



Gerroa Sand Resource

Quarry Environmental Management Plan

June 2023

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Revision Register

| Version No. | Date of Issue | Reason for Revision | Section or page numbers reissued | Reviewed by | Approved by |
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| 2D | 19/12/2019 | Update following IEA – minor updates throughout | All | Cleary Bros | |
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| 3B | 15/12/2022 | Update following comments from DPE | All | Cleary Bros | |
| 3C | 21/2/2023 | Minor update following comments from DPE Water | Sections 2.5, 8.5, 8.6, 8.9 | Cleary Bros | |
| 3D | 27/6/2023 | Minor update following feedback from DPE | Table 8-5 | Cleary Bros | DPE |
| | | | | | |

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APPENDICES

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- C. NOISE MANAGEMENT PLAN
- D. AIR QUALITY MANAGEMENT PLAN
- E. WATER MANAGEMENT PLAN
- F. LANDSCAPE AND REHABILITATION MANAGEMENT PLAN
- G. MODIFICATION 1 – EXTRACTION AREA ABORIGINAL CULTURAL HERITAGE MANAGEMENT PLAN
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GLOSSARY

| | |
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| ACHMP | - Aboriginal Cultural Heritage Management Plan (Mod 1 - see Appendix G) |
| AHMP | - Aboriginal Heritage Management Plan (Existing dredge pond- see Appendix H) |
| AR | - Annual Review |
| Area A | - An area of potential archaeological deposit nominated by Paton (1992), to be preserved from disturbance (see Figure 4.3) |
| Area B | - An area of potential archaeological deposit nominated by Paton (1992), part to be salvaged and part preserved (see Figure 4.3) |
| Area marked "X" | - An area defined in the project approval where separate approval is required from the DPIE for any vegetation clearing (see Figure 4.2) |
| BCDS | - Biodiversity Conservation and Sciences Directorate, within the DPIE |
| CCC | - Community Consultative Committee (see section 10.1) |
| Compensatory Planning | - Land required to be revegetated in accordance with the LRMP (see Figure 4.2) |
| Conservation Area | - Land where native vegetation is required to be conserved in perpetuity (see Figure 2.3) |
| DPIE | - Department of Planning, Industry and Environment |
| DPIE-W | - Department of Planning, Industry and Environment, Water Division |
| EA | <p>- Environmental Assessment for the project titled Gerroa Sand Quarry Proposed Extension Environmental Assessment Volumes 1 and 2, prepared by Perram & Partners and dated October 2006; as modified by:</p> <ul style="list-style-type: none"> • Environmental Assessment for Modification 1 titled Gerroa Sand Quarry Gerroa Sand Quarry Modification prepared by Cardno and dated May 2018, including: <ul style="list-style-type: none"> - Gerroa Sand Quarry Response to Submissions prepared by Cardno and dated December 2018; - Supplementary Response To Submissions Report prepared by Cardno and dated August 2019; - Response to Submission – Additional Information prepared by Cardno and dated November 2019; and - Letter titled 'Gerroa Sand Quarry Modification to Major Project Approval MP 05_0099' submitted by Cleary Bros (Bombo) Pty Limited and dated 23 November 2020; and - Letter titled 'Gerroa Sand Quarry Modification to Major Project Approval MP 05_0099' submitted by Cleary Bros (Bombo) Pty Limited and dated 12 February 2021 |
| East-West link | - Existing habitat corridor defined in the project approval with pre- requisites for severance (see Figure 4.2) |
| EPA | - Environmental Protection Authority |

| | |
|------------------------------|--|
| KMC | - Kiama Municipal Council |
| LRMP | - Landscape and Rehabilitation Management Plan (see Appendix D) |
| Northern Corridor | - Habitat area defined in the project approval to be developed north of the extraction area (see Figure 4.2) |
| PASS | - Potential acid sulphate soil |
| QEMP | - Quarry Environmental Management Plan (this document) |
| SCC | - Shoalhaven City Council |
| Southern Rehabilitation Area | - An area of rehabilitation defined in the project approval and shown on Figure 4.2 |
| VENM | - Virgin excavated natural material |

1 INTRODUCTION

1.1 BACKGROUND

Sand has been extracted from Cleary Bros sand quarry at Gerroa for over 65 years. The workings have been authorised by a succession of development approvals. On 2 September 2008 the Land and Environment Court granted project approval to Cleary Bros (Bombo) Pty Ltd for “Extension and Continuation of Gerroa Sand Quarry”. On 10 June 2022 the Director of the Department of Planning and Environment approved Modification 1 (Mod 1) of the Gerroa Sand Quarry A copy of the current approval (Mod 1) is included in Appendix A.

Sand extraction by dredging on the property is licensed by the Environmental Protection Authority (EPA). A copy of the Environmental Protection Licence is included in Appendix B.

The location of the property is shown on *Figure 1-1*. Details of the site are presented in Section 2.

1.2 STRATEGIC CONTEXT

This quarry environmental management plan (QEMP) describes management procedures associated with the Gerroa sand quarry relevant to managing the project’s impact on the environment and incorporates matters required to be implemented or documented by the project approval. Its purpose is to be a reference document for use by:

- Cleary Bros staff with responsibility for managing the operation and its environmental performance;
- environmental auditors;
- regulatory bodies.
- the community consultative committee established in accordance with the project approval; and
- interested members of the public who may access the QEMP via the internet or in person.

For the QEMP to fulfil its purpose, it needs to contain all information relevant to environmental management of the sand quarry. Consequently the QEMP incorporates the various plans and other documents specified in the project approval, either entirely or by summary of actionable items. These sub-plans are included as appendices to this QEMP, however are considered part of the overall QEMP which governs environmental management processes on the site. As such, the QEMP comprises the complete and only environmental management plan for the operation of the Gerroa Sand Resource.

Table 1-1 lists the conditions of project approval requiring documentation to be prepared and indicates the manner in which the requirements of those conditions have been incorporated in the QEMP.

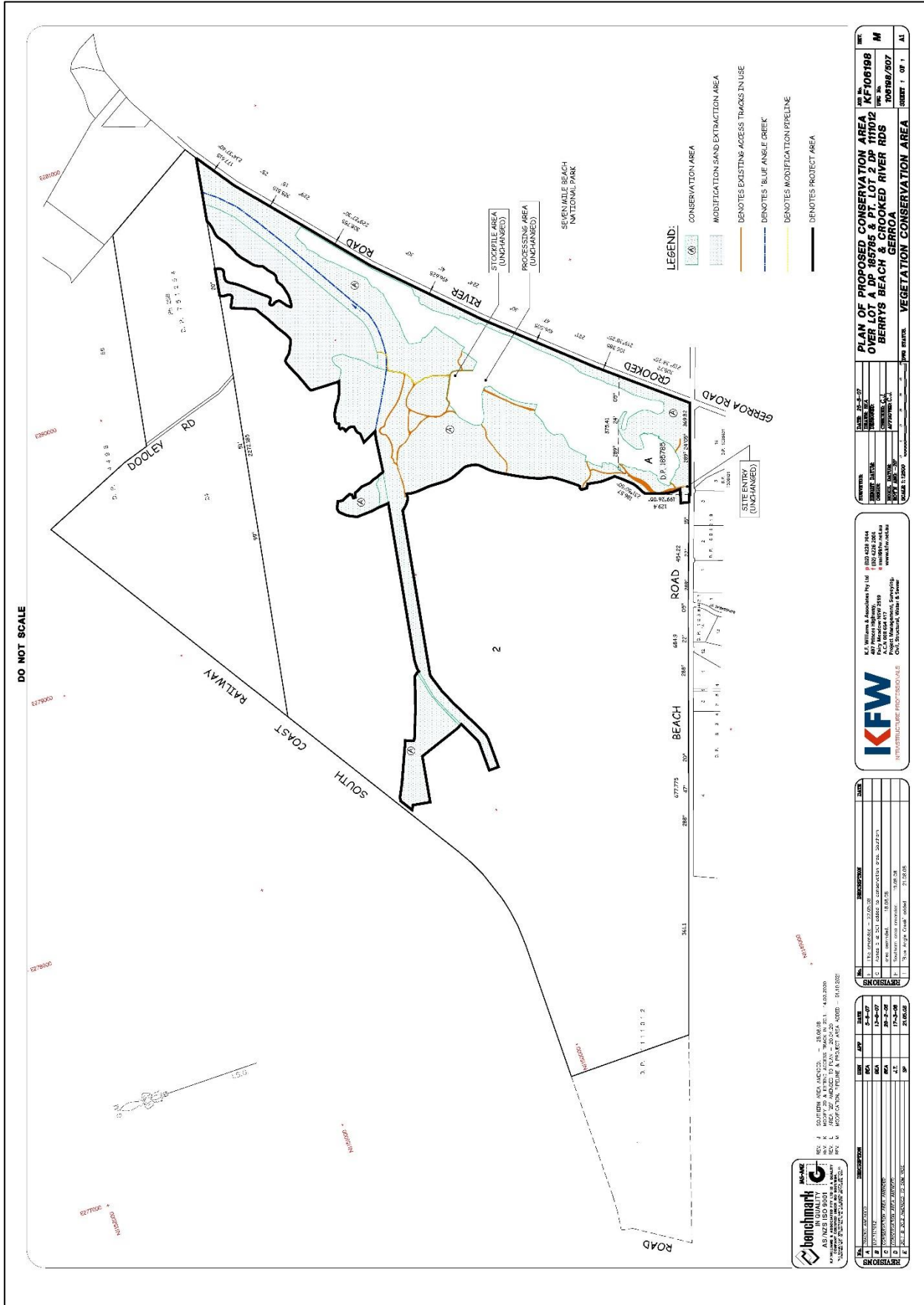


Figure 1-1 Site Plan

Table 1-1 Conditions requiring approved documentation

| Condition | Documentation Specified | Consultation Required | Location in QEMP |
|---|---|--|-----------------------------|
| Schedule 3, Condition 1 & SOC* 17 | Survey and mark the extraction boundaries and submit a survey plan | Qualified ecologist (to ensure adequate buffer - cond. 19) | Section 4.1.1 Appendix F |
| Schedule 3, Condition 4A | Noise Management Plan | EPA | Appendix C |
| Schedule 3, Condition 8 | Air Quality Management Plan | EPA | Appendix D |
| Schedule 3, Condition 11, 12, 13, 14, 15, 15A | Water Management Plan, including: – Erosion and Sediment Control Plan; – Surface Water Monitoring Program; – Groundwater Monitoring Program; – Acid Sulfate Soils Management Plan; – strategy for placing high hydraulic conductivity material in the pond – Site Water Balance | EPA and DPIE Water | Appendix E |
| Schedule 3, Condition 21 | Landscape and Rehabilitation Management Strategy | SCC, KMC, BCD, Fisheries NSW, CCC | Appendix F |
| Schedule 3, Condition 26 | Long Term Management Strategy | EPA, Shoalhaven and Kiama Councils, DPIE-W and the CCC | Section 6.10 |
| Schedule 3, Condition 30 | Aboriginal Cultural Heritage Management Plan | Heritage NSW and Registered Aboriginal Parties | Appendix G |
| Schedule 5, Condition 1 | Environmental Management Plan | EPA, DPI Water, BCD, SCC, KMC | This QEMP |
| Schedule 5, Condition 2 | Environmental Monitoring Program | nil | Section 8 |

*SOC = Statement of Commitment (see section 1.6 and *Appendix A*)

1.3 PLAN PREPARATION AND DOCUMENT CONTROL

1.3.1 Plan Development

Cleary Bros provided a copy of the draft QEMP to the EPA, BCD, DPE Water, KMC, and SCC, for consultation as part of the update of the QEMP following approval of Modification 1. Feedback received from the agencies has been considered in finalising the QEMP for submission to the DPE. The following feedback from agencies was received:

- The EPA advised that they are not in a position to review or approve the QEMP, however requested that the plan be reviewed and updated on a regular basis. This feedback has been incorporated with the QEMP to be reviewed and updated as described in Section 1.3.3.
- The BCD recently provided comments on the Landscape and Rehabilitation Management Plan which were adopted when finalising this plan, however are yet to provide feedback on the QEMP.
- The DPE Water have not provided feedback or comments on the QEMP.
- KMC have not provided feedback or comments on the draft QEMP.
- SCC advised they have no comments on the QEMP.

