 M
Lower Latite	8.4 M	5.8 M	2.6 M
<b>Total Latite</b>	<b>20.4 M</b>	<b>14.5 M</b>	<b>5.9 M</b>
<b>Total Latite + Agglomerate</b>	<b>26.5 M</b>	<b>18.8 M</b>	<b>7.7 M</b>
<b>Total Waste</b>	<b>2.5 M</b>	<b>2.2 M</b>	<b>0.3 M</b>

Note 1: Lee (2020) - After Table 6.2  
Note 2: After Lee (2020), RPM Global and Cleary Bros

There was concern that the proposed level of disturbance could potentially result in Serious and Irreversible Impacts to PCT720. As a result, Cleary Bros amended the southern boundary of the Extraction Area to avoid disturbance of the following.

- 1.73ha of PCT720, with 1.19ha of that community remaining within the Amended Extraction Area. Avoidance areas targeted those parts of PCT720 in better condition.
- An estimated 1,133 mature *Zieria granulata* individuals, with an estimated 1,037 mature individuals remaining within the Amended Extraction Area.
- The single *Cynanchum elegans* individual.
- The Extraction Area as exhibited would have permitted views of upper approximately 38m and 42m of the western and northern terminal faces respectively.

There was concern that this level of visual impact would not be acceptable to the community. As a result, Cleary Bros amended the eastern boundary of the Extraction Area. This amendment, together with establishment of tree screens to the east of the Extraction Area would result in the available views of the western and northern terminal faces being reduced to approximately 20m and 16m respectively.

### 3.5 Amended Visual Amenity Mitigation Measures

Section 6.4.4 of the EIS included a commitment to split the uppermost 14m extraction faces on the western side of the Stage 7 Extraction Area into two 7m faces with 3m wide benches to improve vegetation establishment in this area.

Subsequent to exhibition of the EIS, Cleary Bros became aware that the northern face of the Extraction Area would also be visible to observers located to the southeast of the Amended Project Area in the vicinity of the proposed Shellharbour Hospital.

In addition, a review of current and historical quarries in the local area and interstate has shown that superior rehabilitation outcomes can be achieved on quarry benches where overburden, scalps or soil have been placed on benches with widths of 8 metres or more. As a result, Cleary Bros propose to incorporate 10m wide benches intersecting 7m high faces on the visible faces of the western and northern terminal highwalls. Section 3.4.3 and Figure 3.6 of the Amended Project Description (**Appendix 1**) present the amended Extraction Area design.

In order to minimise visual impacts for observers to the east and southeast of the Amended Project Area, Cleary Bros propose to establish two additional tree screens as follows (**Figure 3**).

- A tree screen located on the eastern boundary of Stage 7e. Substantial vegetation exists in this area already and the proposed tree screen would be established primarily through the use of infill planting.
- A tree screen located on the ridgeline to the east of Watercourse 6.

Each tree screen would be established as soon as practicable following determination of the application and would be established using suitable species expected to exceed 10m in height. It is noted that many of the existing established trees and other vegetation surrounding the Amended Project Area exceed 10m height already.

Finally, an amenity bund and tree screen proposed for the northern boundary of the Extraction Area is no longer proposed, following consultation with the owners of “Figtree Hill”.

### 3.6 Amended Staging Nomenclature

Section 3.6.2.3 and Figures 3.5 to 3.7 of the EIS identified four stages within the Extraction Area, with Stages 7c and 7d incorporating the “Eastern Rim” (**Figure 2**). The “Eastern Rim” was to be extracted last to minimise the exposed face visible during extraction of this area and allow time for establishment of vegetation on the western highwall of the Extraction Area to observers to the east of the original Project Area.

Advice from the Department of Planning and Environment suggested that reference to the “Eastern Rim” was confusing and open to misinterpretation. As a result, and in the interest of ensuring clear communication, the “Eastern Rim” is now referred to as Stage 7e (**Figure 3**). The boundaries of Stages 7c and 7d have also been updated to exclude the area now covered by Stage 7e. No other amendments to the proposed extraction staging are proposed. Extraction operations would proceed generally as described in Section 3.6.2.3 of the EIS, with Stage 7c to be followed by Stage 7d before extraction operations are undertaken within Stage 7e, noting there would be some overlap from stage to stage as extraction proceeds in a benched fashion.

### 3.7 Amended Final Landform

Section 3.12.5 and Figure 3.9 of the EIS identified that the final landform would include:

- a western section, primarily within the Stage 1 to 6 Extraction Area, which would be designed in a manner that would permit passive overflow of water to Watercourse 1; and
- an eastern section, primarily within the Stage 7 Extraction Area, that would be internally draining (**Figure 4**).

Following exhibition of the EIS, it was recognised that the implication of this would be as follows.

- The floor of the Stage 7 Extraction Area could at times be inundated with significant depths of accumulated water, resulting in challenges establishing vegetation within the Foreshore Domain and achieving the nominated final land use of agriculture.
- Following closure, the accumulation of surface water in the Stage 7 Extraction Area may not comply with the requirements of the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources*.

In light of the above, Cleary Bros determined to amend the final landform to incorporate the following (**Figure 5**).

- A progressively backfilled southern section of the Extraction Area to achieve a final landform with a single sump with an elevation of approximately 42m AHD or higher;
- A discharge location comprising:
  - a cased and inclined borehole with an indicative slope of 4% and likely diameter of 450mm;
  - a protected inlet that would prevent both sediment and floating debris such as leaves, sticks, and branches from entering and potentially blocking the inlet and/or discharge pipe; and
  - an engineered outlet adjacent to Watercourse 3 within Cleary Bros-owned land constructed to prevent erosion or scouring of the water course.

Section 3.12.6.1 of the Amended Project Description (**Appendix 1**) presents a detailed description of the proposed inclined pipeline.

### 3.8 Amended Rehabilitation Strategy

The strategy adopted for the design and implementation of the rehabilitation of the Amended Project Area has been undertaken generally in accordance with the relevant objectives of the *Strategic Framework for Mine Closure* (ANZMEC, 2000). The approach to the objectives relied upon at this stage reflects the experience gained by Cleary Bros to date and the planned integration of Stage 7 into the Stage 1 to 6 Extraction Area outlined in the EIS. These objectives would be re-visited throughout the life of the Project to ensure that the rehabilitation of disturbed areas are completed to the standard nominated in the Amended Project Description (**Appendix 1**) and the Quarry's *Rehabilitation Management Plan (RMP)*.<sup>1</sup>

### 3.9 Ancillary Clarifications and Amendments

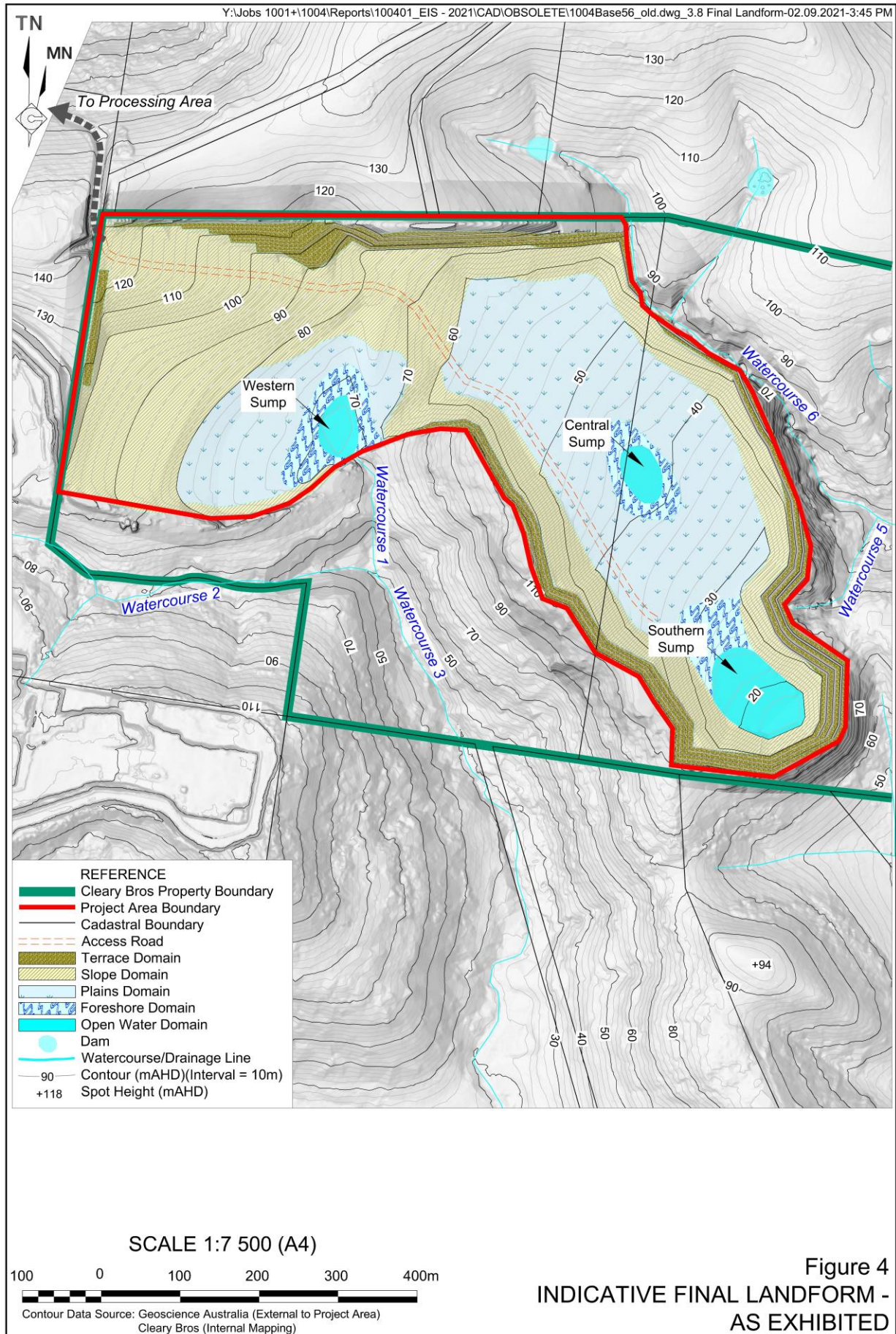
A range of clarifications and ancillary amendments to the original Project are proposed, including the following.

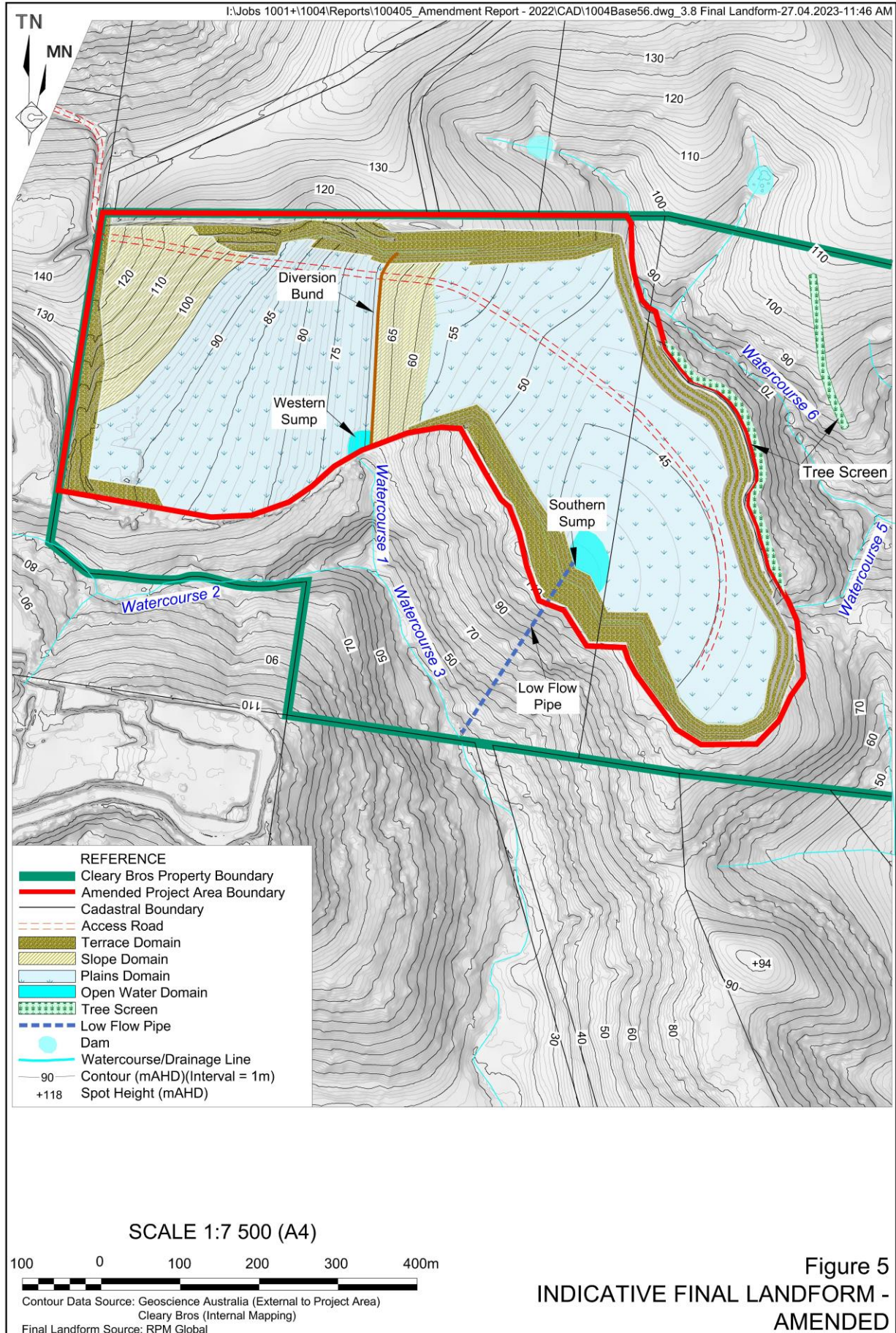
- Life of the Project.  
Section 3.9 of the EIS states that it was Cleary Bros' preference that development consent is granted for a period of 30 years from the end of DA614/2006, namely to 2066. In light of the approximately 7.7Mt reduction in the available resource as a result of the proposed amendments to the Project, development consent is now sought for a period of 30 years from determination of the Project, with an additional period for remaining rehabilitation works.

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<sup>1</sup> The Quarry Rehabilitation Management Plan would be prepared post approval and reflect the conditional requirements of a development consent and the activities and commitments set out in Section 3.12 of **Appendix 1**.







**Figure 5**  
**INDICATIVE FINAL LANDFORM -**  
**AMENDED**

- A commitment to cease extraction operations within the Amended Project Area on 21 February 2036 in the event that DA614/2006 is not modified or replaced to extend beyond that date.

As identified in Sections 1.3.3 and 3.6.4.2 of the EIS, materials are currently, and would continue to be transported from the Amended Project Area via the existing haul road across (Lot 2 DP 858245) under separate development consent, namely DA614/2006. That development consent currently expires on 21 February 2036. Cleary Bros would seek a modification of that consent, or a new consent, to permit continued use of the existing haul road after 21 February 2036. Alternatively, Cleary Bros may seek development consent to transport material from the Amended Project Area via an alternate route after that date.

In the event that Cleary Bros has not received Development Consent to extend the access from its northern property across Lot 2 DP 858245 to the Stage 7 Extraction Area by 2031 or an approval for an alternate route, Cleary Bros proposes to prepare a pre-closure rehabilitation plan i.e. 5 years prior to the expiry of the existing Development Consent DA614/2006. This plan would be implemented in the unlikely event the required development consent is not obtained by 2036. As identified in Section 3.6.2.4 of **Appendix 1**, Cleary Bros anticipates that Stage 7a would be largely complete by that date and the final landform would be amended to reflect the status of extraction operations at that time.

## 4. Statutory Context

The statutory context of the Amended Project would generally remain consistent with that presented in the EIS. **Appendix 2** presents an amended statutory compliance table for the Amended Project.

### 4.1 Amendment of Development Applications

The amendment of the Development Application for the Project is in accordance with Section 37(1) of the *Environmental Planning and Assessment Regulation 2021*.

### 4.2 Power to Grant Approval

Section 4.3.1 of the EIS identifies that the Project is classified as State Significant Development. In accordance with Section 4.5(a) of the EP&A Act and Clause 2.7 of the Planning Systems SEPP 2021 respectively, the NSW Minister for Planning and Public Spaces or the Independent Planning Commission may be the consent authority for the Project.

Given that the thresholds identified in Clause 2.7 of the Planning Systems SEPP 2021 have not been met, the Minister or their delegate is the Consent Authority for the Amended Project.