This QEMP covers extraction from the entire site with the exception of:

- Flood Management (Schedule 3 Conditions 9C) – detailed design provided for “CP” area only – flood bund design for other areas will be submitted to DPE prior to extraction from those areas; and
- Acid Sulphate Soil Management Plan (Schedule 3 Condition 15) – plan applicable to the “CP” and “South” areas only. An update is required (following additional sampling) prior to extraction from the “West” and “Middle” areas.

Cleary Bros will consult with the EPA and DPE Water as part of the update of these plans.

1.3.2 Approval

The QEMP is to be submitted to the DPE for approval within 6 months of the date of the Development Consent approval. The date of approval will be noted at the front of the document.

1.3.3 Amendment

The QEMP is a perpetual document, capable of being amended and updated as needed to take account of changes occurring from time to time. The QEMP may be amended at any time at Cleary Bros instigation or as requested by the DPE. The document is required to be reviewed within 3 months of any of the following:

- Submission of an incident notification (refer Section 9.3.2)
- Submission of an Annual review (refer Section 9.3.1)
- Submission of an Independent Environmental Audit (refer Section 9.1)
- Following the approval of any modification to the Development Consent.

In the event the review identifies any improvements are required to the QEMP, it will be revised within 6 weeks of the review and submitted to the DPE for approval. Any amendment must be approved by the DPE before it has effect. Unless with agreement from the DPE, Cleary Bros will consult with the relevant government agencies during the revision of the QEMP. Cleary Bros will continue to implement the existing approved QEMP until the revised plan is approved by the DPE.

Where external guidelines referred to in this QEMP are updated, Cleary Bros will continue to operate in accordance with the guidelines published as at the date of the approval (10 June 2022), however may, in consultation with the DPE, update the QEMP to incorporate any future revisions of these guidelines.

1.3.4 Distribution

Within one month of receipt of approval the QEMP is to be made available as follows:

- send copies to the EPA, BCD, DPE Water KMC and SCC;
- make the document available at the Quarry;
- provide copies to members of the Community Consultative Committee; and
- place a copy on Cleary Bros web site.

1.4 OBJECTIVES

The objectives of the QEMP are as follows:

- present the environmental management plan for the Gerroa Sand Resource;

- detail practices, procedures, work methods and other requirements necessary for the operation to achieve environmental goals specified by the development approval and environment protection licence; and
- include within a single document, all of the environmental regulatory requirements for operating the site.

Requirements for the environmental management plan are included in Condition 1 of Schedule 5 of the project approval, as follows:

- be submitted to the Planning Secretary within 6 months of the date of this approval;*
- be prepared in consultation with the Relevant Agencies;*
- provide the strategic context for environmental management of the project;*
- identify the statutory requirements that apply to the project;*
- describe in general how the environmental performance of the project would be monitored and managed;*
- describe the procedures that would be implemented to:*
- keep the local community and relevant agencies informed about the construction, operation and environmental performance of the project;*
- receive, handle, respond to, and record complaints;*
- resolve any disputes that may arise during the life of the project;*
- respond to any non-compliance;*
- manage cumulative impacts; and*
- respond to emergencies; and*
- describe the role, responsibility, authority, and accountability of the key personnel involved in the environmental management of the project.*

The QEMP forms part of Cleary Bros Health, Safety, Environment and Quality Management System, certified to *ISO14001:2015 Environmental Management Systems*.

1.5 SPECIALIST INVESTIGATIONS

As part of the Mod 1 application, a number of investigations were undertaken by specialists to determine characteristics of the site and make predictions relevant to the sand extraction operation. For the most part these investigations provided information for the application process. Where appropriate, these specialist investigations are listed alongside the various construction or operational managed measures listed in Sections 4 and 6, and are available on the Cleary Bros website.

1.6 PERFORMANCE REQUIREMENTS

Condition 1 of Schedule 2 of the project approval requires the proponent, Cleary Bros, to implement all practicable measures to prevent or minimise any harm to the environment that may result from the project.

Condition 2 of the same Schedule requires that the development be conducted generally in accordance with the following:

- EA;
- statement of commitments; and
- conditions of approval;

with the conditions of approval taking precedence.

Cleary Bros will comply with any reasonable requirement/s of the DPE arising from the Department's assessment of:

- any reports, plans, programs or correspondence that are submitted in accordance with the Consent; and
- the implementation of any actions or measures contained in these reports, plans, programs or correspondence.

A draft statement of commitments was included in the Environmental Assessment (EA). Following exhibition of the EA, the Department of Planning requested Cleary Bros to consider submissions received and prepare a revised statement of commitments. The revised statement of commitments comprised the original draft plus additional commitments added in response to submissions. Further minor additions to the statement of commitments were made during the court hearing. A copy of the revised statement of commitments is included in the project approval in *Appendix A*.

2 THE SITE

2.1 PROPERTY DESCRIPTION

The land to which the project approval relates comprises all of Lot A DP 185785 and parts of Lot 2 DP 1111012 and Lot 258 DP 751254. The property is owned by Bridon Pty Ltd, a member of the Cleary Bros group of companies.

The remainder of the property which is not within the sand quarry operational area is a farm used for agricultural production. Much of this land was formerly part of Foys Swamp and has been drained in the mid-20th century with several drainage channels constructed across the land. The farmland on the property contains areas of remnant and planted bushland.

The property has frontages to Crooked River Road and Beach Road and adjoins the South Coast Railway on its western side.

2.2 SAND QUARRY OPERATIONAL AREA

The approved modified sand quarry operational area, including the existing dredge pond, has a total area of about 42.5 hectares and is shown on Figure 1-1. This is referred to as the Project Area.

The limits of the original extraction area are shown on Figure 2-1, and of the modified extraction area on Figure 2-2. The modified extraction area has an area of approximately 15.0 hectares with the following boundaries:

| Zone | Identifying Features |
|--------|---|
| CP | Eastern limit adjoins the western boundary of Planting Zone 2C1, 50 metres from Blue Angle Creek. Northern and western limits are aligned with the RU2 zoning boundary in this area. Southern boundary overlaps the "South" zone. |
| South | Eastern limit adjoins the western boundary of Planting Zone 2C1, 50 metres from Blue Angle Creek. Southwestern limit is the lesser of the boundaries of the areas zoned E2 or E3, or the boundary of Conservation Area 4. Northeastern boundary overlaps the "South" zone. Northwestern boundary overlaps the "West" zone. |
| West | Southern boundary adjoins the lesser of Conservation Area C and the boundary of Conservation Area 4. The western boundary follows a line generally representing an area slightly raised above the broader swamp environment. The northern boundary generally follows the contour at a level raised above the floodplain. The northeastern boundary overlaps the "Middle" zone. The southeastern boundary overlaps the "South" zone. |
| Middle | The western limit generally follows the contour at a level raised above the floodplain and adjoining sand deposit. The northern boundary follows the alignment of the former Dooley's Road. The eastern boundary generally follows the alignment of the RU2 zoning boundary. The southern boundary overlaps the "West" zone. |

Further extraction may also be undertaken from within the existing dredge pond to recover the remaining resource approved for extraction.

2.3 CONSERVATION AREA

The Conservation Area is defined in the project approval as the land shown on the surveyor's plan in Appendix 4 of the project approval which shows the Conservation Areas with respect to the operational

areas of the Quarry and is reproduced as Figure 1-1. The Conservation Area is located outside the quarry operational area and includes the areas of remnant bushland and areas of the property that have been planted in accordance with the original project approval (Compensatory Planting).

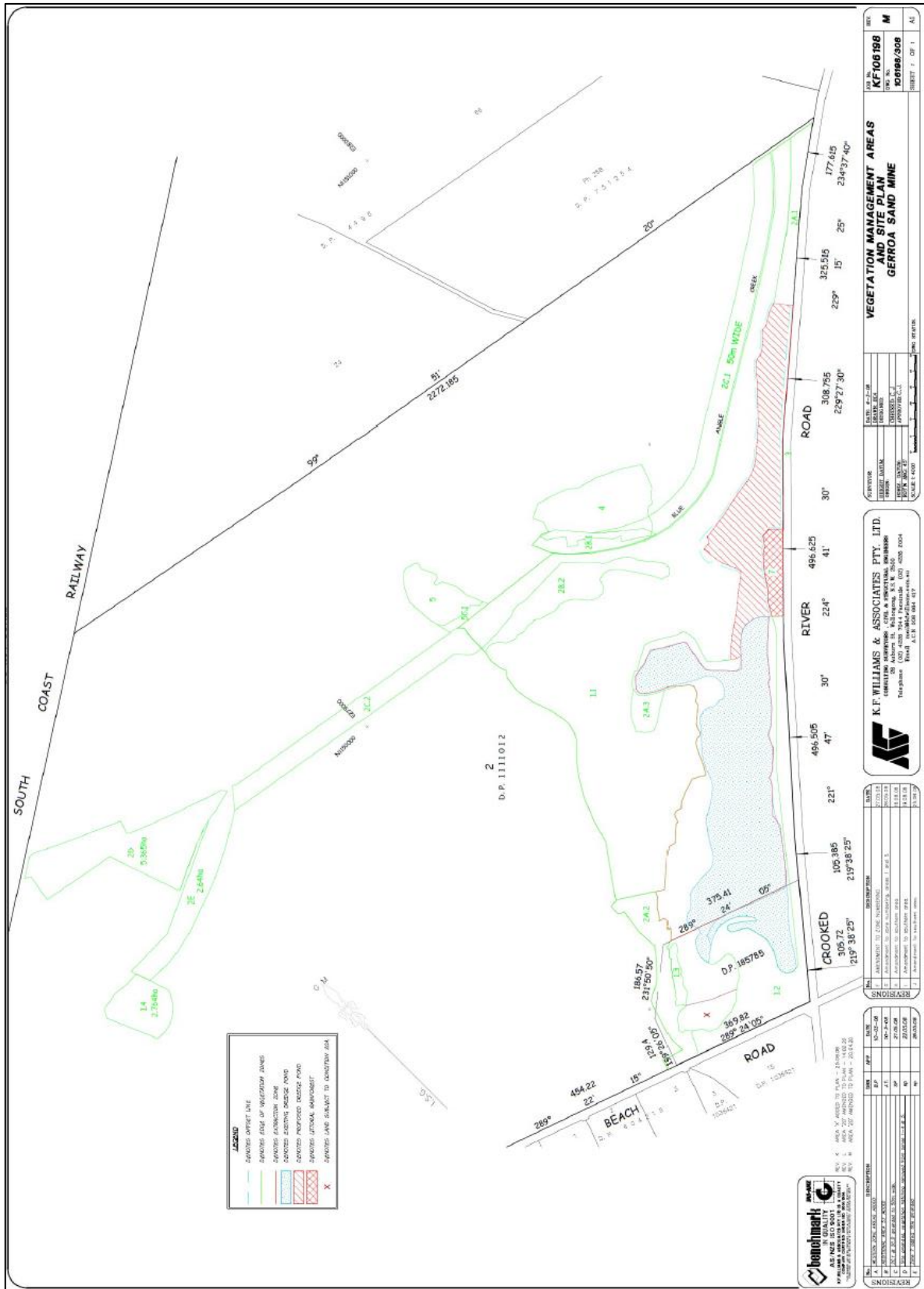


Figure 2-1 Original Extraction Area

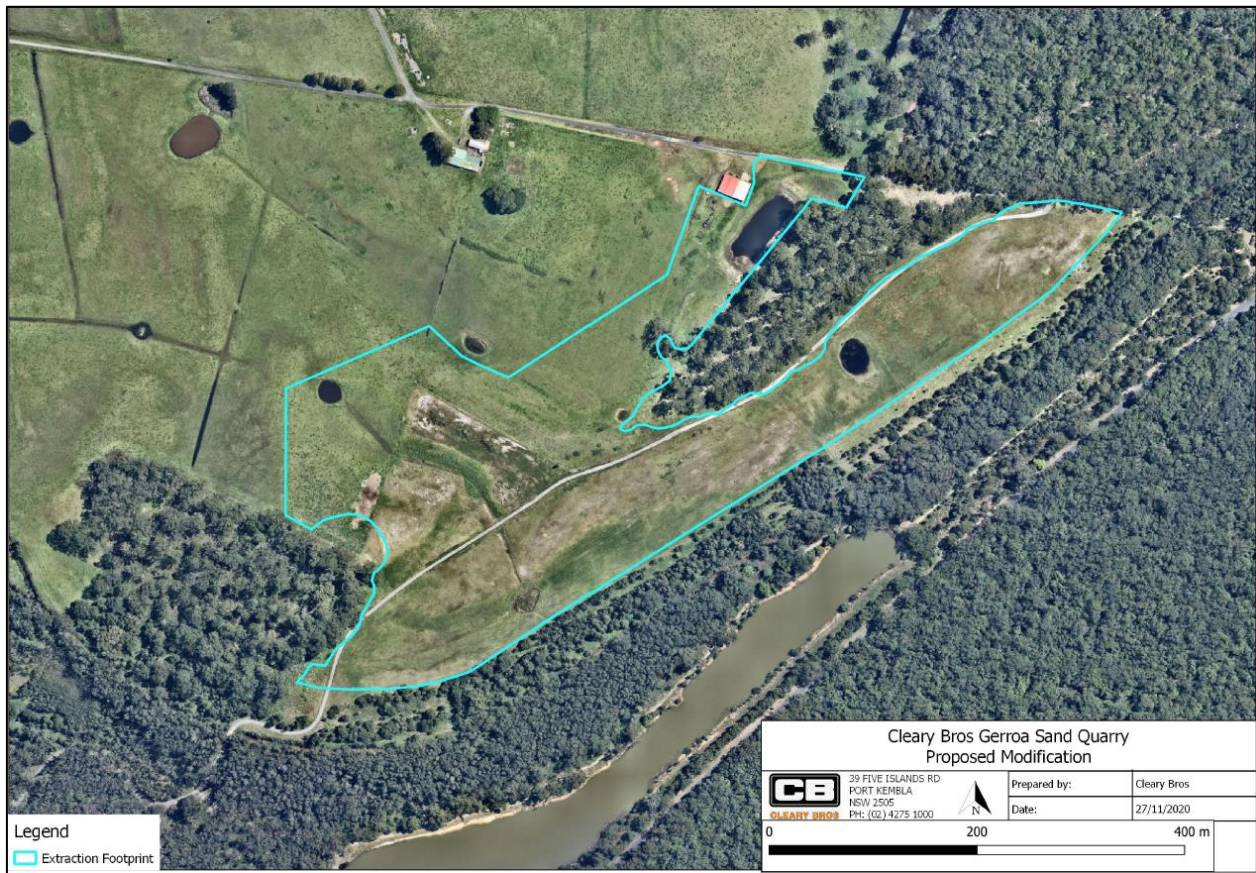


Figure 2-2 Modification Area

2.4 STATUTORY REQUIREMENTS

2.4.1 Environmental Planning and Assessment Act 1979 (EP&A)

The Project Approval (MOD 1) has been approved as a Schedule 6A(12) modification to the original Part 3A approval by the DPIE under delegation from the Minister for Planning and Public Spaces, under the *Environmental Planning and Assessment Act 1979*. The Project Approval permits the extraction of up to 80,000t of sand per year from the area approved for extraction, in accordance with the conditions of the Development Consent, the Environmental Impact Statement prepared to support the Modification application, and this QEMP.

The project site lies across the local government boundary, with the site offices and entrance located in the Shoalhaven LGA and the extraction and processing areas in the Kiama LGA.

The previous development consents for the Gerroa Sand Resource (DA 264/01 with KMC and DA 01/2536 with SCC) were surrendered by Cleary Bros on 28 February 2009. No other development consents are current for the extraction of sand from the site.

2.4.2 Protection Of The Environment Operations Act 1997 (POEO)

The project is an extractive activity with an annual production of greater than 30,000t/yr and as such is a scheduled activity under Schedule 1 of the POEO Act. The EPA has issued Environmental Protection Licence 4146 for the premises regulating its use for extractive activities. The licence is applicable for up to 100,000t of material extracted or processed per annum.

A copy of the current licence is included in *Appendix B*.

2.4.3 Water Management Act 2000

Cleary Bros is required to hold a Water Access Licence with sufficient entitlements to account for the take of water associated with the Project to comply with the Water Management Act 2000. Cleary Bros holds WAL 43272 which includes an allocation of 56 units under the Metropolitan Coastal Sand Groundwater Source of the Greater Metropolitan Region Groundwater Sources 2011 Water Sharing Plan. The Water Management Plan has identified an allocation of 5ML/year would be required to satisfy water take associated with MOD 1, which is satisfied by WAL 43272. A copy of WAL 43272 is available on the NSW Water Register maintained by NSW Land Registry Services. Further detail around how the Project will comply with the Water Sharing Plan are described in Appendix E (Water Management Plan). As a Part 3A project, a Water Use Approval and Water Management Work Approval are not required however Cleary Bros hold miscellaneous works approvals for the dredge ponds to permit extraction of water from the aquifer.

2.4.4 National Parks & Wildlife Act 1974

The National Parks & Wildlife Act 1974 provides protection of Aboriginal cultural heritage artefacts and places. As a Part 3A project, an Aboriginal Heritage Impact Permit is not required for the disturbance of Aboriginal cultural heritage. The Aboriginal Cultural Heritage Management Plan (Appendix G) describes the measures that will be implemented on the project to minimise impacts to cultural heritage.

2.4.5 Threatened Species Conservation Act 1995 (TSCA)

The Threatened Species Conservation Act 1995 protects threatened species, communities and critical habitat considered endangered, vulnerable or extinct, however was repealed on the introduction of the Biodiversity Conservation Act 2016. The Modification 1 area does not involve any direct impacts to threatened species, communities, or critical habitat. The Landscape and Rehabilitation Management Plan (Appendix F) outlines the strategies to minimise impacts to, and to deliver an overall positive outcome to biodiversity.

2.4.6 Other Statutory Requirements

The following statutory requirements are relevant to the Project, with their applicability and/or relevance described

- Biodiversity Conservation Act 2016 (BCA) – the BCA repealed the TSCA, however as the Project was approved under the transitional arrangements of the BCA which permitted assessment under the TSCA, the requirements of the BCA do not apply.
- Contaminated Land Management Act 1997 – the site is not listed on the contaminated lands register and gross contamination is not expected based on historical land use, as such the Act is not relevant to the Project.
- Heritage Act 1977 – there are no European heritage items or areas within the site, which are listed under the Heritage, and as such the Heritage Act 1977 is not applicable to the Project.
- Environmental Protection and Biodiversity Conservation Act 1999 (EPBC; Commonwealth) – the Project does not significant impact any matter of National Environmental Significance, and as such the EPBC Act does not apply.

2.5 ENVIRONMENTAL CHARACTERISTICS

2.5.1 Topography and Drainage

The sand resource is within the catchment of Blue Angle Creek, a tributary of the Crooked River which occasionally discharges to the sea at Gerroa Beach. The land has an altitude ranging from less than two to about six metres AHD. A ridge spur is located to the northwest of the site, with clean water drains to be constructed around the base of the spur to direct runoff away from the dredge pond.

The sand extraction site is configured to drain internally to the dredge pond, with bunding to prevent inundation by external floodwater from floods up to the 100-year ARI (average recurrence interval) event.

2.5.2 Geology and Soils

Field investigations have identified the following units within the subsurface profile:

Unit A: Yellow to cream or orange brown, variably very loose to very dense, well sorted, fine to very fine grained sand and silty sand becoming fine to medium grained in places, with no shells, associated with dune deposits. This unit is present adjacent to the ridge between the CP zone and Middle zone

Unit B: Fawn or orange-brown to grey, indurated in places, generally medium dense to very dense (with some loose bands), moderately well to poorly sorted, fine to very coarse grained sand with variable amounts of lithic gravel and shell, associated with a combination of beach, shore-face, barrier wash-over and tidal inlet deposits. This unit is widely distributed across the site, in varying thicknesses of up to 8m.

Unit C: Sand with inter-layered, typically soft, clay / sandy clay / clayey sand bands or lenses, deposited by inferred backswamp, bottom sediment or estuarine processes. This unit underlies the main sand deposit, and may be extracted where a suitable sand resource is obtainable.

Unit D: Residual soils and bedrock comprising the former weathering profile of the underlying rock.

2.5.3 Climate

Meteorological data has been collected from the site weather station since mid-2003 and is being progressively collated by Cleary Bros. Long term climate data has been sourced from the SILO database for the period 1900 to 2022 for -34.78 150.78, accessed on 24/1/2023, and is presented below in Table 2-1.

Table 2-1 *Temperature, rainfall, humidity and wind speed*

| Item | J | F | M | A | M | J | J | A | S | O | N | D | Year |
|----------------------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|--------|
| Temperature | | | | | | | | | | | | | |
| Mean Daily Max. Temp. (°C) | 25.1 | 25.1 | 24.2 | 22.1 | 19.5 | 17.1 | 16.5 | 17.6 | 19.6 | 21.4 | 22.8 | 24.3 | 21.3 |
| Mean Daily Min. Temp. (°C) | 17.6 | 17.9 | 16.6 | 14.1 | 11.6 | 9.5 | 8.3 | 8.8 | 10.4 | 12.5 | 14.4 | 16.3 | 13.2 |
| Rainfall | | | | | | | | | | | | | |
| Mean Monthly Rainfall (mm) | 120.3 | 139.2 | 153.7 | 130.1 | 118.4 | 122.0 | 94.3 | 78.8 | 73.1 | 94.0 | 95.1 | 93.0 | 1311.8 |
| Mean No of Raindays | 14.8 | 14.2 | 15.8 | 14.0 | 13.1 | 12.5 | 11.4 | 11.2 | 12.1 | 13.5 | 13.7 | 14.0 | 160.3 |

| Item | J | F | M | A | M | J | J | A | S | O | N | D | Year |
|--|------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Solar Radiation Mean daily solar exposure (MJ/m ²) | 21.2 | 19.0 | 16.4 | 13.6 | 10.4 | 8.7 | 10.1 | 13.3 | 16.8 | 19.4 | 21.5 | 22.3 | 16.1 |

Wind Data

Wind roses show predominance for north easterlies and south westerlies in spring and summer, with a stronger influence of westerlies in winter.