### 4.3 Permissibility

As identified in Section 4.3.2 of the EIS, the original Project Area was located on land zoned as follows under the *Shellharbour Local Environment Plan 2013*.

- RU1 (Primary Production); and
- C2 (Environmental Conservation).

The Amended Project Area remains within the identified Zones.

Extractive industries are permissible with consent within the RU1 zone.

Extractive industries are prohibited within the C2 zone. However, under Clause 2.9(3) of the *State Environmental Planning Policy (Resources and Energy) 2021* (Resources and Energy SEPP), extractive industries are permissible on land on which development for the purposes of agriculture or industry may be carried out (with or without development consent). Oyster aquaculture is permissible within Zone C2 under the Shellharbour Local Environmental Plan (LEP). Oyster aquaculture is a form of aquaculture, which is in turn a form of agriculture under the definitions of the Shellharbour LEP. As a result, Extractive Industries are permissible with consent within this Zone.

## 4.4 Other Approvals

As identified in Section 4.3.3 of the EIS, the following additional approvals are relevant for the Project.

- Approvals that cannot be refused if consent is granted.
  - A variation to Environment Protection Licence (EPL) 299 to cover the extended footprint of the approved Stage 7 Extraction Area.
- Approvals not required for State Significant Development.
  - An approval under Part 4, or an excavation permit under section 139 of the *Heritage Act 1977*.
  - An Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*.
  - A water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act 2000*.
- Other Approvals
  - An approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
  - Water Access Licence under the *Water Management Act 2000*.

## 4.5 Statutory Compliance

Statutory compliance matters relating to pre-conditions to exercise the power to grant approval, and the mandatory matters that must be considered by the consent authority, are listed in Tables A2.1 and A2.2 in **Appendix 2**. These tables include a cross reference to where each matter is addressed in both the EIS and this document.

## 5. Community Engagement

Since the exhibition of the EIS, Cleary Bros have undertaken the following engagement activities.

- Continued discussions with owners of “Figtree Hill” regarding proposed changes to the Extraction Area footprint. Those discussions have resulted in an agreement not to construct the Northern Amenity Bund and Tree Screen.
- Discussions with Shellharbour Council on a range of issues including visual amenity, biodiversity, and rehabilitation. These discussions have confirmed various commitments made as part of the original EIS, as well as contributed to the proposed amendments to the Project as described in Section 3 and **Appendix 1**.
- Continued discussions with nearby neighbours regarding the proposed Amended Project, including matters directly relevant to individual landholders.

In addition, Cleary Bros have continued with the Company’s routine engagement with the Community Consultative Committee in relation to the proposed Amended Project and the Company’s ongoing operations.

## 6. Assessment of Impacts

### 6.1 Introduction

This section provides an assessment of the impacts associated with those features of the local environment which could potentially be affected by the Amended Project, in particular matters related to visibility, historic heritage and biodiversity. This section concludes with an overview of those environmental aspects that would be unchanged for the proposed Amended Project, and a justification for why that is the case.

### 6.2 Visibility

#### 6.2.1 Introduction

The SEARs for the Project required a detailed assessment of the likely visual impacts of the development (before, during and post-quarrying) on private landowners in the vicinity of the development and key vantage points in the public domain, paying particular attention to any new landforms.

The visual impacts of the Project were also raised as a key issue by the owners of the adjoining “Figtree Hill” property. In light of this, Cleary Bros and the owners of “Figtree Hill” have negotiated an agreement that addresses a range of matters, including visibility. Under that agreement, the owners of “Figtree Hill” have agreed to accept Project-related impacts to the extent identified in this subsection. As a result, Residences R1, R2 and R3 have been classified as Project-related.

Following exhibition of the EIS, the following additional information requests were received.

- Shellharbour City Council in its submission to the EIS requested an assessment of potential visual amenity impacts from the site of the proposed Shellharbour Hospital.
- The Department of Planning and Environment in RFI2 requested additional information in relation to visual impacts at three heritage-listed residences, namely R4, R6 and R9.
- The Department of Planning and Environment in RFI3 requested additional information in relation to rehabilitation of the proposed quarry benches and further assessment of impacts to the visual landscape character of the area surrounding the Amended Project Area.

In order to address RFI3 in particular, Cleary Bros commissioned the following specialist assessments.

- A *Landscape Character Assessment* prepared by Moir Landscape Architecture Pty Ltd (Moir, 2023) and presented as **Appendix 4**.
- An *Amended Visual Impact Assessment* prepared by R.W. Corkery & Co. Pty Limited (RWC, 2023) and presented as **Appendix 5**.

This subsection presents an updated visual impact assessment in light of the above requests and amendments to the Project since it was exhibited. The following also presents a synthesis of Moir (2023) and RWC (2023).

## 6.2.2 The Existing Visual Environment

### 6.2.2.1 Amended Project Area Setting

The Amended Project Area is located within the elevated rural land south and west of the Princes Highway (see **Figure 6**). The main ridge within the Amended Project Area trends north-northwest to south-southeast and varies in elevation from approximately 125m AHD in the north to 75m to 105m AHD on the southeastern boundary of the Amended Project Area. The centreline of the ridge traverses generally through Stage 7a.

The Project Area has been amended since exhibition of the EIS as follows.

- The southern boundary has been moved northwards, from a minimum elevation of approximately 80m AHD to approximately 90m AHD.
- The eastern boundary has been moved westwards, from a minimum elevation of approximately 70m AHD to 90m AHD, with the exception of a small section in the vicinity of Watercourse 5 at 75m AHD.

The effect of these amendments has, to the extent practicable, resulted in the crest of the Amended Extraction Area being relocated to the break in slope of the central ridgeline, with an additional 10m to 20m of visual barrier provided.

The land to the east and south of the Amended Project Area slopes down to elevations of between 30m AHD and 40m AHD in the surrounding valleys.

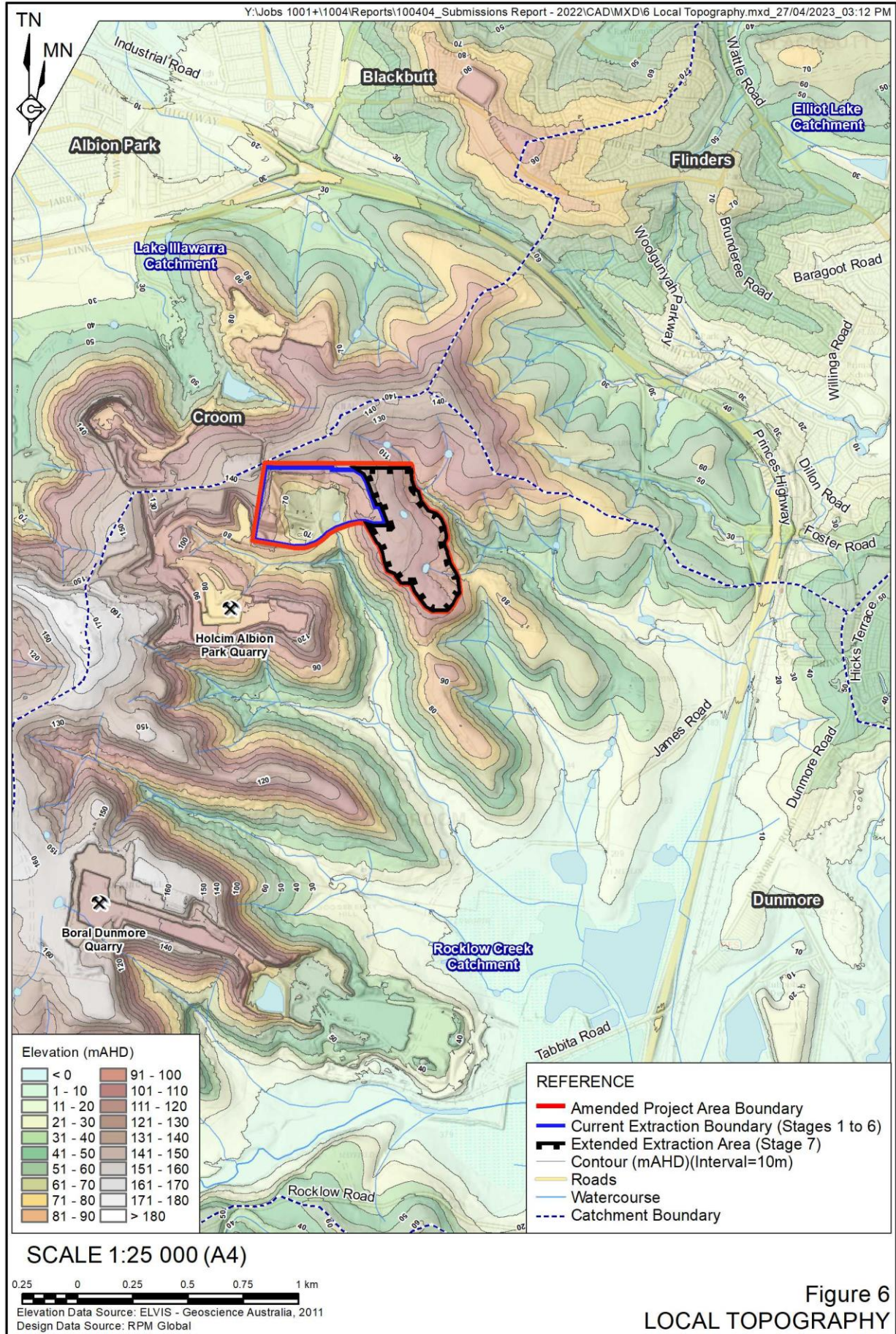
East of the Princes Highway, land within Shell Cove West and to the west of Dunmore Road, rises again from the central valley up to approximately 55m AHD.

### 6.2.2.2 Landscape Character

Moir (2023) presents a *Landscape Character Assessment* for the lands surrounding the Amended Project Area. The following provides a brief overview of the landscape character of lands surrounding the Amended Project Area in sufficient detail to provide context for the following subsections. Readers seeking a more detailed summary of Moir (2023) are referred to Section 3 of RWC (2023).

Moir (2023) identify nine Landscape Character Zones within the Study Area. **Figure 7** presents the identified Zones. The Amended Project Area falls within LCZ02 – Quarries and related Infrastructure and LCZ04 – Undulating Hills. These Landscape Character Zones were assessed as having low and moderate-low impacts on the landscape character of the lands surrounding the Amended Project Area.





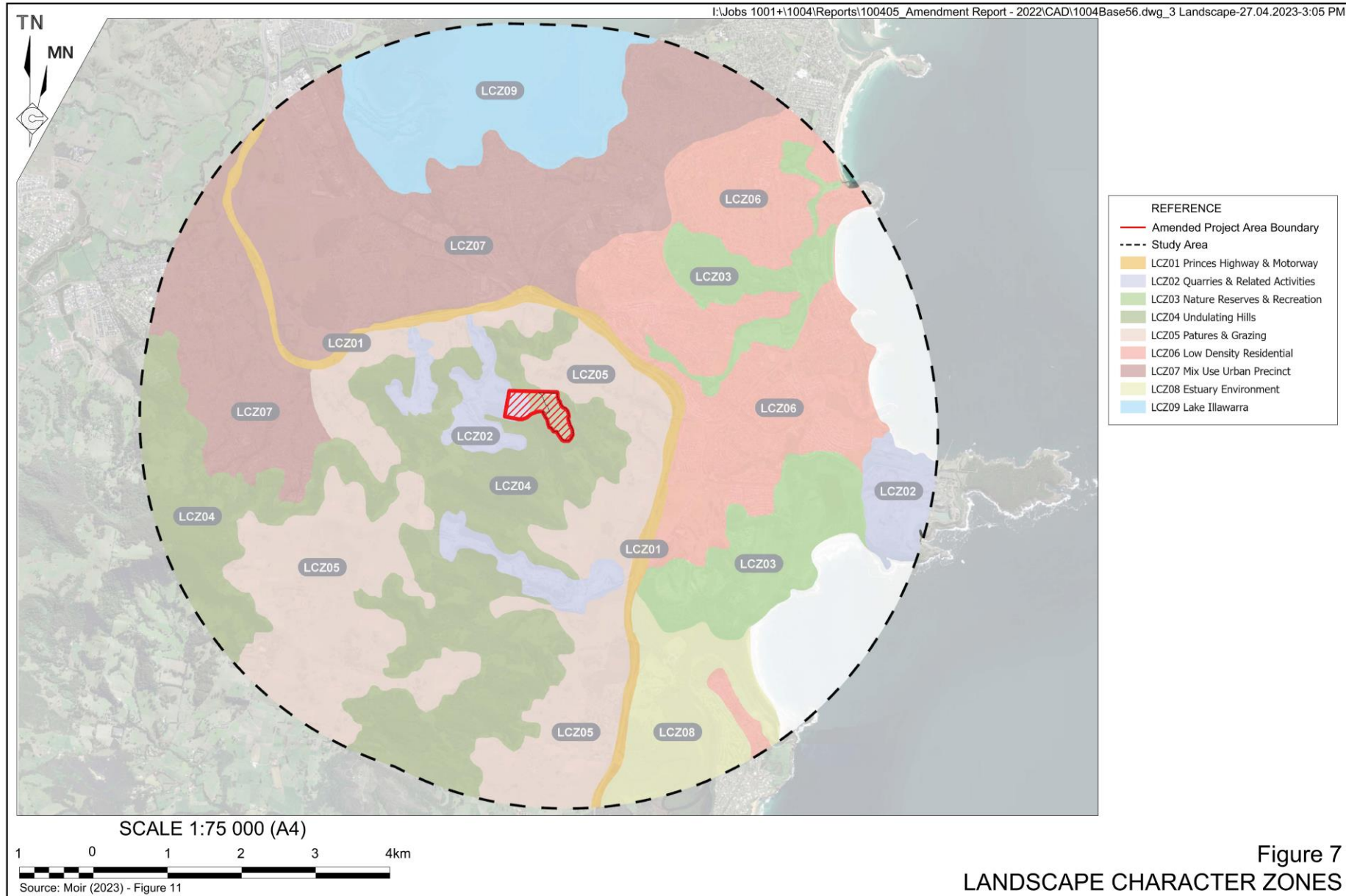


Figure 7  
 LANDSCAPE CHARACTER ZONES

### 6.2.2.3 Visual Catchments

Sections 4.4 and 4.5 of RWC (2023) present the seen area analysis for the Amended Project Area. In summary, the visibility tools of ArcGIS were used to assess the areas within the landscape surrounding the Amended Project Area that, in the absence of vegetation or other factors limiting views, could be seen from the Amended Project Area. Based on that analysis, an algorithm was then used to establish the potential level of visibility of extraction operations within the Amended Project Area from the surrounding landscape, with the visibility categorised from not visible to very high visibility. Areas with very low visibility would have limited views of one sub-stage only. By contrast, areas with very high visibility would have extensive views of multiple sub-stages.

**Figure 8** presents the results of that analysis. **Figure 8** also presents the identified visibility catchments which would have moderate to very high level of visibility of the Amended Project Area. In summary, the following four visibility catchments were identified.

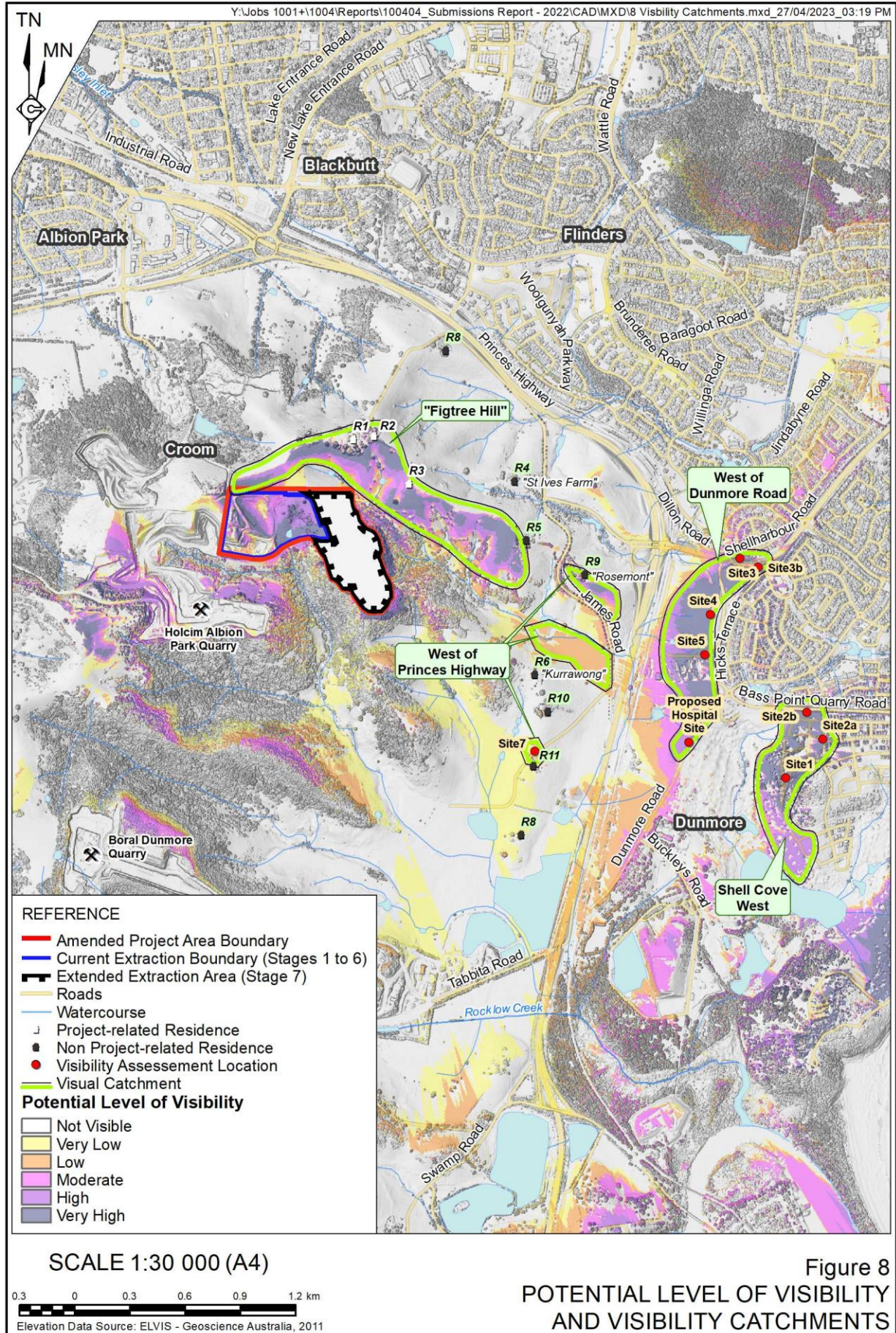
- “Figtree Hill” Visual Catchment.
- West of Princes Highway Visual Catchment.
- West of Dunmore Road Visual Catchment.
- Shell Cove West Visual Catchment.

Other areas of potential visibility were also recorded, but these areas were determined to be either located on land owned by other quarry operators or too far from the Amended Project Area to be relevant.

### 6.2.3 Potential Visual Impacts

The potential visual impacts generated by the Amended Project would be as follows.

1. As the eastern side of Stage 7 is progressively lowered, i.e. in Stages 7b to 7e, the upper extraction faces on the western and northern faces of Stage 7 would be progressively exposed to views from the east and southeast. Changes to the existing skyline when viewed from the east are also possible.
2. Earthmoving and mobile equipment would periodically be visible within the Amended Project Area.
3. Infrequent and short-lived dust plumes may be visible within the Amended Project Area.



## 6.2.4 Design Safeguards and Mitigation Measures

The following design safeguards and mitigation measures have been or would be implemented.

### 1. Extraction Staging

The potential visibility of the completed upper benches in Stage 7 was recognised during the initial, pre-exhibition stage of the extraction area design. This enabled the substage boundaries within Stage 7 to be positioned to visually shield extraction activities as much as possible. Hence, Stage 7a, requiring approximately 12 years to complete, would be confined largely to the western side of the central ridge within the Amended Project Area. Subsequent substages (Stages 7b to 7e) would result in a lowering of ridgeline within the Amended Project Area and progressive exposure of the western and northern faces. This would only occur, however, following establishment and approximately 11 years of vegetation growth on the western terminal faces.

Subsequent to exhibition of the EIS, Cleary Bros have further reduced the footprint of the Amended Project Area, thereby increasing the elevation of the eastern and southern crests by approximately 20m and 10m respectively.

### 2. Amenity Barriers and Tree Planting

Cleary Bros proposes to construct an amenity barrier during the early stage of extraction in Stage 7 on the north and northeast boundary of Stage 7a (**Figure 3**). The barrier would be constructed to a height of approximately 5m and with vegetation growth conservatively extending the effective height to approximately 8m in 5 years and 10m in 10 years.

In addition, in order to reduce and/or remove the visibility of the upper western and northern extraction, tree screens would be planted during the early stage of extraction in Stage 7 on the eastern side of Stage 7a, eastern side of the Amended Project Area and on the ridgeline to the east of the Amended Project Area. The tree screens are expected to attain effective heights of 3m, 5m and 10m in 5, 10 and 15 years respectively. Sections of the tree screens may be formed from existing vegetation. It is noted that the tree screen would comprise both trees and appropriate shrubs to ensure that the maximum visual protection is achieved by the screen.

### 3. Establishment and revegetation of visible highwalls

In order to mitigate the visual impacts of visible sections of the Extraction Area, specifically, the upper 21m of the western face and upper 16m of the northern face of the Extraction Area, Cleary Bros would undertake the following vegetation treatments.

- a) On the 45° slopes created within the overburden, soil would be placed on the final surface and revegetated as described in Section 3.12.6.1 of the Amended Project Description presented in **Appendix 1**.
- b) Visible extraction highwalls would be constructed as 7m high faces and 10m wide benches to allow vegetation to be grown on each final bench. Soil would be placed on the final surface and revegetated as described in Section 3.12.6.1 of the Amended Project Description presented in **Appendix 1**.

#### 4. Dust Plumes

Cleary Bros would ensure that visible dust plumes, including from dust generated by blasting, movement of mobile plant and crushing and screening operations, would be appropriately managed through an approved Air Quality Management Plan. This plan would include a Trigger Action Response Plan that would result in modification to onsite operations in the event that visible dust is observed to be rising above the crest of the Extraction Area.

## 6.2.5 Assessment of Impacts

### 6.2.5.1 Introduction

Section 8 of RWC (2023) presented an assessment of visibility-related impacts as a result of the Amended Project. The following presents a brief summary of the assessed impacts.

### 6.2.5.2 Extent of Visible Terminal Faces

Stage 7 would commence with extraction of Stage 7a from north to south. The eastern boundary of Stage 7a, together with the proposed amenity barrier and tree screen, would ensure that views into the Extraction Area from the east and southeast during this Stage would not be available. During Stage 7a, the western terminal faces of the Stage 7 Extraction Area would be established and rehabilitated as described in Section 3.12.6.1 of **Appendix 1**. Stage 7a is expected to require approximately 12 years to complete, by which time vegetation on the upper, potentially visible benches would be up to 11 years old.

During Stages 7b, 7c and 7d, the uppermost sections of the western terminal face would be progressively exposed. At the end of Stage 7d the uppermost benches of sections of the northern terminal face would be progressively exposed.

Cleary Bros undertook preliminary screening assessment of the extent of the visible terminal faces using the Viewshed tool in GRASS GIS, with observer locations at each of the Residences and Sites shown on **Figure 8**. Based on this, those sections of the northern and western terminal faces that would be visible from any single observer location were determined. In summary, approximately 21m vertically of the western terminal face and approximately 14m vertically of the northern terminal face would be visible at the end of Stage 7.

This data was then used to refine the design of the Stage 7 Extraction Area to incorporate 7m high faces and 10m wide benches in visible sections of the terminal highwalls. The extent of visibility of the final design of the western and northern terminal highwalls was then independently verified using visual transects.

### 6.2.5.3 Visual Transects

A series of visual transects were developed from six key identified observer locations. These visual transects were then used to determine the height of the terminal highwall that would be visible from each of the nominated observer locations.

Figures 14 to 22 of RWC (2023) present the results of that assessment which may be summarised as follows.

- Site 3 – approximately 6m vertically of the central section of the terminal western highwall of Stage 7a would be visible at the end of Stage 7c. Neither the revegetated western face of the Stage 1 to 6 Extraction Area nor the terminal northern highwall of the Stage 7 Extraction Area would be visible from this location.
- Site 5 – approximately 20m vertically and approximately 16m vertically of the western and northern terminal highwalls of the Stage 7 Extraction Area would be visible at the end of Stage 7c and Stage 7d respectively. At a distance of approximately 2.1km, a 20m high face would occupy approximately 0.5° of the vertical field of view. In addition, approximately 14m vertically of a rehabilitated and grass covered section of Holcim’s Albion Park Quarry immediately to the west of the Stage 1 to 6 Extraction Area would also be visible at the end of Stage 7.
- Proposed Hospital Site – approximately 2m vertically of the western and approximately 12m vertically of the northern terminal highwalls of the Stage 7 Extraction Area would be visible at the end of Stage 7c and Stage 7e respectively. At a distance of approximately 2.3km, a 12m high face would occupy approximately 0.3° of the vertical field of view. In addition, approximately 16m vertically of a rehabilitated and grass covered section of Holcim’s Albion Park Quarry immediately to the west of the Stage 1 to 6 Extraction Area would also be visible at the end of Stage 7.
- Residence R5 – approximately 4m vertically of the central section and 13m vertically of the southern section of the western terminal highwall of Stage 7 would become visible at the end of Stage 7c. At a distance of approximately 920m, a 13m high face would occupy approximately 0.8° of the vertical field of view. In addition, approximately 3m vertically of a rehabilitated and grass covered section of Holcim’s Albion Park Quarry would also be visible at the end of Stage 7.
- Residence R9 – approximately 2m of the central section of the western terminal highwall of Stage 7 would become visible during Stage 7c. At a distance of approximately 1.4km, a 2m high face would occupy approximately 0.1° of the vertical field of view and would not be discernible.
- Site 7 – The location of Site 7, and the adjacent Residence R7, would have no visibility of the Stage 7 Extraction Area (Figure 22 of RWC (2023)).

#### 6.2.5.4 Photomontages

In order to assist with understanding the extent of what would be visible from the various observer locations, a series of photomontages from Sites 3, 5 and the Proposed Hospital Site were prepared and are presented in Figures 23 to 31 of RWC (2023).

The following presents a description of the existing and anticipated views from these locations.

### Site 3

Existing middle-distance views at Site 3 include rolling hills and scattered houses associated with Landscape Character Zones LCZ04 – Undulating Hills and LCZ05 Pastures and grazing. Views of Holcim’s Albion Park Quarry (LCZ02 – Quarries and Related Activities) are also available, with distant views dominated by the Illawarra Escarpment.

During Stages 7c to 7e, sections of the western terminal highwall of Stage 7a would become visible. A greater section of the Eastern Area of the Holcim Albion Park Quarry would also become visible. The area of the Illawarra Escarpment that would be visible would also increase. Rehabilitation of the visible benches on the western terminal highwall of Stage 7a would considerably soften the views of the Amended Project Area.

### Site 5

Existing middle-distance views at Site 5 include rolling hills and scattered houses associated with Landscape Character Zones LCZ04 – Undulating Hills and LCZ05 Pastures and grazing. Views of Holcim’s Albion Park Quarry (LCZ02 – Quarries and Related Activities) are also available, with distant views of the Illawarra Escarpment available to the left or the south of the Amended Project Area.

During Stages 7c to 7e, sections of the western terminal highwall of Stage 7a and later the northern terminal face of Stage 7d would become visible. A greater section of the Eastern Area of the Holcim Albion Park Quarry, as well as rehabilitated sections of the Stage 1 to 6 Extraction Area, would also become visible. Rehabilitation of the visible benches on the western and northern terminal highwalls would considerably soften the views of the Amended Project Area.

### Proposed Hospital

Existing middle-distance views at the Proposed Hospital Site include rolling hills and scattered houses associated with Landscape Character Zones LCZ04 – Undulating Hills and LCZ05 Pastures and grazing. Views of Holcim’s Albion Park Quarry (LCZ02 – Quarries and Related Activities) are also available. Views of the Illawarra Escarpment are not available from this location.

During Stages 7b to 7e, sections of the western terminal highwall of Stage 7a and later the northern terminal highwall of Stage 7d would become visible. A greater section of the Eastern Area of the Holcim Albion Park Quarry, as well as rehabilitated sections of the Stage 1 to 6 Extraction Area, would also become visible. Rehabilitation of the visible benches on the western and northern terminal highwalls would considerably soften the views of the Amended Project Area.

#### 6.2.5.5 Changes to The Skyline

Finally, in order to assist with an assessment of Project-related impacts on views of the Illawarra Escarpment and changes to the skyline for observers located to the east of the Amended Project Area, Figures 32 to 34 of RWC (2023) present an analysis of the changing skyline during each of Stages 7a to 7e for Sites 3, 5 and the Proposed Hospital Site. The following presents a description of the changing skyline from each of these locations.

- Site 3 – The skyline from Site 3 in the direction of the Amended Project Area comprises vegetation within the Amended Project Area, Holcim’s Albion Park Quarry and, in the distance, the Illawarra Escarpment. During Stage 7a, vegetation



on and to the west of the ridgeline within the Amended Project Area would be progressively removed. This would result in a lowering of the skyline and more extensive views of the Illawarra Escarpment than are currently available. Stages 7b to 7e would result in no further changes to the skyline visible from Site 3

While the Amended Project would result in a change in the skyline and distant views for observers at Site 3, these views would be largely consistent with existing views of the Illawarra Escarpment from that location.

- Site 5 – The skyline from Site 5 in the direction of the Amended Project Area comprises rolling hills within and to the east of the Amended Project Area, with only limited views of the Illawarra Escarpment available. During Stage 7a, vegetation on and to the west of the ridgeline within the Amended Project Area would be progressively removed. This would result in a lowering of the skyline and limited views of the Illawarra Escarpment. Stages 7b to 7e would result in no further changes to the skyline visible from Site 5.

While the Project would result in a minor change in the skyline and distant views for observers at Site 5, these views would be largely consistent with views of the Illawarra Escarpment from other areas within district.

- Proposed Hospital – The skyline from the Proposed Hospital in the direction of the Amended Project Area comprises rolling hills within and to the east of the Amended Project Area, with only limited views of the Illawarra Escarpment available to the south (or left) of the Amended Project Area. During Stage 7a, vegetation on and to the west of the ridgeline within the Amended Project Area would be progressively removed. This would result in a lowering of the skyline within the Amended Project Area.

The Project would result in a lowering of the skyline within the Amended Project Area, with additional sections of the rehabilitated Holcim Albion Park Quarry visible following completion of Stage 7. A very small sliver of the Illawarra Escarpment would also be visible at that time.

#### **6.2.5.6 Visibility of Earthmoving Equipment**

Earthmoving equipment, including a bulldozer, an excavator and articulated truck fleet and at times drill rigs would be visible at distance to observers to the east of the Amended Project Area for brief periods during the life of the Amended Project. This equipment is not unique in the surrounding environment, with earthworks commonly undertaken for road and other infrastructure, agriculture, and residential and commercial subdivision. As a result, periodic and distant views of earthmoving equipment are not considered to be unreasonable in this important resource area.

### 6.2.5.7 Dust Emissions

Dust emissions from the Amended Project Area may be produced by movement of mobile plant, crushing and screening operations or blasting. Cleary Bros has committed to a range of air quality-related management and mitigation measures, including preparation of an updated Air Quality Management Plan including a Trigger Action Response Plan. Emissions of visible dust that travels beyond or above the Extraction Area would be considered a trigger that requires immediate action to minimise dust emissions. As a result, dust plumes resulting in visual impacts for surrounding residents would be unlikely to occur and, if they were to occur, would be quickly addressed.

### 6.2.6 Conclusion

The visual impact assessment has established the following.

- Views of the Amended Project Area are principally available from three visual catchments to the east and southeast of the Amended Project Area. A fourth visual catchment is principally associated with three Project-related residences. Views of the Amended Project Area from other directions are largely unavailable.
- When viewed from the identified visual catchments, the Amended Project Area is located within an area of undulating hills with patches of native vegetation and pasture and grazing operations. Views of surrounding quarrying operations, particularly Holcim's Albion Park Quarry, but also Boral's Dunmore Quarry, are also available. Distant views of the Illawarra Escarpment are also available from more elevated observer locations.
- Views of the upper sections of the western and northern terminal highwalls would become progressively available during Stages 7b to 7e, with vertical heights of up to approximately 21m on the western terminal highwall and 16m on the northern terminal highwall available. Cleary Bros has amended the design of the Extraction Area to include 10m wide benches intersecting 7m faces in visible sections of the highwalls and would rehabilitate those benches with suitable trees and shrubs as soon as practicable once established.
- Extraction of Stage 7 would expose up to approximately 16m vertically of a rehabilitated and grass covered section of Holcim's Albion Park Quarry immediately to the west of the Stage 1 to 6 Extraction Area.
- The Project would result in a lowering of the skyline for some observers in elevated locations within visual catchments to the east and southeast of the Amended Project Area. This would generally result in additional visibility of the Illawarra Escarpment located to the west of the Amended Project Area.
- Operation of earthmoving equipment would be visible within the Amended Project Area for short periods during the life of the Amended Project.