2.5.4 Hydrology

As part of Modification assessment, Cardno assessed the impacts of the Modified Project on flooding in the surrounding floodplain, which predicted insignificant changes to flood levels under a range of different scenarios as a result of the Project. Cardno also identified the minimum height at which flood bunds were to be constructed around the dredge pond to prevent flooding in a 100 year ARI flood, which are shown in Figure 2-3. Additionally, once extraction is complete within Area CP, the flood bunds around this zone are to be removed so that it can function as part of the floodplain, with flood bunding re-established along the northern limit of Area S. In order to minimise offsite flood impacts within the Blue Angle Creek catchment, a bund will be reclaimed across the northern arm of the existing dredge pond (in the area immediately northeast of the processing plant) and the former flood bund on the western side of the northern arm removed, as shown in Figure 2-3.



Figure 2-3 Surface Water and Flood Control Structures

2.5.5 Surrounding Land Use

The sand extraction area is part of a rural property with frontages to Crooked River Road and Beach Road. Seven Mile Beach National Park occupies the land to the east of the site between Crooked River Road and the Pacific Ocean. To the immediate west of the extraction area are cleared farming paddocks that occupy the bulk of the property. Farming land extends westwards about 1 kilometre to the South Coast Railway.

Blue Angle Creek generally flows north through the site, paralleling Crooked River Road for two kilometres to the Crooked River. The land in this direction is largely undeveloped through to Gerroa village apart from a sewage treatment plant constructed near the roadside.

The closest residences are located south of the site on the southern side of Beach Road near the site entrance. The closest residence is approximately 90 metres from the entrance and 400 metres from the main processing, stockpiling and loading area as shown on *Figure 2-4*. To the northwest of the site, the closest rural residences are approximately 700m from the northernmost extent of the modified dredge pond. Caravan parks are the closest development within Gerroa village and are approximately 1,100m to the northeast.

2.5.6 Existing Noise Levels

In August 2005 Renzo Tonin & Associates measured existing ambient noise levels at residences and other localities in the vicinity of the site, shown on *Figure 2-4*. The measured daytime L_{A90} background level and L_{Aeq} noise levels are summarised in *Table 2-2*. The Noise Assessment to support Modification 1 modelled predicted noise levels at the closest sensitive receptors surrounding the Project area. As part of Modification 1, noise criteria for Coralea (project-related) was replaced with the nearby Athelstane (non Project-related), while the criteria for Picnic Area 1, Picnic Area 2, and Athelstane were reduced to 40 dB(A). These changes reflected the updated Noise Policy for Industry, and reflect lower permissible levels of noise generation from the Project at these locations.

Table 2-2 Measured L_{A90} and L_{Aeq} Noise Levels

| Monitoring Location | Distance from quarry | L_{A90} Background | L_{Aeq} Ambient |
|-------------------------------|----------------------|----------------------|-------------------|
| No 670 Beach Road | 500 m south | 39 | 51 |
| No 11 Banggarai Street | 750 m south west | 36 | 54 |
| Seven Mile Beach Holiday Park | 1500 m north | 43 | 59 |
| Coralea property | 850 m north west | 39 | 41 |
| National park picnic area 1 | 780 m north east | 48 | 49 |
| National park picnic area 2 | 710 m south east | 46 | 48 |

2.5.7 Natural Vegetation and Fauna

The Flora and Fauna Report for the proposed Modification, dated February 2018 by Kevin Mills & Associates split the Modification area into two landuse zones which form the approved Modification area. These include:

- Previous Turf Farm – eastern part of the project incorporating Stages South and CP
- Southwest Paddocks – western parts incorporating Stages West and Middle

The Previous Turf Farm zone was previously used for turf farming and grazing prior to that, and is totally dominated by exotic herbaceous species. There is also a small dam which supports wetland plants.

The Southern Paddocks zone has been used for grazing, and is comprised of cleared pasture dominated by exotic kikuyu. There is one small dam in the vegetation zone, which supports wetland species. In the northeast of this zone, there is a small stand of remnant trees, mostly comprising *Casuarina glauca*.

The Modification Area is surrounded by a number of vegetation types comprising:

- Remnant Bangalay Sand Forest to the south (Conservation Zone 4) and occupying the dune finger between the Middle and CP Stages.
- Planted areas of Conservation Zone 2C.1 to the east in varying stages of development, generally comprising the Bangalay Sand Forest community, but also with areas trending to Swamp Sclerophyll Forest and Swamp Oak Forest communities.
- Grazing land to the west, comprising cleared exotic pasture.

2.5.8 Revegetation

Previously planted native trees and shrubs are well established in the revegetation area around the completed southern end of the dredge pond, on the bunding installed beside the dredge pond to provide a visual screen from Crooked River Road, and in the compensatory planting areas associated with the 2008 approval, including completed areas of the dredge pond banks. Further planting to support the Modification includes screen planting along the northwestern extents of the Modification area, as described in Section 4.1.6.

2.5.9 Archaeology and Heritage

The site has been the subject of a number of investigations to determine the presence of Aboriginal archaeological relics. The most recent investigations undertaken by Biosis focused on the Modification Area. This study identified 6 Aboriginal Heritage sites from literature searches, site surveys, test excavations, and consultation with Registered Aboriginal Parties. Of these, one site, GCB-A1, was assessed as having high scientific significance due to the large density of intact stratified deposits. Two sites were identified as having moderate scientific significance, while the remaining sites help low significance.

Following the test excavations, Cleary Bros voluntarily excluded site GCB-A1 from the disturbance footprint due to its heritage significance, and which will be preserved as Conservation Area C under the current Aboriginal Cultural Heritage Management Plan. Conservation Area A and Conservation Area B will continue to be preserved under the previous Aboriginal Heritage Management Plan dated February 2009.

Salvage excavations will be in those areas identified as having moderate scientific significance to recover artefact material before quarrying in these areas, as described in the Aboriginal Cultural Heritage Management Plan (see section 4.1.7). A Salvage Report will be prepared that will provide details of the salvage excavations undertaken at the site.

2.5.10 Access

The site access road joins with Beach Road about 200 metres west of the intersection with Crooked River Road. This road system enables vehicles accessing the site to approach and leave from either the north, south or west. Specific routes have been set down in the project approval for vehicles travelling north beyond Gerroa or south into the Nowra area. The intersection of the access road with Beach Road has been upgraded as part of the development for extending the sand quarry (see section 4.1.3).

2.6 PLANNING AGREEMENT

Condition 16 in schedule 3 of the project approval requires Cleary Bros to enter a planning agreement with the Minister that provides for:

- i. *implementation of the Compensatory Planting shown in the plan in Appendix 3;*
- ii. *protection of the vegetation in the area shown in Appendix 4 (Conservation Area);*
- iii. *identification by survey plan of the Conservation Area shown in the plan titled Vegetation Conservation Area (shown conceptually in Appendix 4);*
- iv. *implementation of the Landscape and Rehabilitation Management Plan for the site; and*
- v. *submission of a Conservation Area Protection Bond, with the Department, in the form of a bank guarantee, to ensure the Conservation Area is being protected as required by condition 16 (a)(ii) of Schedule 3. The sum of the bond must be determined by a suitably qualified person, approved by the Planning Secretary, by calculating the full cost of reasonably protecting the Conservation Area against the threat of fire or vandalism up until 31 July 2038. Following 31 July 2038, the Conservation Area Protection Bond will be released, with the approval of the Planning Secretary; and*
- vi. *call in of all or part of the Conservation Area Protection Bond, with the approval of the Planning Secretary, to restore the Conservation Area if it is damaged by fire or vandalism, up until 31 July 2038.;*

Once the planning agreement has been executed by both Cleary Bros and DPE consistent with the above requirements, Cleary Bros will register it on the title of the land within 3 months.

3 MANAGEMENT RESPONSIBILITY

3.1 ORGANISATION STRUCTURE

The chief executive officer of Cleary Bros (Bombo) Pty Ltd has ultimate responsibility for all operations including sand extraction at Gerroa. The Production Manager, Gerroa Quarry is responsible for day-to-day operation of the quarry, reporting to the General Manager Quarries. *Figure 3-1* shows an organisational chart for the company focussing on the line of responsibility for Gerroa sand resource.

When the Production Manager, Gerroa Quarry is absent for any significant length of time (holidays), an acting manager is appointed to take responsibility for site operations.

The staff complement and line of responsibility for the quarry is as follows:

| | |
|----------------------|---|
| Head Office | <ul style="list-style-type: none"> • Board of Directors; • Chief Executive Officer; |
| Albion Park Quarry | <ul style="list-style-type: none"> • General Manager Quarries |
| On site | <ul style="list-style-type: none"> • Production Manager, Gerroa Quarry; • Operational staff (2); • Drivers (as required) |
| Environmental Review | <ul style="list-style-type: none"> • Quality and Environment Manager (nominated Environmental Officer) |

Cleary Bros’ Head Office supplies the Environmental Officer who reports to the Chief Executive Officer via the company’s Executive General Manager (EGM) Development and Partnerships. The name and contact details of the Environmental Officer shall be notified to the DPE, EPA, BCD, DPE Water, KMC and SCC. Any change to the appointed Environmental Officer shall be similarly notified (Schedule 5, condition 2A).

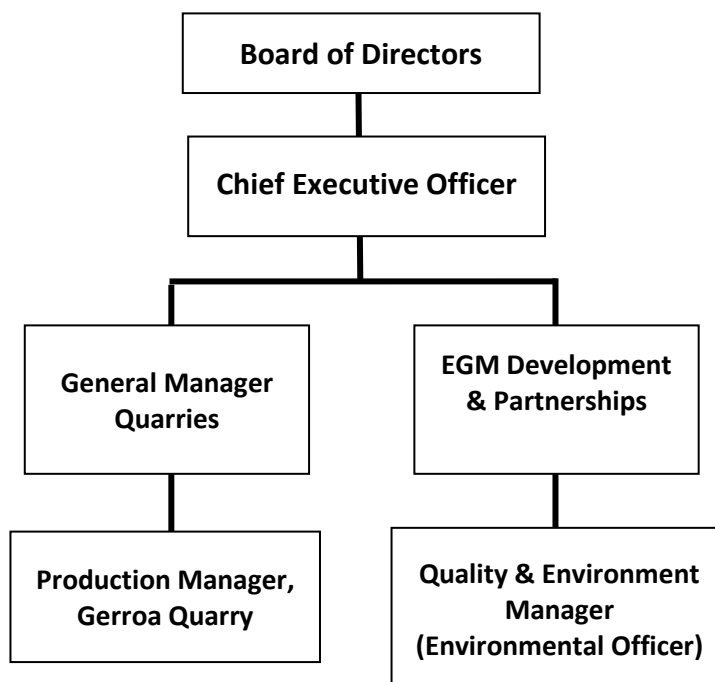


Figure 3-1 Organisational Chart for the Gerroa Sand Resource

3.2 ROLE RESPONSIBILITY AND AUTHORITY

Quarry personnel are multi-skilled, undertaking a number of tasks during the course of their work. The formal management roles of staff at various levels is summarised in *Table 3-1*.

Table 3-1 Role, Responsibility and Authority

| Task | Chief Executive Officer | General Manager Quarries | Production Manager, Gerroa Quarry | Operational Staff | Quality & Environment Manager (Environmental Officer) |
|---------------------------------|---|---|--|---|--|
| Quarry Development | Set objectives, provide broad industry overview, review detailed planning and approval processes. | Assess future needs of the quarry, develop plans, obtain approval, then coordinate and oversee projects to achieve overall objectives. | Provide input to long term planning; undertake minor construction projects. | Assist with minor construction projects as required. | Ensure that minor construction and development projects are consistent with approvals; monitor development works for environmental performance. |
| Sand Production | Review performance of the quarry, assist General Manager Quarry in market development. | Develop markets for sand; overview operation of the quarry to ensure production objectives are achieved. | Plan and supervise quarry operation on a daily and longer term basis to produce the required quantity and quality of sand; operate mechanical plant for maximum efficiency | Undertake day to day operational tasks as required | |
| Environmental Management | Independently review indicators of environmental performance, confirm compliance with environmental objectives and approvals. | Approve the QEMP and any subsequent amendments; ensure that environmental objectives are understood; monitor quarry operation to confirm compliance | Program work and take corrective action as required to maintain operations within environmental objectives set down in this QEMP. Respond to all incidents and complaints. | Undertake work within guidelines set down by the Production Manager and in accordance with work instructions. | Review monitoring results and programs; consider and advise the Production Manager, Gerroa Quarry and EGM Development & Partnerships of any environmental issues relating to matters in the approval or licence. |
| Community Liaison | Assist or take the lead with community relations if major issues arise. | Attend all community consultative committee meetings; assist the Production Manager as required | Ensure that an adequate response is given when issues are raised. | | Attend all community consultative committee meetings; provide secretarial duties for the operation of the CCC. |

| Task | Chief Executive Officer | General Manager Quarries | Production Manager, Gerroa Quarry | Operational Staff | Quality & Environment Manager (Environmental Officer) |
|-------------------------------|-------------------------|--|--|--|---|
| Induction and Training | | Ensure that an adequate induction and training program is given to staff | Provide induction and training for all staff. Retain records of all training given. | Attend training sessions conducted by the Production Manager; if unsure about any aspect of the work, ask the Production Manager, Gerroa Quarry. | Participate in staff induction and training to stress the importance of environmental matters and observing requirements of the QEMP. |
| Complaints Register | | Review complaints register. Ensure procedures are followed. Review effectiveness of corrective action. Ensure records are available for audit. | Record details of any complaints and investigate. Provide a response to every complaint. Decide and implement corrective action. | | Confirm that complaints register is up to date for reporting purposes; follow up complaints with environmental issues to see if modifications to the QEMP or additional training is required. |
| Monitoring | | Ensure that the monitoring program is adequate and effectively implemented. Review all results with the QPM. Initiate audits. | Review monitoring results with the General Manager Quarry. Initiate corrective and follow up action where needed. | | Undertake or arrange for all monitoring and audits to be completed according to the schedule in this QEMP. Arrange for Annual Review to be prepared. |
| Recording | | Ensure that an adequate system of record keeping is being implemented. | Maintain records of quarry operations, including quantities of materials received and dispatched and all monitoring results. | | Review all monitoring, auditing and environmental reporting records for compliance. |

| Task | Chief Executive Officer | General Manager Quarries | Production Manager, Gerroa Quarry | Operational Staff | Quality & Environment Manager (Environmental Officer) |
|-------------------------|-------------------------|---|--|---|---|
| Emergency Action | | Intervene at any time where there is an unacceptable risk to safety, or significant environmental damage may occur. Review procedures as required. Ensure that any reports of environmental damage are forwarded to appropriate authorities within time frames specified in this QEMP or the current EPL. | Take action at any time where there is an unacceptable risk to safety, or significant environmental damage may occur. Arrange remedial measures to overcome the emergency. Implement PIRMP in the event of its activation. | Advise the Production Manager, Gerroa Quarry of any suspected risk to safety, or any likelihood of significant environmental damage. Take action as required to prevent emergency situations arising. | Review and provide advice on any reports of environmental damage that are forwarded to appropriate authorities. Maintain PIRMP for the site |

3.3 EMERGENCY CONTACT DETAILS

The phone number of the premises for business calls during operational hours is 02 4275 1000.

3.4 STAFF TRAINING

All staff and contractors working at the site are required to complete a site induction, which includes training on the role they play in ensuring compliance with the statutory requirements of the site. The Production Manager, Gerroa Quarry provides training to any new operational staff. The Environmental Officer may assist to explain the environmental basis for operational procedures. Refresher training is provided as required with a maximum time between training of two years. All equipment operators are trained and deemed competent in the equipment they are operating, to ensure the equipment is operated in a proper and efficient condition.

4 PREPARATION FOR SAND QUARRYING

4.1 PREPARATORY WORK

Preparatory work includes site activities to be undertaken prior to or at an early age after commencing dredging operations in the area west of Blue Angle Creek. Where actions are specifically required by conditions of consent, the condition is referenced. Preparatory works include:

- Marking modification area boundary
- Fencing of Conservation Area C
- Establishment of ASS treatment area
- Installation of flood bund around initial extraction area
- Revision of environmental monitoring programme
- Installation of dredge pipeline and return water pipeline and pumps
- Planting of vegetation screen
- Installation of internal bund in existing dredge pond
- Removal of old flood bund from existing dredge pond

4.1.1 Boundary Identification

The 2022 Modification area boundary has been surveyed by an independent registered surveyor and permanently marked using posts to ensure extraction is maintained within the approved limits. The Survey Plan prepared by the surveyor (Figure 6-1) has been submitted to the DPE prior to extraction commencing in the Modification 1 area.

Painted steel star stakes are installed along the western, northern and part of the eastern sides of the existing extraction area extension, as a permanent mark of the approved limit of extraction. The eastern boundary of the existing extension area has been fenced where it runs parallel with the Littoral Rainforest to be retained. The fence comprises steel star stakes with tensioned wire.

4.1.2 Flood Bund

Figure 2-3 shows the location and heights of the flood bund that will be constructed around the perimeter of the Modification dredge pond. The purpose of the bund is to prevent ingress of external floodwater resulting from a 100 year ARI (average recurrence interval) storm and incorporates 500mm of freeboard. The flood bund will be constructed from site won topsoil, following neutralisation of any acid sulphate soil after extraction of the available sand. In the event insufficient topsoil is available, imported clean fill will be used to ensure bunds reach the required height. Following extraction of the CP Stage, the bund around this area will be removed with this area returned to the floodplain.

A new flood bund will be constructed across the existing dredge pond just north of the processing plant in the narrowest section of the existing dredge pond, from coarse material sourced from the processing plant. Following construction, the flood bund along the western side of the extension area will be removed (approximately 250m section), allowing the northern part of the existing dredge pond to be returned to the floodplain.

All permanent flood bunds will be rehabilitated through natural recruitment, with supplementary planting to be undertaken if required to ensure establishment of the foreshore vegetation communities.

4.1.3 Access Road and Entry Upgrade

The existing road entry to the site from Beach Road has been upgraded to a “sealed Type BAL left turn and sealed Type BAR right turn configuration, in accordance with the RTA *Road Design Guide*”. This modification has been undertaken to comply with the project approval. The first 200 metres of the site entrance road has also been sealed.

An existing unsealed access road leads from the site office to the processing plant and through to the Modification area. Other minor access roads are present across the site and will be maintained

4.1.4 Water Management including Erosion and Sediment Controls

Siltstop fencing using geotextile fabric or similar will be placed along the western boundary of the quarry extension area wherever soil disturbance is likely to occur in establishing a flood bund or access road. Details of these controls are shown in the Erosion and Sediment Control Plan (*Appendix C*).

Three new fixed water monitoring stations will be established on the site. One station will be installed in the new dredge pond shortly after stabilisation of the batters in the initial excavation, and will measure pH and the water level of the modification dredge pond. The second station will be installed near the processing plant in the existing dredge pond, and will record the pH of the dredge pond at two different levels (near surface and at depth), as well as water level. The third station will be installed on Blue Angle Creek immediately upstream of the floodgates and will record pH and water level downstream of site activities.

Swale drains will be installed around the hill adjacent to the Middle and West stages as shown on Figure 2-3. These works will be completed prior to the commencement of dredging with the Middle and West stages.

4.1.5 Acid Sulphate Soil works

Prior to commencing surface disturbance in an area, characterisation of acid sulphate soils will be undertaken in the area as described in the Acid Sulphate Soil Management Plan. This will be used to inform lime treatment rates for any material to be exposed for longer than 24 hours.

The stockpiling area hardstand will be upgraded to include an aglime base prior to the commencement of dredging from the Modification area. As described in the Acid Sulphate Soil Management Plan, this will minimise the risk of acid generation from the washed sand stockpile. The fines outlet from the processing plant will be upgraded to pipe the fines slurry to the middle of the existing dredge pond, thereby allowing deep deposition of these materials in line with the Acid Sulphate Soil Management Plan.

4.1.6 Visual Screen

A visual screen will be planted along the northwestern extent of the Modification Area as shown in Figure 2-2. The visual screen will consist of two rows of plantings at two metre centres consisting of a mixture of *Casuarina glauca* and *Melaleuca stypheloides*. These species have been chosen for the screen planting as they are fast growing and endemic to the site. Seedlings will be maintained as required to support growth until a dense screen has been developed, with replacements plantings undertaken to replace any losses.