Amendments to the Project Area to address visual and other concerns have resulted in a reduction in the available resource of approximately 7.7Mt of hard rock. This will have the effect of shortening the life of the Project by approximately 10 years and bringing forward the date at which a replacement resource will be required to be found and bought online.

In addition, it is noted that visual impacts are a uniquely subjective assessment and will depend on individual observers. It is likely that many observers would not notice nor be impacted by changes in the visual landscape as a result of the Amended Project. However, it is equally acknowledged that some observers may find the proposed changes to the visual landscape unacceptable.

In light of the above, the anticipated visual impacts generated by the Amended Project are determined to be proportionate and not unreasonable in the context of the proposed amendments to the Project and the quantity of resources that would be recovered to provide the high-quality raw materials for the ongoing development of the Illawarra and Greater Sydney Regions.

## 6.3 Historic Heritage

### 6.3.1 Introduction

The SEARs for the Project required the identification of historic heritage in the vicinity of the development and an assessment of the likelihood and significance of impacts on heritage items.

The assessment requirements of Shellharbour City Council were also considered during the preparation of the historic heritage assessment that accompanied the EIS.

A Statement of Heritage Impact (SOHI) for the original Project was undertaken by Biosis Pty Ltd (Biosis) and the report and associated Archival Report are presented as Part 6 of the *Specialist Consultant Studies Compendium* that accompanied the EIS. Those reports are hereafter referred to as Biosis (2021b) and Biosis (2021c) respectively.

Following exhibition of the EIS, the following additional information requests were received.

- Shellharbour City Council in its submission to the EIS raised a range of matters particularly in relation to removal of “Belmont” and its interrelation with the wider cultural landscape.
- A range of representations were received by the Department of Planning and Environment from members of the public, with a summary of matters raised provided by the Department. The matters raised generally related to removal of “Belmont” and associated loss of historic heritage values.
- The Department of Planning and Environment in RFI3 requested additional information in relation to the historic heritage assessment and, in particular, an assessment of Project-related impacts on the wider historic heritage landscape of the “Belmont”, including impacts to the historic views and access arrangements.

Bullet points 1 and 2 above were addressed in the *Submissions Report*. In order to address the requirements of RFI3 in particular, Cleary Bros commissioned Biosis to complete a *Historic Landscape and Heritage View Impact Analysis*. That report is referred to as Biosis (2023) and is presented as **Appendix 6**. The following subsections provide a summary of Biosis (2023).

### 6.3.2 Existing Historic Heritage Setting

#### 6.3.2.1 Listed Heritage Items

Biosis (2023) identify that the following items are listed under the *Shellharbour Local Environmental Plan 2013* (Shellharbour LEP) within the Wentworth Hills and Dunmore Valley Dairy Farming Landscape, and which may have historical links to “Belmont”. Biosis (2023) also reviewed the National Trust Register, with “The Hill” Homestead the only listing on that register. Section 3.3.3 of Biosis (2023) provides an overview of each of the identified items, with the location of the numbered residences shown on **Figure 8**.

- “Belmont”, stone walls, figs and coral tree avenue - 207 Dunsters Lane, Croom (located within the Amended Project Area).

- “The Hill” Farm Complex – 195 Dunsters Lane, Croom (including World War II observation post boxes) (Residences R1 and R2).
- “Kurrawong” Trees, Dry Stone Walls, and Silo – 126 James Road, Croom (Residence R6).
- “St Ives” and fig trees – 2 James Road, Croom (Residence R4).
- “Rosemont” Complex Trees and Setting – 35 James Road, Croom (Residence R5).
- “Bravella” Site Fig Trees – 144 James Road, Croom (located in the vicinity of Residence R10).
- “Kyawana” – 265 Dunsters Lane, Croom, located to the west of the Amended Project Area within land owned by Holcim Australia Pty Limited.
- Memorial, Norfolk Island pine trees – located along James Road, Croom.

Biosis (2023) note the following prior impacts to listed heritage items.

- The “Rosemont” Homestead was demolished with development consent in 2015 and a new residence has since been erected on the site.
- The “Kyawana” Homestead has collapsed and is surrounded by a thicket of Cape Honeysuckle which prevents full access to the site.
- A number of fig trees associated with the listings have been damaged or appear dead due to natural causes.
- Various changes to historical access arrangements, due to public road upgrades, quarrying activities and disuse.

### **6.3.2.2 Dairy Industry Association**

The Amended Project Area is within the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape* under the Shellharbour LEP. The “Hill Farm” Complex and “St Ives” remain active dairies, with areas of pasture and retained homesteads also contributing to the association with the dairying industry.

### **6.3.2.3 Significant Trees as Heritage Items**

Fig trees and the memorial pines along James Road are noted under the Shellharbour LEP as contributory components of each of the listed sites, with the exception of “Kyawana”.

Biosis (2023) note that there are many native fig trees surrounding the Amended Project Area, with the relevant listings not always clear which trees are referred to. In addition, the landscape during the Victorian, Federation and Inter-War periods would have been less wooded and the fig trees would have provided useful shade and feed for cattle. The trees also provided shelter from wind and are common in close proximity to listed homesteads.

#### 6.3.2.4 Historical Arrangements and Access

Biosis (2023) identified that formal and informal paths and drives would have existed between the listed items, with James Road, which was formerly the Princes Highway, being the principal and direct access for a number of the homesteads. Dunsters Lane, off James Road, would have been the principal access for “Kyawana”, “The Hill” Farm and “Belmont”. Within and between homesteads there would have been informal paths, fencing, cattle grids and gates.

#### 6.3.2.5 Significant Historic Views

The *Shellharbour Development Control Plan* (Shellharbour DCP) defines a “primary view catchment” in relation to items of historic heritage significance as “the principal view of the heritage item from the public domain”.

Section 5.2 of Biosis (2023) presents an analysis of the historical and current views taking into consideration the above definition of the “primary view catchment” between the listed heritage items. Based on that analysis, Biosis (2023) developed a historical visual connection matrix that identified whether line of sight could potentially exist between the homesteads, without consideration of current vegetation screening. That assessment determined that there was visual connection between “Belmont” and “The Hill” Farm Complex, “Rosemont” and “Kyawana”.

#### 6.3.2.6 Historic Cultural Landscape

Biosis (2023) state the following in relation to the cultural landscape of the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape*.

##### Place

The *Wentworth Hills and Dunmore Valley Dairy Farming Landscape* is located between the Pacific Ocean and the Illawarra Escarpment and comprises a series of rolling hills rising to an elevation of approximately 150m AHD across an approximately 20km<sup>2</sup> area.

##### Practice

Prior to European settlement, Aboriginal people would have managed the land as rainforest and open woodland plains.

Early European settlement resulted in harvesting or removal of trees and establishment of pasture and cropping areas. By the late nineteenth century, the area was dominated by dairy farms with homesteads and cultivated areas and dairying facilities close by.

From the mid-19<sup>th</sup> Century to the early 20<sup>th</sup> Century, farms were subdivided and new homesteads established. Homesteads on elevated land typically had/have a primary outlook to the east or northeast.

A panoramic photograph from “The Hill” Farm Complex prior to the planting of the memorial avenue along James Road during the inter-War period shows the undulating pasture of the Dunmore Valley with a sparse scattering of trees and bush. This very open landscape character of the slopes of the Valley appears to be the likely character from the mid-19<sup>th</sup> century to the mid-20<sup>th</sup> century.

Substantial quarries were developed near Kiama from the 1870s, with quarries in Bombo and Dunmore opening in the following several decades. The owner of “Kyawana” permitted and subsequently operated a quarry on that property prior to 1917.

## Process

Biosis (2023) note that dairying has become a less dominant land use within the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape*, with less intensive agricultural uses (grazing and agistment), transport, quarrying and suburbanisation now common.

While dairy farming continues in the higher eastern facing parts of the Dunmore Valley including “The Hill” Farm, “St Ives”, and parts of “Kyawana”, its cessation in most of the area has reduced the integrity of the cultural landscape, with new unrelated practices significantly transforming the cultural landscape as follows.

- Transport - the realignment and widening of the Princes Highway bisected the landscape and occupies key views from the principal homesteads.
- Quarrying - while quarrying has been undertaken since the late-19<sup>th</sup> century at Bass Point and the 1920’s at Dunmore, it has become an increasingly common land use and has transformed the landscape of the Wentworth Hills.
- Suburbanisation - residential subdivision of land to the north and east of the Princes Highway has had major adverse impact on the integrity of the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape* by permanently changing the former farming land use. These suburban areas dominate the midground views from each of the listed heritage items.

## Summary

Biosis (2023) identify that the former dairying-dominated landscape has been substantially and adversely transformed by unrelated land use. In particular, transport and suburbanisation practices have adversely impacted significant views from the principal original homesteads. In addition, the loss of key homesteads such as “Bravella”, “Rosemont” and “Kyawana” has further reduced the integrity of the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape*.

### 6.3.3 Management and Mitigation Measures

Management and mitigation measures presented in Section 6.7.7 of the EIS would continue to be implemented throughout the life of the Amended Project. Additional management and mitigation measures would include the following.

- Prepare an interactive three-dimensional virtual model of the “Belmont” and surrounds, to capture and share the heritage values of the site with the community into perpetuity (as per Action Item 1 in Biosis (2023)).
- Engage a structural engineer to assess the feasibility of relocating the “Belmont”. Where relocation is deemed feasible, Cleary Bros will invite expressions of interest from the community for the relocation of the “Belmont” (as per Action Item 2 in Biosis (2023)). Cleary Bros would pay the relocation costs of the building to a location within the Shellharbour Local Government Area in the event a suitable location is identified through the expressions of interest process.

- Where relocation is not feasible, Cleary Bros will invite expressions of interest from the community for recovering artefacts and other features of the “Belmont” during its removal (as per Action Item 3 in Biosis (2023)). Where suitable expressions of interest are registered, Cleary Bros would arrange for these relevant items/materials to be removed from the “Belmont” under the supervision of an Archaeologist and provided to the stakeholder.
- Following the completion of the above (as applicable), any remaining structure(s) would be deconstructed and removed under the supervision of an archaeologist, including archival recording of the structure in accordance with relevant guidelines or standards applicable at the time (as per Action Item 4 in Biosis (2023)).

### 6.3.4 Assessment of Impacts

#### 6.3.4.1 Indirect Impacts

The response to RFI3 provides additional information in relation to noise and blasting-related impacts, including on heritage-listed items. In summary, that response states the following.

- Blasting practices, including management of flyrock, would not adversely impact on continuation of existing land uses on surrounding land.
- Blasting would be unlikely to result in ground vibration or airblast overpressure that would exceed relevant criteria for the protection of the structures at surrounding heritage-related structures.
- No noise treatments are proposed at surrounding heritage-related structures.

#### 6.3.4.2 Primary Views Impacts

Biosis (2023) determined that the Amended Project would remove the “primary view catchment” of “Belmont” from Dunsters Lane beyond “The Hill” Farm Complex. While the Project will be visible from “Kyawana”, “The Hill” and “Rosemont”, it is outside the primary view catchment of these items.”

The Hill” Farm Complex has views that span more than 270°, part of which has already been altered by existing quarrying operations, as well as previously identified changes resulting from suburbanisation and construction of transport infrastructure. As a result, Biosis (2023) concludes that the further intrusion into those by the Amended project would occupy a minor sector of the view, with impacts softened as a result of rehabilitation of the Amended Extraction Area.

Biosis (2023) note that “Kyawana” already has a significantly degraded setting, and as such the landscape character will not significantly change as a result of the Amended Project.

In addition, the “Rosemont” Homestead has been demolished and a large steel shed built to the west of the new residence, between the residence and the Amended Project Area. As a result, the Amended Project Area is not within the primary view catchment and the landscape character will not significantly change as a result of the Amended Project.



The primary view catchments of the other heritage items between their respective homesteads and public roads would not be altered by the Amended Project.

### 6.3.4.3 Impacts on the Fabric and Setting of "Belmont"

Biosis (2023) determined that the Amended Project would, as result of the removal of "Belmont", have major adverse impacts on the cultural landscape associated with that structure. Cleary Bros have proposed a range of measures to minimise the impact of removal of "Belmont", including relocation, salvage and archival recording of the structure.

### 6.3.4.4 Landscape Impacts

Biosis (2023) have identified the following impacts of the Amended Project on the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape* and listed heritage items within that landscape.

- |  |  |
|--|--|
| • Topography of the Landscape                      | Moderate noting that the Amended Project Area is visible from limited locations (see Section 6.2)    |
| • Continuing dairy farming use                     | No impact  |
| • Vegetation of the dairying landscape             | No impact  |
| • Remnant dry stone walls and structures           | No impact  |
| • Fig trees generally                              | No impact  |
| • Memorial Avenue of Norfolk Island Pines          | Minor impact   |
| • "Kurrawong"                                      | No impact  |
| • "The Hill" Farm Complex                          | Minor impact—the Amended Project Area is visible but is not located in the primary significant views |
| • World War Two bunkers at Hill Farm Complex       | No impact  |
| • "St Ives" and fig trees                          | No impact  |
| • "Bravella" and fig trees                         | No impact  |
| • "Kyawana"  | Moderate impact, noting the significantly degraded nature of this site                               |
| • "Rosemont"                                       | Minor impact, noting the significantly degraded nature of this site                                  |
| • Historic paths and roads including Dunsters Lane | Minor impact   |

### 6.3.4.5 Impacts on the fabric and setting of "Belmont"

Biosis (2023) have identified the following impacts of the Amended Project on "Belmont".

- |  |   |
|--|---|
| • Topography of the Landscape                      | Major adverse   |
| • Continuing dairy farming use                     | Major adverse – although it is noted that the land is not currently used for dairying   |
| • "Belmont"  | Major adverse   |
| • Vegetation of the dairying landscape             | Major adverse   |
| • Remnant dry stone walls and structures           | Major adverse   |
| • Fig trees at "Belmont"                           | Major adverse   |
| • Historic paths and roads including Dunsters Lane | Minor adverse - the road to "Belmont" will be shortened but will not be cut off from access from the Old Princes Highway. However, this section of road is a relatively recent diversion. |

### 6.3.4.6 Cumulative Impacts

The Amended Project would increase the cumulative impact of quarrying on the surrounding landscape. However, Biosis (2023) state that it would be a moderate addition in the full context of the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape* as it is largely hidden from significant views and does not represent an added intrusion in those views such as further suburbanisation or transportation infrastructure.

### 6.3.5 Conclusion

"Belmont" is a heritage item listed on Schedule 5 of the Shellharbour LEP 2013 within the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape* and a significant contributory element.

The heritage impacts to "Belmont" will be major adverse impacts and will be irreversible. The Amended Project cannot proceed while still retaining "Belmont" in its current setting and the impacts cannot be mitigated to any significant degree.

The impacts to the *Wentworth Hills and Dunmore Valley Dairy Farming Landscape* range from no impact to moderately adverse impacts. Principal impacts are on views associated with "The Hill" Farm Complex, "Rosemont", and the site of "Kyawana", however these impacts are outside of the primary view catchments of all heritage items. The intrusion into those views will be a minor sector that will be softened somewhat when the excavation is ultimately rehabilitated.

Biosis (2023) restated the recommendations of the Statement of Heritage Impact (Biosis 2023a) and provided additional recommendations as follows.

- Action Item 1 – Capturing the heritage value of “Belmont” in its current setting
- Action Item 2 – Identification of an alternative site for the “Belmont”
- Action Item 3 – Retaining materials from the “Belmont” and outbuildings
- Action Item 4 – Recovering residual heritage value

## 6.4 Biodiversity

### 6.4.1 Introduction

The SEARs for the Project required an assessment of the following potential impacts of the Project on biodiversity.

- Accurate predictions of any vegetation clearing on site.
- A detailed assessment of the likely biodiversity impacts of the development, paying particular attention to threatened species, populations and ecological communities and groundwater dependent ecosystems.
- A strategy to offset any residual impacts of the development in accordance with the *Biodiversity Offsets Scheme*.

The assessment requirements of the Biodiversity & Conservation Division (BCD), Commonwealth Department of Agriculture, Water and Environment (DAWE) and Shellharbour City Council were also considered during the preparation of the biodiversity assessment.