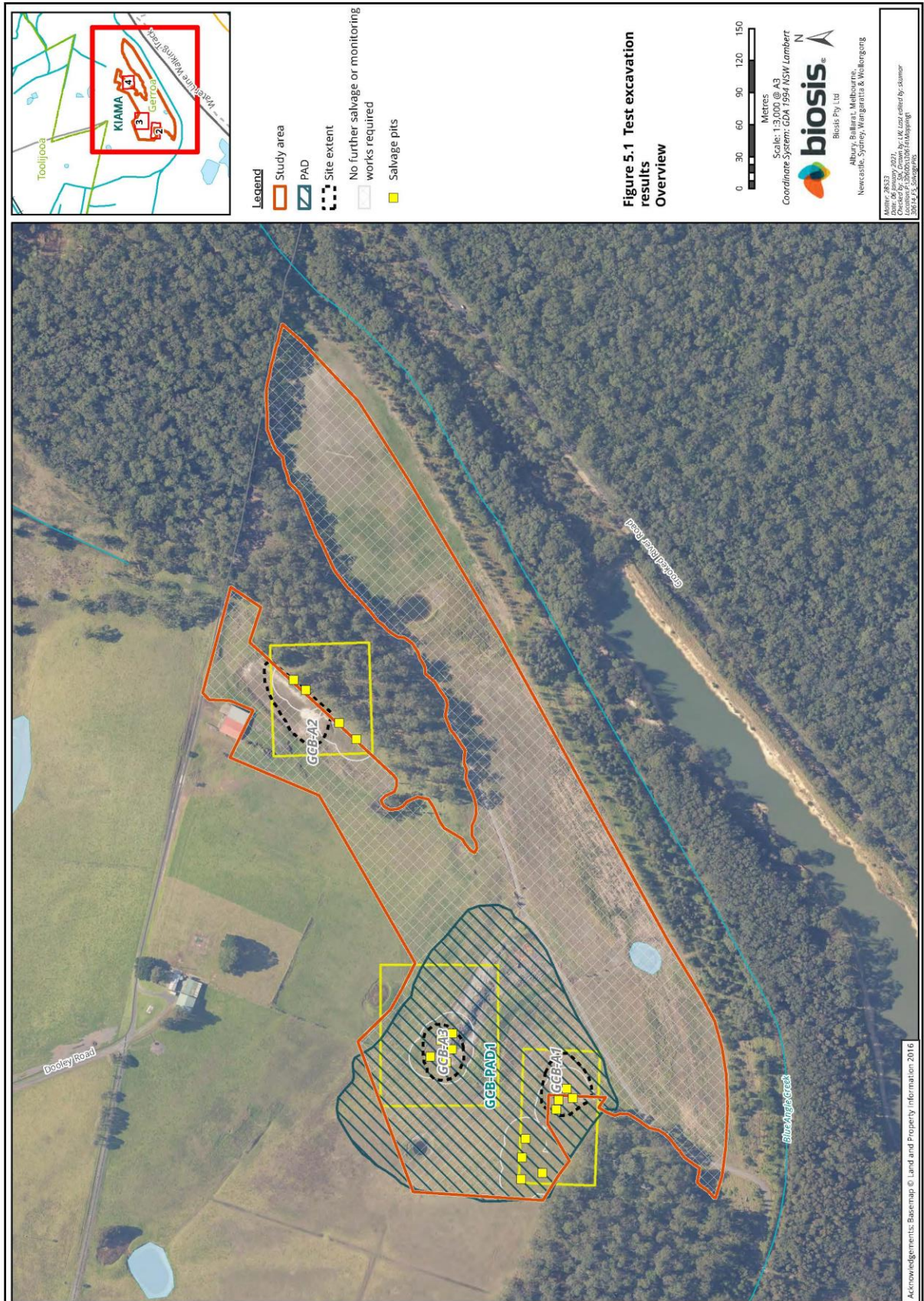


Figure 4-1 Aboriginal Artefact Salvage Locations

4.1.7 Archaeological Operations

The project application proposed that salvage of archaeological relics would take place from selected locations prior to those locations being disturbed by sand mining. The Aboriginal Cultural Heritage Management Plan prepared for the Modification 1 site proposes that salvage occur from the locations shown on *Figure 4-1*. Land or vegetation disturbance for sand mining will not commence in any location identified for salvage until the salvage field work in that location has been completed. Salvage work will be undertaken as described in Appendix A of the Aboriginal Cultural Heritage Management Plan.

Under the supervision of a qualified archaeologist, the following measures shall be undertaken to protect Conservation Area C:

- A permanent fence will be constructed along the boundaries of Conservation Area C.
- No other works or impacts will take place within the conservation area.
- A grass access track is currently located outside of the southern boundary of Conservation Area C. This track will continue to be utilised and may be topped with gravel; however, no excavation works will be undertaken within the access track corridor.

4.1.8 Relocation of Air Quality Monitoring Gauge

Dust deposition gauge 3A is located in the CP Stage of the Modification area. This gauge will be relocated to the northeast of the Modification area to monitor dust emissions from the Project. The other two dust gauges will remain in their current locations to give continuity of data from the southern and central parts of the site. The location of all monitoring devices is shown on *Figure 8-1*.

4.1.9 Reversing Alarms

Statement of commitment No 30, adopted in response to community submissions states as follows: *Investigate and if practicable, install “clacker” reversing alarms on mobile plant within the sand quarry site.*

Cleary Bros has acted upon this commitment during sand mining works in the extension area by installing “clacker” reversing alarms on the site loader and off road truck.

4.1.10 Pipeline installation

The dual pipeline connecting the Modification area to the processing plant will be installed along the access track corridor shown in *Figure 2-2*. This will allow the sand slurry to be pumped from the Modification area to the existing processing plant, while also allowing water to be pumped back to the Modification dredge pond to maintain the water balance on either side of Blue Angle Creek.

4.2 CONSTRUCTION ENVIRONMENTAL MANAGEMENT

The following environmental management controls will be implemented consistent with conditions of consent and as otherwise required to minimise environmental impacts.

4.2.1 Hours of Construction

Construction work is restricted to the following hours:

- Monday to Friday: 7:00 am to 6:00 pm
- Saturdays: 7:00 am to 1:00 pm
- Sundays & public holidays: No work

4.2.2 Construction Noise

The works with the highest contribution to noise are topsoil stripping and bund wall construction. Any construction works are expected to have similar noise characteristics to normal operations and should not result in any exceedance of noise criteria at the nearest residences.

4.2.3 Dust Control

Earthworks associated with construction or preparatory measures will be subject to standard dust control practices for quarries. In particular:

- unsealed roads in use will be kept moist; and
- trucks bringing construction fill to the site will have covered loads;

4.2.4 Soil and Water

Erosion and sediment controls referred to in Section 4.1.4 above will be installed prior to constructing the flood bund in each area.

4.2.5 Revegetation

All areas disturbed by construction activities that will not be affected by ongoing operations will be revegetated as soon as practicable after construction earthworks are completed.

4.2.6 Fill Control

Any fill materials imported to the site will consist of virgin excavated natural material or new construction materials.

4.2.7 Flora and Fauna Protection

The Conservation Area will be protected from disturbance during preparatory work. There is no requirement for vegetation clearing to occur during preparatory work.

5 SAND QUARRYING OPERATIONS

5.1 PREPARATION

5.1.1 General

Sand extraction in the Modification area will commence in the northwest corner of the CP stage. This area has been chosen for the initial excavation due to the low risk from acid sulphate soils identified as part of the detailed testing program. Cleary Bros will notify the DPE using the Major Projects portal at least 2 weeks prior to starting excavations in the Modification area. The initial excavation will consist of a hole approximately 20 metres by 20 metres by 3 metres deep, which on naturally filling with water will allow the dredge to be floated. The excavated material will be treated with aglime as described in the Acid Sulphate Soil Management Plan. The sand extraction operation will then proceed in a general southward direction. There is scattered casuarina regrowth and a single small coral tree to be removed, with no shrub understorey present under these trees. Otherwise the site consists largely of introduced grassland that will be slashed prior to topsoil stripping. Figure 5-1 outlines those trees to be cleared as part of the project, as well as those to be retained from within the Project footprint.

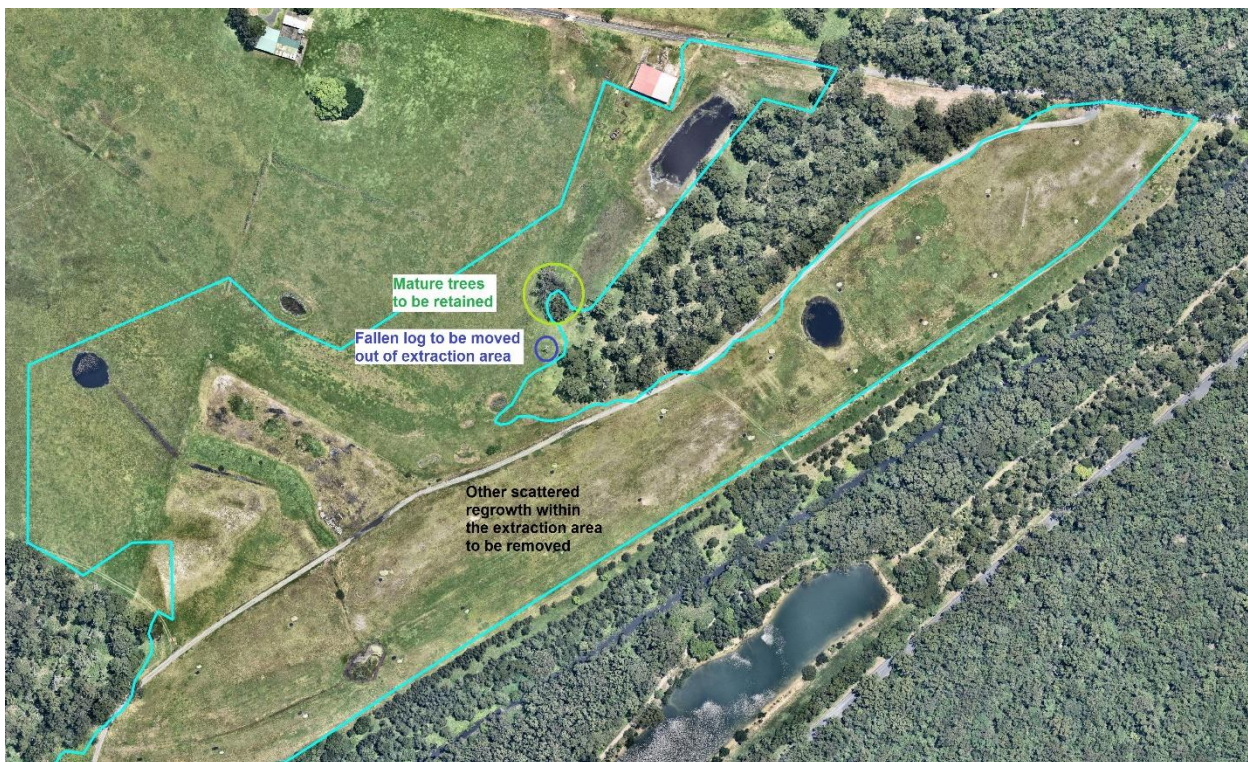


Figure 5-1 Vegetation Clearing of the Modification Area

5.1.2 Topsoil Stripping

Topsoil is progressively stripped ahead of dredging to assist in the construction of flood protection bunds. Stripped topsoil will be treated with aglime as described in the Acid Sulphate Soil Management Plan. Salvage works are required in some areas as described in the Aboriginal Cultural Heritage Management Plan.

5.2 SAND EXTRACTION AND PROCESSING

5.2.1 Sand Extraction

Material is extracted from the base and leading edge of the dredge pond using a floating suction dredge. The resulting slurry is piped to the shore and passed through various screens in the wet sorter and cyclone, as required. The wet sorter separates sand from stone and finer particles. Screened sand is pushed away from the sorter on an aglime-based hardstand and allowed to drain back to the dredge pond, subject to acid sulphate soil procedures (see section 6.6). Heavier materials may be further screened to grade into saleable size ranges to meet market requirements. Fine particles return directly to the dredge pond with the wash water.

5.2.2 Materials Stockpiles

After standing and draining, screened products are stockpiled for sale. Sand is normally left in freestanding stockpiles, prior to loading and dispatch.

5.2.3 Loading and Dispatch

A rubber tyred loader is used to load products to transportation vehicles. All vehicles accessing and leaving the site are required to use the sealed access road and report to the site office at the southern end of the loading area. Loaded vehicles must have covered loads.

5.2.4 Section 94 Contributions

Cleary Bros will make Section 94 contributions to KMC and SCC as follows:

- 30 cents per tonne of product transported from the site to SCC; and
- 20 cents per tonne of product transported from the site to KMC.

These rates will be adjusted annually in accordance with CPI, using a starting index based on the CPI as at March 2008. Contributions will be calculated based on product transported each calendar year, with payments made within 6 months of the end of each year.

5.3 POST EXTRACTION

Dredge pond foreshores are shaped and rehabilitated progressively as extraction is completed in sections of the pond.

5.3.1 Batter Shaping

Temporary excavation batters around the pond need to be partially backfilled and shaped using the dredge and other equipment to produce a stable landform. The shoreline zone, extending over the range of normal water levels, is graded to final design profiles.

Towards completion of the project, virgin excavated natural material may need to be brought to the site as back loads to provide sufficient fill material to complete profiling the pond foreshore.