A Biodiversity Development Assessment Report (BDAR) for the original Project was prepared by Niche Environment and Heritage Pty Ltd (Niche) and presented as Part 4 of the *Specialist Consultant Studies Compendium* that accompanied the EIS. The original BDAR (dated March 2022) has been referred to as Niche (2022).

Following exhibition of the EIS, Cleary Bros and BCD met to discuss anticipated Project-related impacts to biodiversity value, and principally those impacts to Plant Community Type (PCT) 720 – *Melaleuca armillaris* Tall Shrubland, a Critically Endangered Ecological Community under the *Biodiversity Conservation Act 2016* (BC Act). In light of those discussions, Cleary Bros agreed to amend the southern boundary of the Extraction Area to conserve an additional 1.73ha of this community and to provide additional information in relation to establishing an on-site Biodiversity Stewardship Agreement (BSA) Area.

Niche prepared an Amended BDAR, referred to as Niche (2023) and presented as **Appendix 7**. The following subsections provide a summary of the Amended BDAR and describe the operational safeguards and management measures that would be implemented by Cleary Bros. Reference is made, where appropriate, to the current *Vegetation Management Plan* (VMP) for the current extraction area with all relevant mitigation measures included in the VMP incorporated within this subsection.

### 6.4.2 Assessment Methodology

#### 6.4.2.1 Landscape Assessment

A landscape assessment was initially undertaken by Niche (2022) in accordance with Section 4 of the Biodiversity Assessment Methodology (BAM) (DPIE, 2020). That assessment considered landscape value and the potential impacts associated with the Project through the consideration of factors including:

- native vegetation cover;
- rivers, streams and estuaries;

- areas of geological significance; and
- habitat connectivity.

### 6.4.2.2 **Native Vegetation and Flora Assessment Methodology**

#### **Desktop Review**

A desktop review of the following resources was undertaken by Niche (2023) to inform the field survey design and effort.

- NSW BioNet Atlas Database.
- EPBC Act Protected Matters Search Tool.
- BAM Calculator Tool.
- Vegetation Mapping – Illawarra Plant Community Type Vegetation Map (DPIE, 2016).
- Vegetation mapping: existing vegetation mapping was examined prior to the field survey to determine the vegetation communities likely to be present in the Biodiversity Study Area.

#### **Field Survey**

Niche undertook multiple rounds of field surveys within the identified Biodiversity Study Area between April and December 2020, with the total survey effort for the original Project totalling approximately 164 hours. A further field survey was undertaken for 8 hours in August 2022 which focused on a recount of the threatened *Zieria granulata* and vegetation mapping of the western portion of the Amended Project Area. A complete list of field survey activities and dates is provided in Table 5 of Niche (2023).

Plant Community Types (PCTs) within the Biodiversity Study Area were identified and mapped using a combination of BAM plots, transects and walking meanders.

#### **Targeted Threatened Species Surveys**

Requirements for targeted threatened species surveys for candidate species identified as potentially occurring within the Biodiversity Study Area were determined by Niche (2023) based on:

- a review of associated PCTs and comparison with PCTs present within the Biodiversity Study Area;
- the presence of habitat constraints within the Biodiversity Study Area; and
- the quality and suitability of habitat within the Biodiversity Study Area.

Where the presence of candidate species within the Biodiversity Study Area could not be ruled out based on the above factors, a conservative approach was adopted and targeted surveys were conducted.

Detailed surveys for *Zieria granulata* were undertaken within the Biodiversity Study Area to develop an understanding of the local population, with avoidance of adult plants, where practicable, through extraction area design and to inform offsetting requirements. As *Z. granulata* is listed as a 'count' species under the BAM, offsetting requirements are based on the number of mature plants impacted rather than the area disturbed. The following parameters were assessed by Niche (2023) for *Z. granulata* during targeted systematic surveys within the Study Area.

- Plant counts within quadrats.
- Approximate height of individual plants.
- Stem diameter at base of individual plants.
- Reproductive status based on observations of buds, flowers or fruit/seed.

*Z. granulata* counts and measurements were made for all individuals within two 10m x 10m subplots for each of the larger 50m x 50m plots used to subdivide the Biodiversity Study Area. Measurements completed between September and October 2020 were used for maturity analyses as these periods coincided with peak flowering periods for the species.

### 6.4.2.3 Fauna Assessment Methodology

#### Desktop Review

A desktop review of relevant literature, databases and vegetation mapping was undertaken by Niche to identify fauna habitats and threatened fauna species with the potential to occur within the Biodiversity Study Area (Niche, 2023).

#### Field Survey

The following habitat features were assessed within the Biodiversity Study Area to determine the likely presence of threatened fauna species.

- Type, condition and diversity of vegetation communities.
- Roosting / breeding / sheltering resource availability (e.g. hollow-bearing trees, rocky outcrops, caves, logs).
- Permanent and ephemeral aquatic habitat.

Targeted threatened fauna surveys were undertaken for those species identified as having a moderate to high likelihood of occurrence and identified as candidate species in the BAM Calculator. Further detail regarding the assessment of species likelihood of occurrence is provided in Annexure 6 of Niche (2023).

A total of 11 threatened fauna species were identified by the BAM Calculator as species credit species for the Project, four of which are listed as candidate species for serious or irreversible impacts: Large-eared Pied Bat, Little Bent-winged Bat, Large Bent-winged Bat and Brush-tailed Rock-wallaby.

Details of the fauna survey methods, timing and effort employed during the assessment are presented in Table 12 of Niche (2023).

## 6.4.3 Survey Results

### 6.4.3.1 Native Vegetation and Flora

**Figure 9** displays vegetation mapped by Niche (2023) within the Biodiversity Study Area and **Table 4** summarises the extent and condition of vegetation within the Amended Project Area. It is noteworthy, that the amendment to the original Project Area boundary has resulted in the retention of all areas of high condition class vegetation communities.

PCT 1300 is identified as a Threatened Ecological Community (TEC) in the BAM Calculator as it is listed as Endangered and Critically Endangered under the *BC Act* and the *EPBC Act*, respectively. PCT 720 is also identified as a TEC in the BAM Calculator as it is listed as Critically Endangered under the *BC Act*.

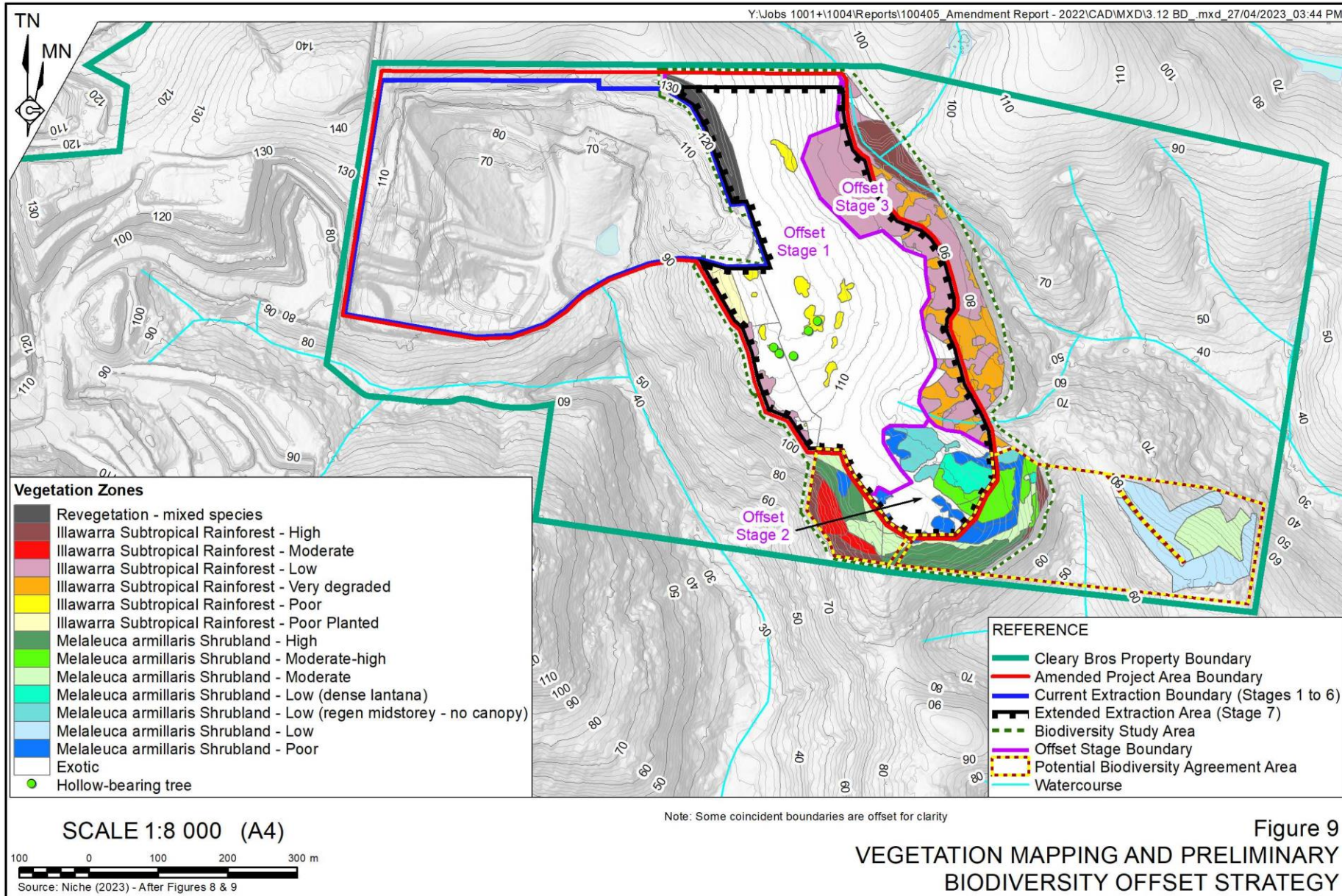
**Table 4**  
**PCTs and Vegetation Condition within the Amended Project Area**

Plant Community Type	Condition Class	Area within the Amended Project Area (ha)
PCT 1300 – Whalebone Tree – Native Quince dry subtropical rainforest	Low	2.13
	Poor	0.36
	Poor-planted	0.24
	Very Degraded	0.45
PCT 720 – <i>Melaleuca armillaris</i> Tall Shrubland	Moderate-high	0.19
	Low (lantana)	0.28
	Low (no canopy)	0.37
	Poor	0.35
<b>Total</b>		<b>4.37</b>
Source: Niche (2023) – modified after Table 6 and Section 2.2.3.		

The BAM Calculator identified a total of eight threatened flora species as either species credit species or other threatened flora with a moderate to high likelihood of occurring within the Biodiversity Study Area. Based on the landscape assessment and the results of targeted surveys undertaken for each of the candidate species, Niche (2023) concluded that one threatened species (*Zieria granulata*) was present within the Amended Project Area and would therefore require offsetting via species credits for the Amended Project.

### **Zieria granulata (Illawarra Zieria)**

**Table 5** presents the *Z. granulata* calculations undertaken by Niche in order to determine the number of mature individuals which would be impacted by the Amended Project. Based on an identified correlation between stem size and maturity, Niche determined that mature individuals included any plant with a stem diameter >13mm.





**Table 5**  
**Z. granulata Density for Mature Individuals within the Amended Project Area**

Zieria Density	Area (ha)	Average Plants / ha	Total No. of Plants	Total No. of Mature Plants
High	0.3749	6,480.0	2,429	717
Mod	0.2749	1,166.7	321	160
Low	0.6807	433.3	295	160
<b>Total</b>	<b>1.3304</b>		<b>3,045</b>	<b>1,037</b>

Source: Niche (2023) – Table 10

**Table 5** records that a total of 3,045 *Z. granulata* plants were present in the Amended Project Area, of which 1,037 (34%) were classed as mature plants. The area of high, moderate and low density *Z. granulata* plants within the Amended Project Area is estimated at 1.33ha.

### 6.4.3.2 Fauna

A total of eight tree hollows, all less than 20cm in diameter within five hollow-bearing trees were recorded within the Biodiversity Study Area during field surveys. A single hollow stag tree was also recorded. The locations of the hollow-bearing trees are displayed on **Figure 9**.

Species recorded or potentially present within the Biodiversity Study Area (as listed under the BAM calculator) included four species of threatened microbat (Eastern Coastal Freetail-bat, Eastern Bentwing Bat, Little Bentwing Bat and Yellow-bellied Sheath-tailed Bat), all of which are listed as vulnerable under the BC Act. The Grey-headed Flying-fox, listed as vulnerable under both the BC Act and the EPBC Act, is also known to use habitat within the Amended Project Area.

Table 17 in Niche (2023) provides a complete list of the ecosystem credit species and species credit species identified for the Amended Project. Despite the absence of significant habitat within the Biodiversity Study Area, all of the ecosystem credit species were assumed present for inclusion in the BAM Calculator. Ecosystem credit species included 10 birds, five bats, and one terrestrial mammal. Two of the 11 species credit species targeted during site surveys were identified within the Biodiversity Study Area, namely the Eastern Bentwing Bat and Little Bentwing Bat. However, no breeding habitat for either of these species is present within the Biodiversity Study Area. No fauna species credit species are present within the Biodiversity Study Area.

### 6.4.4 Avoidance, Management and Mitigation Measures

The original boundary of the Stage 7 extraction area was determined by the occurrence of the suitable hard rock resource and its close proximity to existing processing infrastructure in order to avoid impacts associated with additional infrastructure establishment.

The design of the original Project was developed and amended multiple times, taking into account the results of the 2020 biodiversity surveys and the outcomes of consultation with BCD and DAWE. Avoidance areas originally totalled 2.05ha, however, the area of avoidance has now been increased to approximately 5.82ha. These avoidance areas included higher condition threatened ecological communities as well as areas supporting better condition habitat of the threatened

plants *Z. granulata* and *C. elegans*. *C. elegans* species and its habitat has been completely avoided. In order to compensate for the original avoidance areas, additional areas consisting generally of cleared exotic pasture were incorporated into the original Project Area.

Cleary Bros would implement the following management and mitigation measures during the construction and operational phases of the Amended Project to further mitigate and manage biodiversity impacts.

- Prepare and implement a *Biodiversity Management Plan* detailing the biodiversity mitigation and management measures required at the Quarry. This plan would include procedures for the monitoring of rehabilitation outcomes and describe the implementation of the proposed staged biodiversity offsets described in Section 3.13 of **Appendix 1**.
- Delineate the boundaries of the Stage 7 extraction area with clearly visible markers.
- Establish fencing around areas of native vegetation adjacent to the proposed disturbance areas and maintain fencing throughout the Project life.
- Ensure that topsoil resources stripped from the surface of the proposed extraction area are retained for use in rehabilitation activities.
- Implement adaptive dust management and monitoring programs to manage air quality in accordance with existing protocols for the Quarry.
- Communicate environmental features and requirements to protect threatened flora through staff inductions, training sessions and briefings.
- Establish and regularly maintain erosion and sediment controls until rehabilitation works have achieved vegetated final landforms.
- Avoid clearing of hollow-bearing trees during the breeding season for the majority of hollow-dwelling fauna (i.e. spring).
- Undertake pre-clearing inspections of hollow-bearing trees to confirm the absence of roosting/breeding threatened species and manage any vertebrate fauna identified during inspections to minimise the risk of mortality or injury.
- Undertake vegetation clearance and mulching in accordance with best practice principles.
- Ensure that all waste generated at the Quarry is managed appropriately.

Further details of the mitigation measures are provided in Section 3.2 of Niche (2023).

#### 6.4.5 Assessment of Impacts

DPIE (2020) categorises impacts on biodiversity in accordance with the following descriptions.

- Direct impacts: those that directly affect habitat and individuals (e.g. death through predation, trampling, poisoning of the animal/plant itself, removal of suitable habitat).

- **Indirect impacts:** occur when project-related activities affect species, populations or ecological communities in a manner other than direct loss (e.g. starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, deleterious hydrological changes).

**Table 6** presents a summary of the direct and indirect biodiversity impacts which would occur as a result of the Amended Project, including a likelihood rating assigned by Niche (2023).