Cleary Bros will notify the DPE using the Major Projects portal (or other method supported by DPE) at least 2 weeks prior to the cessation of extraction from the site, as well as before any extended shutdowns that are expected to be for longer than 12 months.

5.3.2 Rehabilitation

Progressive rehabilitation of disturbed areas is carried out in accordance with the Landscape and Rehabilitation Management Plan. As part of site rehabilitation following completion of extraction, the flood bund may be removed from the periphery of the dredge pond area.

6 MANAGEMENT STRATEGIES

The environmental management requirements included in this section of the QEMP are auditable at each scheduled external audit and should be reported upon in the Annual Review (refer to section 9.2). References to the "Project Approval" and to conditions refer to the Project Approval granted by the Land and Environment Court on 2 September 2008 as modified by the Department of Planning, Industry and Environment on xx November 2021.

6.1 GENERAL REQUIREMENTS

6.1.1 Minimisation of Harm

Unless consistent with a management plan approved under the Development Consent, Cleary Bros will implement all practicable measures to prevent or minimise harm to the environment during construction, operations, and rehabilitation of the site.

6.1.2 Duration of Operations

Extraction and processing are permitted to continue within the approved area until 31 July 2038. The approval permits other site operations to continue beyond that date until the site has been rehabilitated to the satisfaction of the DPIE.

6.1.3 Production Limits

Cleary Bros will not transport more than 80,000 tonnes of product from the site in any reporting year (1st July to 30th June). This limit does not include the dispatch of material imported to the site for separate sale or for blending with quarry products obtained from the site;

6.1.4 Boundary of Operational Area

The 2022 Modification area boundary has been surveyed by an independent registered surveyor and permanently marked using posts to ensure extraction is maintained within the approved limits. The Survey Plan prepared by the surveyor (Figure 6-1) has been submitted to the DPE prior to extraction commencing in the Modification 1 area.

Painted steel star stakes are installed along the western, northern and part of the eastern sides of the existing extraction area extension, as a permanent mark of the approved limit of extraction. The eastern boundary of the existing extension area has been fenced where it runs parallel with the Littoral Rainforest to be retained. The fence comprises steel star stakes with tensioned wire.

Auditors should verify that the boundaries remain clearly marked and that extraction remains within the boundaries and state this in the audit report.

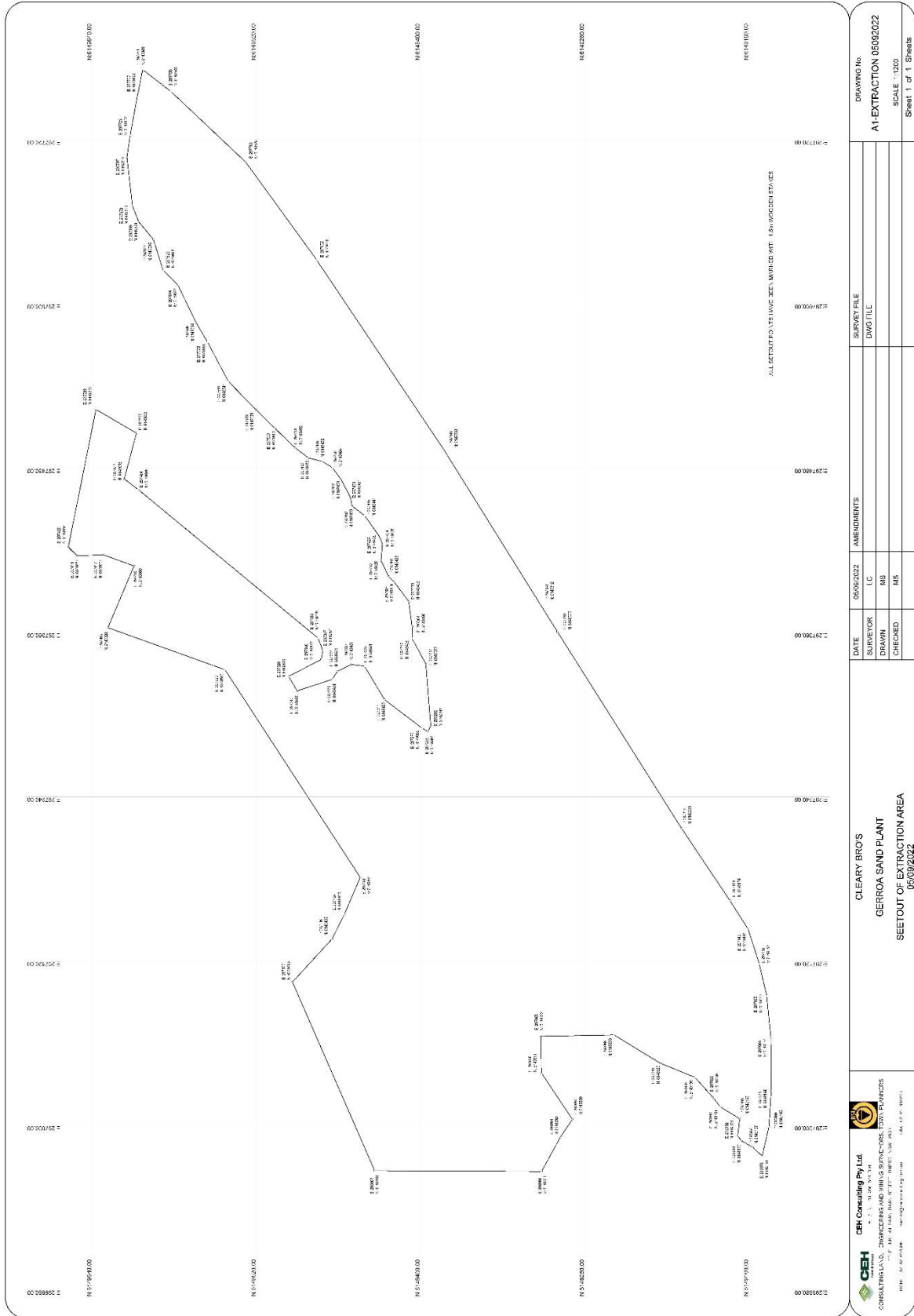


Figure 6-1 Survey Plan of the Modification 1 area

6.2 NOISE

The Noise Management Plan for the Project is included as Appendix C. The key points including noise control strategies are included below, while noise monitoring protocols are also included in Section 8.3.

6.2.1 Background

SLR Consulting undertook a Noise Assessment as part of the Modification application, which modelled noise levels associated with site operations including regular dredging and product despatch, and short term topsoil stripping operations, in accordance with the EPA's Noise Policy for Industry (NPfI). The Noise Assessment determined that noise-enhancing conditions were not a feature of the site. Noise impacts from site operations were therefore modelled under calm conditions at the closest sensitive receivers surrounding the site. The Noise Assessment determined that noise criteria established under the NPfI would be met at all sensitive receivers. Subsequent assessment as part of the Response to Submissions for the EA (also prepared by SLR Consulting) investigated opportunities for further reductions in predicted noise levels at one of the sensitive receivers (Athelstane) to the north of the Project Area. This included the installation of a noise suppression kit on the bulldozer used for stripping topsoil, in the event noise levels were recorded greater than the criteria at any residence during this activity. Subsequent amendments to the proposed Modification removed the Northern Paddock from Project extent, such that the noise levels associated with topsoil stripping and other activities will be less than that original modelled for Athelstane, and it is unlikely that a noise suppression kit will be required to meet the criteria.

The closest sensitive receivers are located south of the site on the southern side of Beach Road near the site entrance. The closest residence is approximately 90 metres from the entrance and 400 metres from the main processing, stockpiling and loading area as shown on *Figure 2-4*. To the northwest of the site, the closest rural residences are approximately 700m from the northernmost extent of the modified dredge pond. Caravan parks are the closest development within Gerroa village and are approximately 1,100m to the northeast, while recreation areas in Seven Mile Beach National Park are located beyond the Crooked River Road to the east of the Project. The locations of the nearest sensitive receptors is shown in *Figure 2-4*.

6.2.2 Project Requirements

Schedule 3 Condition 2 of the Consent specifies the following noise impact criteria for the Project.

Noise generated by the development must not exceed the following impact assessment criteria:

| Location | L _{Aeq} (15 min) (dB(A)) |
|---------------------------------------|--------------------------------------|
| 670 Beach Road | 41 |
| 11 Bangarra Street | 40 |
| Seven Mile Beach Holiday Park | 36 |
| Athelstane Property | 40 |
| Picnic Area 1 | 40 |
| Picnic area 2 | 40 |
| Any other residential receiver | 40 |

The criteria are to be satisfied when monitored in accordance with the relevant procedures and exemptions of the NPfl. The limits do not apply if Cleary Bros enters an agreement with the relevant owners to generate a higher noise level and the DPIE is advised of the terms in writing.

Schedule 3 Condition 3 of the Consent limits activity on the site to specific hours as follows.

The project shall only operate:

- (a) between 7.00am and 6.00pm Monday to Friday;*
- (b) between 7.00am and 1.00pm on Saturdays; and*
- (c) at no time on Sundays or Public Holidays.*

6.2.3 Control Strategies

The following design features have been incorporated into the Project to reduce noise levels recorded at nearby sensitive receivers:

- Siting the processing plant, truck loading area, and return water pump in the central part of the site, away from the rural residential receivers to the south.
- The modification dredge pond is acoustically protected from the nearest sensitive receivers (R4 and R5) by topographical features, including a spur to the northwest of the new dredge pond, and dune features to the east.
- Sealing the first 200 metres of the access road within the site to limit road noise closest to the rural residential area to the south.
- Equipment utilised on the Project has been specifically selected to be fit for purpose.
- Should any new equipment be introduced to the site, noise emissions from that plant will be measured and if necessary, attenuated to ensure the noise criteria are met.

Other operational controls implemented to minimise sound generation include:

- Limiting speed on site to 20 km/h to minimise truck noise.
- Limiting operating hours of the site and truck movements to 7:00am to 6:00pm Monday to Friday and 7:00am to 1:00pm Saturdays, with no operations on Sundays or public holidays.
- Maintain plant and equipment to manufacturers' specifications.
- Ensure all truck drivers leaving the site are familiar with and adhere to the requirements of Cleary Bros Drivers Code of Conduct, which includes driver behaviour training around noise minimisation measures such as:
 - Adherence to the approved operating hours of the site.
 - Utilisation of the approved truck routes only in the vicinity of the site.
 - Restricting the use of compression brakes unless required for safety reasons.
 - Turning off truck engines when parked or waiting for an extended period of time.
- Implement a noise monitoring program to ensure compliance with the noise criteria.
- Advertise the contact number at the front of the site, to provide community members with a contact point should they wish to raise concerns regarding noise.
- Cleary Bros complaints management process (refer to QEMP) ensure all community complaints are investigated and followed up as relevant to each complaint.
- Conduct regular Community Consultative Committee meetings to ensure dissemination of project information and to provide a forum for community members to raise any concerns regarding noise emissions.

Noise enhancing conditions may be encountered during the daytime period when the wind speed is between 0.5m/s and 3m/s. During these conditions, noise emissions may be greater than that predicted

under the standard meteorological conditions. To minimise the noise impacts associated with these conditions, the following operational controls will be implemented:

- Weather station will be configured to send an alert to the Quarry Manager daily whenever noise-enhancing conditions (wind speeds 0.5m/s to 3m/s) are recorded at the site weather station.
- Cleary Bros will not operate the Dozer when an alert has been received, until the weather station is no longer recording noise-enhancing conditions.