**Table 6**  
**Direct and Indirect Biodiversity Impacts**

Impact	Extent of Impact as a Result of the Amended Project
<b>Direct Impacts</b>	
Removal or modification of native vegetation.	Known: approximately 3.18ha of PCT 1300 and 1.19ha of PCT 720 would be removed.
Loss of individuals of a threatened species.	Known: an area of 1.33ha of <i>Z. granulata</i> habitat, comprising an estimated 1,037 mature plants within the Amended Project Area would be removed.
Removal or modification of threatened species habitat other than native vegetation.	Low/moderate: the area contains limited tree hollows or other habitat features, however it does provide foraging habitat for a range of threatened fauna.
Death through trampling or vehicle strikes.	Low: limited increased risk as vegetation clearing represents the primary impact.
Death through poisoning.	Low: no poisons would be used as part of the Amended Project other than as required to control exotic species to meet obligations under the <i>Biosecurity Act 2015</i> .
Fragmentation.	Moderate: clearing would impact already fragmented vegetation, with impacts occurring for lower quality remnant vegetation.
<b>Indirect Impacts</b>	
Predation by domestic and/or feral animals.	Low: the Amended Project is located in a rural area and is unlikely to increase domestic or feral animal presence.
Loss of shade/shelter.	Low: the removal of 4.37ha of vegetation would result in the loss of shade and shelter, however similar habitat is available in the immediate vicinity of the Amended Project Area.
Loss of individuals through starvation.	Low: the habitat removed is considered unlikely to result in loss through starvation.
Loss of individuals through exposure.	Low: habitat to be removed consists primarily of stands of previously disturbed vegetation. Nearby habitat would not be impacted by the Amended Project.
Edge effects (noise, light, traffic).	Moderate: clearing of vegetation would increase light exposure in adjacent vegetation which may lead to weed invasion. Impacts would be monitored and managed through weed control.
Deleterious hydrological change.	Low: the Amended Project has been designed to avoid the watercourse to the east of the Amended Project Area, although minor flow reductions would occur.
Aquatic habitat species	Low: given little predicted change in downstream flows, the wetlands at least 1.5km downstream of the Amended Project Area would not be adversely impacted.
Weed invasions.	Moderate: clearing of vegetation would increase light exposure in adjacent vegetation which may lead to weed invasion. Impacts would be monitored and managed through weed control.
Increased human activity within or directly adjacent to sensitive habitat areas.	Known: the Amended Project would increase human activity associated with quarry activities. Management and mitigation measures are provided to minimise associated indirect impacts.
Source: Niche (2023) – modified after Table 14	

The BC Act and the *Local Land Services Act 2013* (LLS Act) require decision-makers to determine whether the residual impacts to Threatened Ecological Communities that are at risk of serious and irreversible impacts from a proposed development, are serious and irreversible. The following TECs identified within the Biodiversity Study Area are at risk from serious and irreversible impacts.

- Illawarra Subtropical Rainforest in the Sydney Basin Bioregion (EEC) – listed due to the ecological community’s very small population size.
- *Melaleuca armillaris* Tall Shrubland in the Sydney Basin Bioregion (EEC) – listed as an ecological community currently in a rapid rate of decline, with a very small population size and with a very limited geographic distribution.

Detailed consideration of potential serious and irreversible impacts to these two TECs is provided in Annexure 9 of Niche (2023).

A referral for the original Project was lodged with DAWE due to potential impacts on Matters of National Environmental Significance (MNES). An updated assessment of significance was undertaken by Niche (2023) for the threatened *Z. granulata*, identified within the Biodiversity Study Area. It is noted that a significant impact on *Z. granulata* as a result of the Amended Project was likely due to the number of individuals that would be removed. Additionally, an assessment of significance was completed for the TEC Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion and it was concluded that a significant impact as a result of the Amended Project was likely (Niche, 2023). DAWE has confirmed that the original Project would be a controlled action and as such requires assessment under the EPBC Act. DAWE considered the original Project likely to impact on listed threatened species and communities.

Impacts from the Amended Project on threatened species and communities that require offsetting under the Biodiversity Offsets Scheme (BOS) would occur over an approximate 30-year period. Cleary Bros proposes to implement a staged offset approach to the offset requirement. Three broad project impact stages have been identified, with the offset credit requirement for each stage to be satisfied prior to disturbing any vegetation within the relevant stage (**Figure 9**). For further details, see Section 3.13 of **Appendix 1**.

## 6.4.6 Conclusion

The Amended Project would result in the following impacts to biodiversity values.

- Direct removal of 4.37ha of native vegetation, comprising PCT1300 and PCT720, both threatened TECs.
- Removal of fauna habitat including native vegetation and drainage lines.
- Removal of flora habitat associated with native vegetation.
- Removal of up to five hollow-bearing trees and one hollow stag.

Cleary Bros has aimed to avoid and minimise impacts to biodiversity values associated with the Amended Project through avoidance, to the extent practicable, of the most significant areas of biodiversity value during the detailed design stage of the original Project and more recently with the definition of the Amended Project Area. Additionally, Cleary Bros has committed to a range of management and mitigation measures to further minimise the potential for impacts to biodiversity values associated with the Amended Project.

Assessments of significance for three Matters of National Environmental Significance under the EPBC Act were completed by Niche (2023). Those assessments concluded that the Amended Project would likely result in significant impacts to *Z. granulata* and the Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion. DAWE has confirmed that the Amended Project is a controlled action and as such, requires assessment under the EPBC Act.

Given the level of predicted impacts upon the biodiversity values of the Amended Project Area, Cleary Bros intends to offset the impacts, as discussed in Section 3.13 of **Appendix 1**.

A total of 61 ecosystem credits are required to offset impacts to native vegetation as a result of the Amended Project.

- PCT 1300 Illawarra Subtropical Rainforest – 52 credits.
- PCT 720 *Melaleuca armillaris* Tall Shrubland – 9 credits.

One threatened species requires offsetting as a result of the Amended Project.

- *Zieria granulata* (Illawarra Zieria) – 2,074 credits.

Cleary Bros intends to offset impacts from the Amended Project in accordance with the credit requirements available under the BOS including:

- retiring credits based on the like-for-like rules via either:
  - establishment of a Stewardship Site; or
  - facilitating the establishment of a Stewardship Site; or
- making a payment to the Biodiversity Conservation Fund subsequent to a Credit Charge request to the Biodiversity Conservation Trust (BCT).

No application to vary the credit requirement or depart from a like-for-like credit obligation using the ancillary rules is presently anticipated.

In light of the limited distribution of the *Melaleuca armillaris* Tall Shrubland and in order to demonstrate that adequate biodiversity offset credits would be available for this community, Cleary Bros have identified a potential BSA Area on Cleary Bros' land (**Figure 9**) (see also Section 3.13 of **Appendix 1**). Importantly, the BSA Area includes areas of high value habitat and vegetation community that were included within the original Project Area and were excluded from the Amended Project Area.

Niche (2023) undertook a preliminary, rapid assessment of the potential biodiversity offset credits available for the *Melaleuca armillaris* Tall Shrubland within the BSA Area. As part of this rapid assessment, Niche (2023) identified areas within land owned by Cleary Bros which could be revegetated to increase the mapped distribution of the *Melaleuca armillaris* Tall Shrubland community. These areas would be included within the proposed BSA Area, and through active management, ensure that the overall condition of the *Melaleuca armillaris* Tall Shrubland community in the area is relatively unchanged as a result of the Amended Project. In summary, the proposed BSA Area would likely generate 11 credits, compared with the 9 credits required for the Amended Project.

No assessment was undertaken for the Illawarra Subtropical Rainforest or *Z. granulata* as they are comparatively abundant in the region and it is expected that adequate biodiversity offset credits could be secured. In the event the potential BSA Area does not generate the minimum credits of *Melaleuca armillaris* Tall Shrubland required to offset those lost as part of the Amended Project, Cleary Bros would secure the residual credits required through one of the alternative options available under the *Biodiversity Conservation Act 2016*.

## 6.5 Surface Water

### 6.5.1 Introduction

The SEARs for the Project required an assessment of the following potential surface water-related issues.

- A detailed site water balance.
- Identification of any licensing requirements or other approvals under the *Water Act 1912* and/or *Water Management Act 2000*.
- Demonstration that water for the operation of the development can be obtained from an appropriately authorised and reliable supply in accordance with the operating rules of any relevant Water Sharing Plan (WSP).
- A description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant WSP or water source embargo.
- An assessment of the likely impacts on the quality and quantity of existing surface water resources, including a detailed assessment of proposed water discharge quantities and quality against receiving water quality and flow objectives.
- An assessment of the likely impacts of the development on watercourses, riparian land, water-related infrastructure, and other water users.
- A detailed description of the proposed water management system, water monitoring program and other measures to mitigate surface water impacts.
- An assessment of any likely flooding impacts of the development.

The assessment requirements of the DPE Water, Biodiversity & Conservation Division (BCD), Environment Protection Authority (EPA) and Shellharbour City Council were also considered during the preparation of the surface water assessment.

A surface water assessment for the Project was undertaken by Strategic Environmental and Engineering Consulting (SEEC) Pty Ltd and is presented as Part 7 of the *Specialist Consultant Studies Compendium* that accompanied the EIS. That report is referred to as SEEC (2021).

As identified in Section 3.7, following exhibition of the EIS, Cleary Bros identified that the southern section of the Amended Extraction Area would not be free draining and may accumulate significant volumes of surface water, resulting in challenges establishing vegetation and achieving the nominated final land use. In addition, the accumulation of surface water in the Stage 7 Extraction Area may not comply with the requirements of the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources*.

In light of the above, Cleary Bros elected to amend the final landform to incorporate an inclined pipeline to permit passive discharge from the Southern Sump to Watercourse 3 (**Figure 5**). Cleary Bros sought advice from SEEC in relation to the design of the pipeline and associated inlet and outlet infrastructure. That advice is presented as Attachment C to the response to RFI3 and is referred to hereafter as SEEC (2023). Section 3.12.6.1 of the Amended Project Description (**Appendix 1**) presents a detailed description of the proposed inclined pipeline.

This subsection presents an assessment of the anticipated surface water impacts arising from the proposed discharge arrangement within Watercourse 3.

### 6.5.2 Existing Environment

The existing surface water environment within Watercourse 3 is described in Section 6.9.2 of the EIS. For the purposes of this assessment, the existing environment may be summarised as follows.

- Watercourse 3 is a second order stream formed by the merger of Watercourses 1 and 2 (**Figure 3**).
- Surface water from the Stage 1 to 6 Extraction Area is currently and would continue to be discharged to Watercourse 1 via a licenced discharge point (see Figure 6.9.2 of the EIS).
- Water quality within Watercourses 1 and 2 have been monitored since 2009, with water quality generally consistent with the water quality criteria nominated under EPL299, namely
  - pH between 6.5 and 8.5;
  - total suspended solids less than 50mg/L; and
  - turbidity less than 32.2 nephelometric turbidity units.
- SEEC (2021) estimates water flows in Watercourse 3 in the vicinity of the proposed discharge location to be:
  - approximately 265ML/day during a 1 in 2 year (50% Annual Exceedance Probability (AEP)) flood event; and
  - approximately 730ML/day during a 1 in 100 year (1% AEP) flood event.

**Plates 1 to 4** present a range of photographs of Watercourse 3 upstream, in the vicinity of and downstream of the proposed discharge location. In summary, the watercourse is relatively straight with a steep western bank and less steep eastern bank. The bed of the watercourse comprises a mixture of coarse rocks and finer sediment, with limited evidence of bank scour or erosion within the existing watercourse.

### 6.5.3 Design and Operation of the Proposed Discharge Location

SEEC (2023) presents a feasibility design for the proposed discharge location. Given that the proposed inclined pipeline would not be constructed until after the end of extraction operations, namely after 2050<sup>2</sup>, Cleary Bros contend that a feasibility design is appropriate at this stage of the Amended Project.

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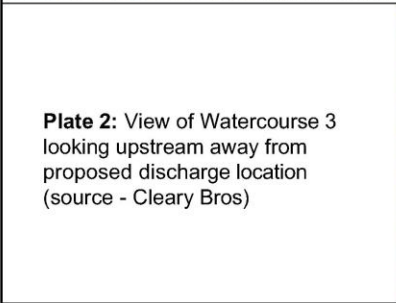
<sup>2</sup> Or after 2036 in the event that DA614/2006 is not extended or replaced.



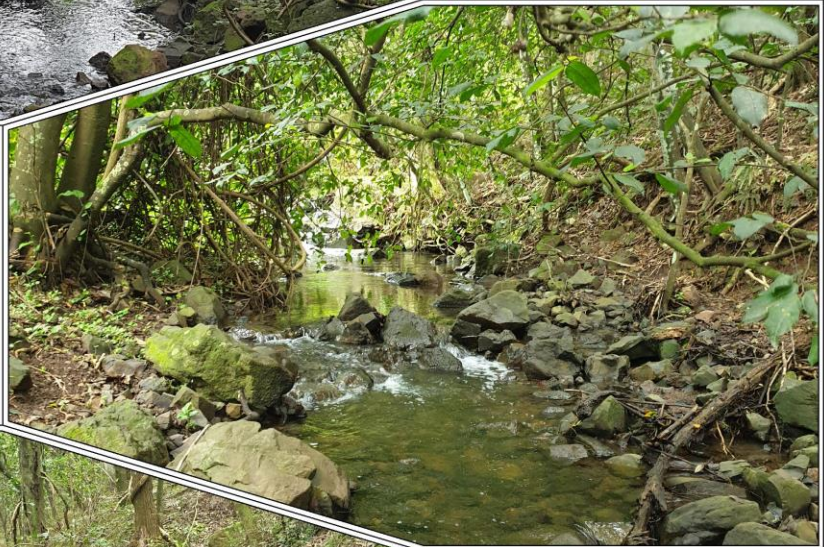
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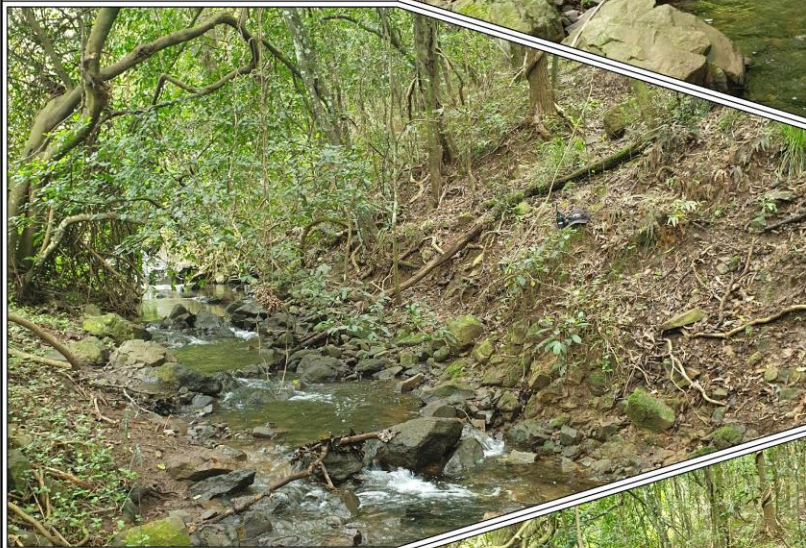
**Plate 1:** View of Watercourse 3 looking downstream towards proposed discharge location (source - Cleary Bros)



**Plate 2:** View of Watercourse 3 looking upstream away from proposed discharge location (source - Cleary Bros)



**Plate 3:** View of Watercourse 3 looking upstream in the vicinity of the proposed discharge location (source - Cleary Bros)



**Plate 4:** View of Watercourse 3 looking upstream towards proposed discharge location (source - Cleary Bros)



Section 3.12.6.1 of the Amended Project Description (**Appendix 1**) presents a detailed description of the design and operation of the proposed discharge location. For the purposes of this assessment, the following components of that design are relevant. The feasibility design would be refined by engineering advice and hydraulic modelling prior to installation.

- The inclined pipeline would have a diameter of 450mm and a slope of 4%. Water flows within the pipeline would be controlled at the inlet to minimise the potential for erosion at the outlet within Watercourse 3.
- The outlet would be engineered in accordance with relevant design criteria applicable at the time. The outlet would indicatively include the following.
  - An outlet pipe set back from the bank of the watercourse and positioned at an angle of 45° to 60° to the main channel.
  - Scour protection would be installed at the outlet, within Watercourse 3 and on the opposite bank as required.

The outlet location would be constructed using techniques that would minimise disturbance of the bank of Watercourse 3. In particular, an access track would not be constructed, with personnel, materials and equipment transported to the discharge point on foot or by helicopter. Anticipated disturbance associated with the discharge location would be expected to be less than 100m<sup>2</sup>, with negligible disturbance of native vegetation required.

The rate of water discharged from the pipe would be passively controlled at the inlet to ensure that the erosive force of that water remained within the capacity of the outlet infrastructure to prevent erosion.

Finally, the quality of water discharged to Watercourse 3 would be tested and treated prior to discharge until such time as testing indicates that water quality is consistently within the required criteria for discharge, after which, water would be permitted to passively discharge to Watercourse 3.

#### **6.5.4 Management and Mitigation Measures**

Management and mitigation measures presented in Section 6.9.4 of the EIS would continue to be implemented throughout the life of the Amended Project. Additional management and mitigation measures would include the following. Indicative timelines for each action are also included below.

- Engage a suitably qualified hydraulic engineer to complete detailed design for the proposed inclined pipeline, including inlet and outlet infrastructure, in accordance with guidelines, standards or best practices relevant at the time – at least 2 years prior to closure.
- Construct the outlet infrastructure in a manner that minimises surface disturbance in accordance with *Managing Urban Stormwater* or the applicable guideline(s) at the time.
- Manage the Southern Sump initially as a sediment control basin in accordance with *Managing Urban Stormwater* or the applicable guideline(s) at the time. In particular, ensure that water is tested and, if required, treated prior to discharge and

in accordance with EPL299. Permit passive discharge only once testing demonstrates that water quality consistently meets the discharge criteria applicable at the time.

### 6.5.5 Assessment of Impacts

With the adoption of the management and mitigation measures described in Section 6.5.4, the surface water impacts of the proposed inclined pipeline would be minimal for the following reasons.

- Discharge of water from the Southern Sump would be controlled initially in accordance with *Managing Urban Stormwater* or its equivalent at the time. Passive discharge of water would only be permitted once testing demonstrated that water quality consistently meets the discharge criteria applicable at the time. As a result, there would be no material impacts to surface water quality in Watercourse 3.
- Erosion risks during construction of the outlet infrastructure would be managed in accordance with *Managing Urban Stormwater* or its equivalent at the time. As a result, there would be no material erosion-related impacts during construction of the outlet infrastructure.
- Erosion risks during operation of the inclined pipeline would be managed through passive control of water flows at the inlet of the pipeline. The inlet and outlet infrastructure would be designed to ensure no material erosion of Watercourse 3 during the operation of the pipeline.
- Peak surface water flows in Watercourse 3 are not expected to adversely impact on the downstream environment because the final landform within the Amended Extraction Area would be gently sloping, covered with a minimum of 2m of permeable growth medium and vegetated, all of which would act to slow surface water flows during rainfall events. In addition, passive controls at the inlet of the inclined pipeline would serve to reduce peak flows discharged from the Amended Extraction Area. As a result, it is concluded that the proposed inclined pipeline would not result in increased flooding risk downstream of the Amended Project Area.

### 6.5.6 Monitoring

Cleary Bros and any subsequent landholder would implement the following monitoring measures following construction and commissioning of the inclined pipeline. It is noted that the proposed measures are consistent with prudent practice for any landholder and would not impose an undue obligation on Cleary Bros or any future owner of the property after the life of the Project, namely after 2053.

- Regularly, particularly after heavy rain or storms, inspect the inlet infrastructure and remove obstructions such as accumulated vegetation.
- Periodically inspect the outlet infrastructure to ensure it is operating as designed and undertake remediation in the unlikely event that such remediation is required.

## 6.6 Economic

### 6.6.1 Introduction

The SEARs for the Project require an assessment of the likely economic impacts of the development, paying particular attention to:

- the significance of the resource;
- the costs and benefits of the Project; identifying whether the development as a whole would result in a net benefit to NSW; and
- the demand on local infrastructure and services.

The assessment requirements of Shellharbour City Council were also considered during the preparation of the economic impact assessment.

The *Economic Assessment* for the Project was undertaken by Gillespie Economics and is presented as Part 9 of the *Specialist Consultant Studies Compendium* that accompanied the EIS. The original *Economic Assessment* is referred to as Gillespie (2022).

Following exhibition of the EIS, the Department of Planning and Environment requested a revised economic assessment which considers any changes to predicted impacts and proposed mitigation measures.

Gillespie Economics reviewed the original *Economic Assessment* in light of the changes which form the Amended Project, and provided advice on the adequacy and accuracy of this *Economic Assessment* based on the proposed Amended Project, which is referred to as Gillespie (2023) and presented as **Appendix 7**. A summary of this advice is included in this section.

### 6.6.2 Cost Benefit Analysis - Project as Exhibited

The cost benefit analysis (CBA) of the Project as exhibited assumed production from 2021 to 2026 within the Stages 1 to 6 Extraction Area and from 2026 to 2050 within the Stage 7 Extraction Area, a period of 30 years. That assessment determined that the Project would have incremental net production benefits to NSW of \$35M (present value at 7% discount rate) comprising:

- \$26M in quarry benefits;
- \$2M in ex quarry transport benefits; and
- \$8M in concrete production benefits.

Gillespie (2022) concluded that the economic cost of residual environmental, social, and cultural impacts of the Project as exhibited are likely to be considerably less than the estimated net production benefits. Consequently, the Project was estimated to have net social benefits to NSW, and hence is desirable and justified from an economic efficiency perspective.

### 6.6.3 Cost Benefit Analysis of the Amended Project

Gillespie (2022) assumed production from 2024 to 2026 within the Stages 1 to 6 Extraction Area and from 2026 to 2053 within the Stage 7 Extraction Area, a period of 30 years. Keeping all other assumptions the same, the Amended Project is estimated to have net production benefits to NSW of \$43M comprising:

- \$31M in quarry benefits;
- \$3M in ex quarry transport benefits; and
- \$9M in concrete production benefits.

Gillespie (2023) notes that the Amended Project also reduces visual and biodiversity impacts relative to the Project as exhibited. As a result, the economic cost of residual environmental, social, and cultural impacts of the Amended Project after offset, mitigation, and management are likely to be immaterial from an aggregate economic efficiency perspective and so the Amended Project is considered to provide net economic benefits to NSW.

### 6.6.4 Local Effects Analysis

Gillespie (2023) notes that the Amended Project would result in the same level of economic activity as the Project as exhibited, with reduced environmental effects.

## 6.7 Social Impacts

### 6.7.1 Introduction

The SEARs for the Project required “a detailed assessment of the potential social impacts of the development that builds on the findings of the Social Impact Assessment Scoping Report, in accordance with the *Social impact assessment guideline for State significant mining, petroleum production and extractive industry development*, paying particular consideration to:

- how the development might affect people’s way of life, community, access to and use of infrastructure, services and facilities, culture, health and wellbeing, surroundings, personal and property rights, decision-making systems, and fears and aspirations;
- the principles in Section 1.3 of the guideline; and
- the review questions in Appendix D of the guideline.”

A *Social Impact Assessment* (SIA) for the Project was prepared by Element Environment (Element) and is presented as Part 10 of the *Specialist Consultant Studies Compendium* and is hereafter referred to as Element (2022). The following subsections provide a summary of the SIA.

Element (2022) was prepared with consideration of the NSW, regional and local community context and the understanding that Cleary Bros has been operating the Albion Park Quarry since 1963 with an established presence in the community.

Following exhibition of the EIS, the Department of Planning and Environment requested

“a revised social impact assessment (SIA) that considers any revised conclusions of technical studies prepared for noise, blasting, heritage, and visual amenity.”

The Department also requested disaggregated results from consultation undertaken for the SIA and further assessment of potential impacts on Aboriginal cultural heritage and connection to country.

Element prepared an *Amended Social Impact Assessment* (Amended SIA), referred to as Element (2023) and presented as **Appendix 9**. It is noted that the Amended SIA presents amended social impacts and is intended to be read in conjunction with Element (2022) and does not replace that document.

The following subsections provide a summary of the Amended SIA and describe the operational safeguards and management measures that would be implemented by Cleary Bros. These subsections similarly are intended to be read in conjunction with Section 6.14 of the EIS and does not replace that document.

## 6.7.2 Amended Social Impacts

### 6.7.2.1 Introduction

The Amended SIA identified the following potential changes to social impacts as a result of the Amended Project.

- Changes to impacts from operational dust, noise and vibration causing a decline in social amenity, health or way of life for nearby neighbours and personnel.
- Changes to the aesthetic value and amenity affecting surroundings and way of life.
- Further changes to land use affecting community character inducing a sense of loss of European heritage.

The following subsections address each of the above. Section 6.7.2.6 presents a summary of the amended social impacts.

### 6.7.2.2 Decline in Social Amenity

The Amended SIA determined the following in relation to changes in social amenity as a result of emissions from the Amended Project Area.

- Noise  
Element (2023) note that SLR assessed the noise-related requests from Department of Planning and Environment and determined that a revised noise and blasting impact assessment was not required. As a result, the amended SIA only considered the changes to the assessed social impacts to the occupants of the residences on “Figtree Hill”.  
Cleary Bros have consulted extensively with the owners of “Figtree Hill” and negotiated an agreement which includes a range of measures that would mitigate noise and amenity-related impacts. Based on the existence of a negotiated agreement between the parties, the Amended SIA assessed the mitigated social risk from noise associated with the Amended Project ‘as **“low”**, down from “medium” for the Project as exhibited.
- Dust  
Similarly, the Amended SIA assessed the mitigated social risk from dust associated with the Amended Project ‘as **“low”**, unchanged from the Project as exhibited.

### 6.7.2.3 Changes to the Aesthetic Value

The Amended SIA acknowledges that visual impacts are quite subjective because they are influenced by individual perceptions, preferences, and experiences. Element (2023) reviewed the *Landscape Character Assessment* of Moir (**Appendix 4**) and the *Amended Visual Impact Assessment* (**Appendix 5**) and considered the proposed visual mitigation measures.

Element (2023) assessed the mitigated changes to aesthetic value as a result of visual impacts of the Amended Project on residents of the “Figtree Hill” property, taking into consideration the negotiated agreement between the parties as “**low**,” unchanged from the EIS as exhibited.

Similarly, Element (2023) assessed the mitigated changes to aesthetic value as a result of visual impacts of the Amended Project on residents other than those within “Figtree Hill” as “**low**,” unchanged from the EIS as exhibited.

#### **6.7.2.4 Further Changes Affecting European Heritage**

Element (2023) reviewed the *Historic Landscape and Heritage View Impact Analysis* (Biosis, 2023).

In preparing the Amended SIA, Element (2023) noted that one near neighbour identified impact to heritage values as a concern. Element (2023) also noted that while a range of mitigation measures have been proposed (see Section 6.3), the assessed social impact of the lost heritage value from the removal or relocation of the “Belmont” would remain as “**medium**”, unchanged from the EIS as exhibited.

#### **6.7.2.5 Further Changes Affecting Aboriginal Heritage**

Element (2023) reviewed the *Aboriginal Cultural Heritage Assessment* prepared for the EIS (Biosis, 2021) and the recommendations contained therein. The Amended SIA provided a range of recommendations for consideration should the Amended Project be approved as follows.

- Regular consultation.
- Cultural awareness training.
- Acknowledgment and respect.

Cleary Bros has accepted these recommendations and they have been incorporated into the mitigation measures presented in Section 6.7.3.

In light of the above, the Amended SIA assesses the social impact of the Amended Project on Aboriginal heritage a “**low**”, unchanged from the EIS as exhibited.

#### **6.7.2.6 Summary of Social Impacts**

**Table 7** presents the summary of assessed social impacts arising from the Amended SIA.



**Table 7**  
**Social Impact Summary**

Impact to People	Social Impact Category	Affected Parties	Residual Impact Significance	Change in Impact Significance Since 2022 SIA
Increase noise causing a decline in social amenity, health or way of life for nearby neighbours and personnel	Surroundings Way of life Health and wellbeing	Adjoining property to the north (Figtree Hill)	Low (D2)	Change in the assessed mitigated social risk from 'Medium' to 'Low'
Increase in dust causing a decline in social amenity, health or way of life for nearby neighbours and personnel	Surroundings Way of life Health and wellbeing	Adjoining property to the north (Figtree Hill)	Low (D2)	No overall change in the assessed mitigated social risk
Changes to the aesthetic value and amenity affecting surroundings and way of life	Surroundings Way of life	Adjoining property to the north (Figtree Hill)	Low (D2)	No overall change in the assessed mitigated social risk
		Road users of Princes Highway and broader community	Low (D2)	No overall change in the assessed mitigated social risk
		Nearby neighbours to east and properties west of Dunmore Road	Low (C2)	Change is scale definition from 'nearby neighbours to east and local community to the east beyond the Princes Highway' to 'Nearby neighbours to east and properties west of Dunmore Road'  No overall change in the assessed mitigated social risk
Further changes to land use affecting community character inducing a sense of loss of European heritage	Culture	"Figtree Hill" and the wider surrounding suburbs	Medium (C3)	Change in unmitigated impact likelihood from 'possible' to 'likely', resulting in 'High' unmitigated impact.  Change in the assessed mitigated social risk from 'Medium B2' to 'Medium C3'.
Further changes to land use affecting community character inducing a sense of loss of Aboriginal Heritage	Culture	Aboriginal people and the wider community	Low (D2)	Change in the assessed mitigated social risk from 'Low D1' to 'Low D2'.

### 6.7.3 Mitigation Measures

The SIA incorporates a range of Project specific mitigation measures, many of which have been identified within the supporting specialist consultant assessments relating to noise, blasting, air quality, visibility and historic heritage. The key focus of Project specific mitigation measures is upon management of amenity for surrounding landowners and residents. Cleary Bros would adopt the following additional social mitigation measures identified in the SIA.

- Continue open dialogue with the owners of "Figtree Hill" in accordance with the negotiated agreement to further mitigate the residual impacts on social amenity.

- Ongoing open and transparent discussions of social community impacts at biannual Community Consultative Committee meetings.
- Regular review and where appropriate, enhancement of Cleary Bros' social investment strategy to strengthen social value.
- Enhancement of Cleary Bros' existing engagement strategy in the Quarry Environmental Management Plan.
- Inform and educate nearby residents of outcomes of the SIA.
- Establish a framework to monitor and report on social impacts.
- Implement a range of measures to minimise social impacts on the Aboriginal community, including:
  - Regular consultation with the Aboriginal community.
  - Cultural awareness training for Cleary Bros employees and subcontractors.
  - Acknowledgment and respect of Aboriginal people's connection to country and their cultural heritage.

## 6.8 Other Environmental Aspects

**Table 8** presents the environmental aspects which would be unaffected by the proposed amendments to the Project, and a justification for that conclusion.

**Table 8**  
**Environmental Aspects which would be Unaffected by the Proposed Modification**

<b>Environmental Aspect</b>	<b>Justification</b>
Air Quality	The Amended Project would not result in any intensification of proposed onsite activities, nor an increase in area of proposed disturbance. As a result, air quality-related impacts presented in Section 6.2 of the EIS would remain relatively unchanged and no further assessment is required.
Noise and Blasting	The Amended Project would not result in any intensification of proposed onsite activities, nor change in the hours of operation. As all Project-related activities, including short-term activities, have been assessed in accordance with the requirements of the <i>Noise Policy for Industry</i> , no further assessment is required.
	The Amended Project would not result in changes to current or proposed blasting operations. As a result, no further assessment is required.
Aboriginal Heritage	The Amended Project would result in a reduction in the area of proposed disturbance. As a result, no further assessment is required.
Soil and Land Capability	The Amended Project would result in a reduction in the area of proposed disturbance. As a result, no further assessment is required.
Groundwater	The Amended Project would not result in a deepening of the Extraction Area, nor intersection of any additional groundwater source. As a result, no further assessment is required.
Public Safety and Hazards	The Amended Project would not result in changes to bushfire risks nor the management of explosives. As a result, no further assessment is required.
Traffic and Transportation	Neither the Project as exhibited, nor the Amended Project includes transportation on the public road network. Nevertheless, the Amended Project would not result in changes to transportation on the public road network and no further assessment is required.

## 7. Justification of the Amended Project Area

### 7.1 Introduction

A comprehensive justification of the original Project, as exhibited, was provided in Section 7 of the EIS.

The proposed amendments are primarily required to address biodiversity and visual amenity-related constraints identified since the exhibition of the EIS. As identified in Section 6, the proposed amendments would not result in any increase in the predicted and assessed environmental impacts of the Project, as exhibited. Indeed, the Amended Project would result in substantially reduced biodiversity and visual amenity-related impacts. In addition, the proposed amendments would be consistent with the Statutory and Strategic context of the Project, as exhibited.

In light of the above, Cleary Bros contends that there are no additional environmental impacts introduced that have not previously been identified and assessed.

Section 7 of the EIS provides a justification of the Project as exhibited. Additionally, Section 5 of the *Submissions Report* provides an updated justification incorporating issues raised in the submissions.

The following subsections update the justification of the Amended Project in the context of the proposed amendment, including a summary of the outcomes of the assessment of environmental aspects of the Amended Project, consideration of the principles of ecologically sustainable development and the mandatory considerations specified in Section 4.15(1) of the *Environmental Planning and Assessment Act 1979*.

### 7.2 Actions Taken to Avoid / Minimise Impacts

The following actions have been implemented to further avoid and minimise impacts associated with the Amended Project.

- The southern boundary of the Stage 7 Extraction Area has been moved northwards to reduce impacts to the *Melaleuca armillaris* Tall Shrubland community and *Zieria granulata*, and avoid impacts to *Cynanchum elegans*.
- The eastern boundary of the Stage 7 Extraction Area has been moved westwards to provide additional screening of the western and northern terminal faces.
- The design of the 7m high visible western and northern terminal faces has been amended to incorporate 10m wide benches, an increase from 3m wide.
- The final landform has been amended to include a mechanism that would permit passive discharge of surface water from the southern section of the Stage 7 Extraction Area to Watercourse 3, thereby preventing the potential for significant accumulation of surface water in the final landform.

In addition to the above, Cleary Bros has more clearly articulated commitments in the EIS in relation to the following.

- Clarification of extraction staging, removal of reference to the “Eastern Rim” which is now referred to as Stage 7e. The boundaries of Stages 7c and 7d have also been updated to exclude the area now covered by Stage 7e.
- Confirmation that Project Approval is sought for a period of 30 years from determination of the Project, with an additional period for remaining rehabilitation works.
- A commitment to cease extraction operations within the Amended Project Area on 21 February 2036 in the event that DA614/2006 is not modified or replaced to extend beyond that date.
- A commitment to investigate and if practicable facilitate relocation of the “Belmont” main house and to undertake measures to mitigate historic heritage impacts associated with relocation or removal of the building.

## 7.3 Consistency with Strategic Context

Section 2 presents an overview of the key Government Strategies, Policies and Plans relevant to the Amended Project. In summary, the Amended Project would be consistent with the Strategic Context of the Project, as exhibited.

## 7.4 Compliance with Statutory Requirements

Section 4 and **Appendix 2** provide an overview of the Statutory Context of the Amended Project and the Project, as exhibited. In summary, the Amended Project would comply with all relevant statutory requirements.

## 7.5 Consistency with Community Views

In light of the fact that the Amended Project would result in reduced environmental impacts and the generally supportive context of all public submissions received during the Public Exhibition of the EIS, Cleary Bros contends that the Project as exhibited and amended has broad community support.

Cleary Bros acknowledges concerns previously raised by the owners of “Figtree Hill” and notes that a negotiated agreement has been established between the parties to address those concerns.

The only other matter raised by the community in representations after the exhibition related to heritage impacts. These matters are addressed in Section 4.2.7.6 of the *Submissions Report* and Section 6.3 and **Appendix 6** of this report. In summary, Cleary Bros recognise the concerns of the community in relation to retention of the “Belmont” Main House in the landscape, but note

that the building is not currently habitable or accessible to the public and is in a poor structural condition. In discussions with Shellharbour Council and others, Cleary Bros propose a range of mitigation measures, including:

- Capturing the heritage value of “Belmont” in its current setting, including development with input from interested parties of an interactive three-dimensional virtual model of the “Belmont” and surrounds, to capture and share the site with the community into perpetuity.
- Identification of an alternative site for the “Belmont”, including confirming the feasibility of relocating the structure and seeking expressions of interest for taking possession of “Belmont”. Cleary Bros would pay costs to uplift and transport the “Belmont” to the preferred destination within the Shellharbour LGA.
- Retaining materials from the “Belmont” and outbuildings in the event the relocation of “Belmont” does not proceed.
- Recovering residual heritage value during removal works.

Overall, Cleary Bros contends that the Project has a high degree of community support and the views of the community have been sought and appropriately addressed.

Finally, Cleary Bros would continue to provide community updates via their existing community outreach programs, namely via the Community Consultation Committee and consultation with fence line neighbours.

## 7.6 Scale and Nature of Anticipated Impacts

The Amended Project would result in reduced or unchanged Project-related impacts when compared with the Project, as exhibited.

Section 7.5 of the EIS presents a detailed analysis of the Project, as exhibited, in consideration of the principles of ecological sustainable development as well the anticipated biophysical, social, and economic impacts. Section 6 of this document identifies that the Amended Project would result in reduced visual and biodiversity impacts and that residual heritage, surface water and social impacts would be comparable with the Project, as exhibited.

**Table 9** presents the Amended Project in consideration of the principles of ecologically sustainable development.

**Table 9**  
**Principles of Ecological Sustainable Development**

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<b>Principle</b>	<b>Consistency with the Amended Project</b>
The Precautionary Principle	The Amended Project has been designed to reduce to the extent practicable impacts on visual amenity and biodiversity. In addition, further heritage and surface water-related mitigation measure have been proposed. As a result, the Amended Project is consistent with this Principle because Cleary Bros have taken all reasonable steps to determine potential amended impacts and uncertainty in relation to remaining impacts has not prevented the implementation of mitigation measures to reduce those impacts.

**Table 9 (Cont'd)**  
**Principles of Ecological Sustainable Development**

<b>Principle</b>	<b>Consistency with the Amended Project</b>
Inter-generational Equity	<p>The Amended Project would ensure that the economic and social benefits would be realised while minimising to the extent practicable adverse environmental impacts.</p> <p>Cleary Bros notes that the Amended Project would result in the exclusion of approximately 7.7Mt of identified hard rock resource. This would bring forward the date when a new resource will be required to be bought into production, or if that is not possible, the date when costs for construction and infrastructure in the Illawarra would be expected to increase substantially.</p> <p>However, the Amended Project would result in the preservation of additional areas of high value <i>Melaleuca armillaris</i> Tall Shrubland and <i>Zieria granulata</i> and avoidance of <i>Cynanchum elegans</i>.</p> <p>Cleary Bros contends that on balance the Amended Project appropriately balances future generations requirement for quarry products with preservation of biological diversity.</p>
Conservation of Biological Diversity	<p>The Amended Project would result in reduced biodiversity impacts compared to the Project, as exhibited.</p>
Improved Valuation, Pricing and Incentive Mechanisms.	<p>The Amended Project has as far as practicable ensured that all externalities have been incorporated into the Project design and that there would be no unreasonable burden placed on the surrounding community or environment as a result of the Amended Project.</p>

## 7.7 Compliance Monitoring and Communication

The Amended Project would not require substantive changes to the existing and proposed environmental monitoring and management measures as presented in the EIS.

Notwithstanding, Cleary Bros would continue to monitor and report on the environmental performance of its operations and compliance with the relevant conditional requirements of all approvals, licences and consents.

## 7.8 Remaining Uncertainties

Throughout the assessment of the Project, as exhibited and as amended, Cleary Bros has consistently assessed the worst-case scenario for each of the identified risks and environmental issues. As a result, Cleary Bros contends that there is limited potential for unanticipated Project-related impacts greater than those assessed, including for the Amended Project. Notwithstanding this, **Table 10** presents remaining Project-related uncertainties that may result in impacts greater than those assessed, and the mitigation measures proposed to manage each.

**Table 10**  
**Remaining Uncertainties and Proposed Mitigation Measures**

<b>Remaining Uncertainty</b>	<b>Proposed Mitigation Measure(s)</b>
Extraction rates may be less than anticipated, resulting in resources remaining within the Extraction Area at the end of the life of the Project.	<ul style="list-style-type: none"> <li>Apply for a modification or new development consent to extend the life of the Project.</li> </ul>
The anticipated volume of poor quality or unsalable rock may be higher than anticipated, resulting in a greater volume of overburden requiring placement.	<ul style="list-style-type: none"> <li>The backfilled sections of the Extraction Area would be filled to a greater depth.</li> </ul>
Rehabilitation operations on the visible western and northern terminal faces may not achieve the proposed completion criteria identified in this document or any subsequent Rehabilitation Management Plan.	<ul style="list-style-type: none"> <li>Ensure that access to the rehabilitated benches is maintained and implement remediation as required.</li> </ul>
Development Consent DA614/2006 for transportation of quarry products from the Stage 7 Extraction Area to Cleary Bros northern property may not be extended or replaced.	<ul style="list-style-type: none"> <li>Prepare a pre-closure rehabilitation plan 5 years prior to the expiry of Development Consent DA614/2006, namely by 21 February 2031 if that approval has not been extended or replaced by that date.</li> <li>Implement the prepared plan in the event that transportation operations are required to cease.</li> </ul>
Noise, blasting or air quality emissions may be greater than those assessed and impacts at surrounding residences may be greater than anticipated.	<ul style="list-style-type: none"> <li>Continue to monitor noise, blasting and air quality emissions, and modify Project-related activities to ensure compliance with relevant criteria.</li> </ul>
Unanticipated Aboriginal or historic heritage objects may be identified.	<ul style="list-style-type: none"> <li>Implement the proposed Unexpected Finds Protocol for both Aboriginal and historic heritage objects.</li> </ul>
The proposed inclined pipeline from the Southern Sump to Watercourse 3 may not perform as designed or intended.	<ul style="list-style-type: none"> <li>Incorporate robust design measures into the pipeline design to ensure it can perform as designed and intended.</li> </ul>

## 7.9 Consequences of Not Proceeding with the Project

Section 7.6 of the EIS presents the consequences of not proceeding with the Project, as exhibited. The following presents an overview of the consequences in the event that consent is not received for the Amended Project.

1. The opportunity to extract approximately 18.8Mt of hard rock from the Amended Extraction Area to produce a range of aggregates, armour rock, and road pavement products for use in the Illawarra-Shoalhaven and Greater Sydney Regions would be foregone.
2. The opportunity for an independent and locally owned supplier of quarry products to the Illawarra Region after 2026 (the point at which the remaining resource withing Stages 1 to 6 will be exhausted) would be foregone.
3. The ability to supply bespoke quarry products to the Illawarra and Greater Sydney Regions after 2026 would be significantly limited.



4. The opportunity for the Cleary Bros Group to obtain quarry products at a competitive price for use in manufacturing value added products for projects undertaken by the Group after 2026 would be foregone.
5. The opportunity to maintain competition in the market for quarry and associated value-added products after 2026 would be forgone. This would likely be associated with a material increase in cost of construction and infrastructure in the Illawarra Region in particular and associated increased cost of living pressures for local residents.
6. The opportunity to maintain the current employment levels in the local area would be foregone after 2026.
7. The economic benefits to the local area, NSW and Australia would not occur.
8. Environmental impacts that have been substantially reduced as a result of the Amended Project would not occur. It is considered that the level of predicted impacts would be acceptable given the community support for the Project as evidenced by the absence of community objections to the Project, the extent of additional mitigation measures integrated into the Amended Project and the benefits that would accrue as a result of the Project.

In light of the above, the consequences of not proceeding with the Amended Project are considered to be substantially outweighed by the benefits of proceeding with the Project.

## 7.10 The Public Interest

Section 4.15(1)(e) of the *Environmental Planning and Assessment Act 1979* requires a consent authority to consider the “public interest” in determining an application for development consent. The public interest is generally difficult to define as it depends on contextual factors and intangible and variable matters such as public opinion and public need. It therefore requires a balancing of public expectations of impacts and benefits, as well as support and opposition, but may also be considered in terms of the principles of ecologically sustainable development and the aims or ‘objects’ of the guiding legislation for the application (in this case, the *Environmental Planning and Assessment Act 1979*).

There is clearly evident support for the employment and other economic opportunities that the Project, as exhibited, and amended would provide across the local and regional economies. However, it is also acknowledged that there is concern about the Project, as exhibited, from a number of community members, specifically in relation to heritage-related impacts.

Notwithstanding the above, the Amended Project would supply high quality quarry products for infrastructure development for a period of 30 years from an area that has been recognised as a strategically important resource area.

In light of the above, Cleary Bros contends that the Amended Project would be consistent with public interest compared to the Project, as exhibited. The Amended Project would have environmental impacts less than or no greater than those presented in the EIS.

## **7.11 Conclusion**

The Amended Project remains largely consistent with the outcomes of the comprehensive and extensive environmental impact assessments undertaken for the Project, as exhibited. This Report has shown that the Amended Project:

- has been designed in a manner that addresses the legitimate concerns of relevant government agencies and the community and minimises the potential environmental impacts as far as reasonably practicable;
- is consistent with the Statutory and Strategic context of the Project, as exhibited;
- would not result in any additional environmental impact; and
- would not require any additional environmental monitoring, management and mitigation measures compared to the Project, as exhibited.

The Amended Project is the result of the iterative planning and design of the overall Project and demonstrates Cleary Bros' commitment to continual refinements in response to the results of ongoing technical and environmental assessments. The Amended Project, as presented, provides an acceptable balance of environmental and social outcomes in achieving the economic benefits described. In addition, the Amended Project would not negatively impact on the legacy of the final rehabilitation and land use of the Amended Project Area.

## 8. References

- Australian and New Zealand Minerals and Energy Council (ANZMEC) (2000).** *Strategic Framework for Mine Closure.*
- Biosis Pty Ltd (2021a).** *Aboriginal Cultural Heritage Assessment.* Presented as Part 5 of the *Specialist Consultant Studies Compendium* for the EIS. Prepared on behalf of Cleary Bros (Bombo) Pty Ltd.
- Biosis Pty Ltd (2021b) – Albion Park Quarry Extension: Statement of Heritage Impact,** Part 6 of the *Specialist Consultant Studies Compendium*, prepared for Cleary Bros (Bombo) Pty Ltd.
- Biosis Pty Ltd (2021c) – Albion Park Quarry Extension: Archival Report,** Part 6 of the *Specialist Consultant Studies Compendium*, prepared for Cleary Bros (Bombo) Pty Ltd.
- Biosis Pty Ltd (2023).** *Historic Landscape and Heritage View Impact Analysis.* Prepared on behalf of Cleary Bros (Bombo) Pty Ltd and presented as Appendix 6.
- Department of Planning, Industry and Environment (DPIE) (2016).** *Vegetation Mapping – Illawarra Plant Community Type Vegetation Map.*
- Department of Planning, Industry and Environment (DPIE) (2020).** *Biodiversity Assessment Method.*
- Element Environment Pty Ltd (2022).** *Social Impact Assessment.* Presented as Part 10 of the *Specialist Consultant Studies Compendium* for the EIS. Prepared on behalf of Cleary Bros (Bombo) Pty Ltd.
- Element Environment Pty Ltd (2023).** *Amended Social Impact Assessment.* Prepared on behalf of Cleary Bros (Bombo) Pty Ltd and presented as Appendix 9.
- Gillespie Economics (2023).** *Amended Economic Assessment.* Prepared on behalf of Cleary Bros (Bombo) Pty Ltd and presented as Appendix 8.
- Moir Landscape Architecture Pty Ltd (2023).** *Landscape Character Assessment.* Prepared on behalf of Cleary Bros (Bombo) Pty Ltd and presented as Appendix 4.
- Niche Environment and Heritage Pty Ltd (2022).** *Biodiversity Development Assessment Report.* Presented as Part 4 of the *Specialist Consultant Studies Compendium* for the EIS. Prepared on behalf of Cleary Bros (Bombo) Pty Ltd.
- Niche Environment and Heritage Pty Ltd (2023).** *Amended Biodiversity Development Assessment Report.* Prepared on behalf of Cleary Bros (Bombo) Pty Ltd and presented as Appendix 7.
- RW Corkery & Co Pty Limited (RWC) (2023).** *Amended Visual Impact Assessment.* Prepared on behalf of Cleary Bros (Bombo) Pty Ltd and presented as Appendix 5.
- SLR Consulting Australia Pty Ltd (SLR) (2022) – Albion Park Quarry Extension: Noise and Blasting Assessment,** Part 2a of the *Specialist Consultant Studies Compendium*, prepared for Cleary Bros (Bombo) Pty Ltd.

**Strategic Environmental and Engineering Consulting (SEEC) Pty Ltd (2021).** *Surface Water Assessment.* Presented as Part 7 of the *Specialist Consultant Studies Compendium* for the EIS. Prepared on behalf of Cleary Bros (Bombo) Pty Ltd.

**Strategic Environmental and Engineering Consulting (SEEC) Pty Ltd (2023).** *Final Void Pipe Outlet Feasibility Review.* Prepared on behalf of Cleary Bros (Bombo) Pty Ltd and presented as Attachment C to RFI3.

# Appendices

- Appendix 1 Amended Project Description
- Appendix 2 Amended Statutory Compliance
- Appendix 3 Updated Mitigation Measures Tables
- Appendix 4 Landscape Character Assessment
- Appendix 5 Amended Visual Impacts Assessment
- Appendix 6 Historic Landscape and Heritage View Impact Analysis
- Appendix 7 Amended Biodiversity Development Assessment Report
- Appendix 8 Amended Economic Assessment
- Appendix 9 Amended Social Impact Assessment