6.3 AIR QUALITY

The Air Quality Management Plan for the Project is included as Appendix D. The key points including dust control strategies are included below, while air quality monitoring protocols are also included in Section 8.4.

6.3.1 Background

The Environmental Assessment for the modification area predicted the main source of air pollution to be attributed to plant equipment and machinery during operation of the site. However due to the size and scale of the site, the impacts from exhaust fumes can be considered negligible. The Environmental Assessment considered dust creation to be the main source of concern, however, if best practice mitigation procedures are followed the impacts of this can be considered negligible.

Sources of possible air pollution from the operation of the Gerroa Sand Quarry include topsoil stripping, product loading, vehicle movement, landform shaping (bund construction, shoreline profiling) and the effects of wind on stockpiles and other exposed dry surfaces. The sand extraction, piping and separation are all wet processes that under regular conditions will produce negligible dust. Due to the nature and scale of operations, exhaust fumes are not considered to have a significant impact on the surrounding environment.

Dust deposition has been monitored at the existing Gerroa Sand Quarry over a number of years. An automatic weather station is also located on the site, which has been established to monitor temperature, humidity, wind speed and direction, rainfall, barometric pressure, and solar radiation.

6.3.2 Project Requirements

Schedule 3 Condition 5 of the Consent specifies the following air quality criteria for the Project.

The Proponent must ensure that particulate matter emissions generated by the project do not cause exceedances of the following criteria at any residence on privately-owned land.

| Pollutant | Averaging period | Total impact criteria ^a | Incremental impact criteria ^b |
|--|------------------|------------------------------------|--|
| Deposited dust (insoluble solids) | Annual | 2 g/m ² /month | 4 g/m ² /month |

Notes:

a Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources).

b Incremental impact (i.e. incremental increase in concentrations due to the project on its own).

6.3.3 Control Strategies

The following design features have been incorporated into the Project to minimise air quality impacts to the local airshed:

- Siting the processing plant and truck loading area in the central part of the site, away from the rural residential receivers.
- The first 200 metres of the access road within the site has been sealed to limit dust generation closest to the rural residential area to the south.
- The intersection of the access road with Beach Road has been upgraded with sealed shoulders.
- Equipment utilised on the Project has been specifically selected to be fit for purpose.

Other operational controls implemented to minimise air quality impacts include:

- Keep to a minimum the area of land disturbed for operational purposes at any one time. When a disturbed area is no longer to be used, revegetate it as soon as practicable.
- Restrict the speed of vehicles operating within the site to 20km/h to minimise wheel-generated dust.
- Cover the loads of all loaded vehicles carrying materials to or from the site.
- Keep unsealed internal roads and loading areas moist when in use to minimise vehicle-generated dust.
- Monitor weather forecasts on a regular basis (minimum twice weekly) to enable proactive measures to be planned, such as increased haul road watering, altering certain activities, or cease loading and transport on the site.
- Regulate sand production to avoid excessive product stockpiling.
- Continually watch for any visible air pollution and if necessary, minimise dust generation by modifying operations, such as closing the site for loading and transport in extreme weather conditions.
- Maintain plant and equipment to manufacturers' specifications.
- Ensure all truck drivers leaving the site are familiar with and adhere to the requirements of Cleary Bros Drivers Code of Conduct, which includes driver behaviour training relating to turning off truck engines when parked or waiting for an extended period of time.
- Implement an air quality monitoring program to ensure compliance with the air quality criteria.
- Advertise the contact number at the front of the site, to provide community members with a contact point should they wish to raise concerns regarding dust generation.
- Cleary Bros complaints management process (refer to QEMP) ensure all community complaints are investigated and followed up as relevant to each complaint.
- Conduct regular Community Consultative Committee meetings to ensure dissemination of project information and to provide a forum for community members to raise any concerns regarding air quality.

6.4 SURFACE WATER MANAGEMENT

The Water Management Plan for the Project is included as Appendix E and provides greater detail on the surface water setting and specifically addresses the requirements of the Development Consent. The key points relating to surface water management including control strategies are included below, while surface water monitoring protocols are also included in Section 8.5.

6.4.1 Performance Objective

Source - Project approval schedule 3 conditions 9, 10, and 11.

Environment Protection Licence, condition L1.1

Requirement - Cleary Bros shall aim to meet the following water quality objectives for water in the dredge ponds:

| Analyte | Units | Objectives |
|-----------------------------|-------------------|---------------|
| Turbidity* | NTU | 1-20 |
| pH | pH | 6.0-8.5 |
| Electrical conductivity | µS/cm | <1,500 |
| Dissolved oxygen* | mg/L (saturation) | >6 (>80-110%) |
| Total phosphorus | µg/L | <30 |
| Total nitrogen | µg/L | <350 |
| Chlorophyll-a | µg/L | <5 |
| Faecal coliforms | Median No./100 mL | <1000 |
| Enterococci | Median No./100 mL | <230 |
| Algae and blue-green algae* | No. cells/mL | <15,000 |
| Sodium | mg/L | <400 |
| Potassium | mg/L | <50 |
| Magnesium | mg/L | <50 |
| Chloride | mg/L | <300 |
| Sulphate | mg/L | <250 |
| Bicarbonate | mg/L | <750 |
| Dissolved Iron | mg/L | <6 |
| Total Ammonium-N | µg/L | <20 |

* objectives relevant to dredge pond water only.

Short term exceedances may occur naturally, as well as during natural events such as heavy rainfall or saline water inflow.

Water shall not be discharged from the project site except to restore normal pond level after significant rain.

Any discharge must comply with s120 of the Protection of the Environment Operations Act, 1997. Section 120 prohibits pollution of any waters, except as permitted in a licence issued under the Act. The site licence does not permit any pollution of waters.

6.4.2 Design Features

- Flood protection has been installed around the existing dredge pond to a height of at least 3.2 metres AHD where natural ground level is less than 3.2 metres AHD. This will prevent any uncontrolled discharges from the existing dredge pond in a flood event up to the 100 year ARI level.

- Flood protection will be constructed progressively around the new dredge as it expands to a height of between 3.3 and 3.37 mAHD. This will prevent any uncontrolled discharges from the new dredge pond in a flood event up to the 100 year ARI level.
- The wet sorter is located immediately beside the existing dredge pond so that wash water draining from the sand slurry will return directly to the pond.
- A pump and pipeline will be installed to transfer water from the existing dredge pond to the new dredge pond, to ensure the balance between the ponds is maintained.
- Provision is made for the existing dredge pond to overflow via a 150 millimetre diameter pipe, delivering overflow water to a sediment pond and then passing through the flood bund to discharge into Foys Swamp on the other side.
- Sediment fencing will be progressively installed around the periphery of the new dredge pond prior surface disturbance as described in the Erosion and Sediment Control Plan.

6.4.3 Management Procedures

- Maintain continuity of the flood bunds to prevent ingress of flood water to the site.
- Maintain the sealed access road with a well-drained and clean surface to minimise material tracking from the site on the wheels of departing vehicles.
- During any uncontrolled or controlled discharge from either dredge pond, all dredging and processing activities will be suspended.
- Ensure that refuelling of mobile plant is carried out in a designated refuelling area and that maintenance of mobile machinery is undertaken well away from either dredge pond, where practicable.
- Maintain and operate all plant and equipment to minimise the risk of contaminants escaping to soil or water.
- Implement the management requirements of the Erosion and Sediment Control Plan. In particular:
 - maintain sediment fencing around recently disturbed areas to prevent sediment leaving the site;
 - ensure that completed sections of the new dredge pond foreshore and associated batters remain stable and do not erode to add turbidity to the pond.
- Monitor surface water in accordance with the surface water monitoring program in Section 8.5.
- A controlled discharge will only be undertaken from the site to restore the dredge pods to their normal levels following a significant rainfall event.
- A controlled discharge will only be undertaken where pH monitoring verifies that the water quality of the dredge pond either meets the water quality objectives (pH 6.0 – 8.5) or is closer to neutral (pH 7) than the surface water flows in Blue Angle Creek when measured at the flood gates.
- Review the performance of the surface water management strategies as part of the Annual Review described in Section 9.3.1.

6.5 GROUNDWATER MANAGEMENT

The Water Management Plan for the Project is included as Appendix E and provides greater detail on the groundwater setting and specifically addresses the requirements of the Development Consent. The key points relating to groundwater management including control strategies are included below, while groundwater monitoring protocols are also included in Section 8.6.

6.5.1 Performance Objective

- Source - Project approval, schedule 3, conditions 10, 11 and 14.
- Requirement - Aim to meet the water quality objectives provided in section 6.4.1 for groundwater within the project site except those for turbidity, dissolved oxygen and algae or blue green algae.
- Maintain similar groundwater flow through the site to the Swamp Sclerophyll Forest on its western side as existed prior to the excavation. Condition 11(d) specifies how this is to be done: high hydraulic conductivity material is to be progressively placed at intervals along the length of completed sections of the pond extension.

6.5.2 Design Features

- Where imported material is used for foreshore rehabilitation, emplace high hydraulic conductivity material at 50 metre intervals along completed sections of the dredge pond foreshore to maintain comparable groundwater flow to the surrounding vegetation communities as existed prior to excavation. The emplaced material is to have a hydraulic conductivity similar to corresponding areas that have not been excavated.
- The hydraulic conductivity of the emplaced material will be measured by undertaking a constant head permeability test at a NATA accredited laboratory on a sample of the emplaced material. The test sample will be compacted in the laboratory to replicate the compaction of the emplaced fill material, as measured on site using density testing. This testing will be undertaken at 20 metre intervals along completed sections of emplaced material. Each test will be compared against the corresponding background site to ensure the hydraulic conductivity of the emplaced material is not significantly less than the background site.
- Three additional groundwater monitoring bores have been installed around the periphery of the new dredge pond (NB02, NB03, NB04), and a further background monitoring bore has been installed to the west of the dredge pond (MW7).
- Monitoring has been discontinued in several groundwater bores around the existing dredge pond as these bores do not add significant value to the groundwater monitoring program (MW1D, MW2A, MW3C, MW4, MW5, MW01(07), MW02(07), MW03(07), and MW05(07)).

6.5.3 Management Procedures

- Groundwater monitoring program will be undertaken as described in Section 8.6.
- Undertake a monthly review of groundwater monitoring results, to be carried out by the Environmental Officer who will maintain auditable records confirming that the review has taken place.
- In the event that the water level in any bore lies outside the range of two standard deviations from the mean (in that bore) for more than 6 months and does not follow a trend that can be attributed to climatic events as evident in other monitoring bores, investigate, notify and mitigate the impacts according to the protocol described in the Water Management Plan (Appendix E).
- Should any other groundwater impacts be identified as a result of the groundwater monitoring program, the matter will be referred to a hydrogeologist for advice prior to implementing measures to mitigate, remediate and/or compensate for those impacts.

6.6 ACID SULPHATE SOILS MANAGEMENT

The Water Management Plan for the Project is included as Appendix E and provides greater detail on the acid sulphate soils of the Project Area and specifically addresses the requirements of the Development Consent. The key points relating to the management of acid sulphate soils including control strategies are included below, while monitoring protocols relevant to acid sulphate soils are also included in Section 8.7.

6.6.1 Performance Objective

- Source - Project approval, schedule 3, conditions 11 and 15.
- Requirement - Implement the acid sulphate soils management plan (Section 10 of Water Management Plan, Appendix E).

6.6.2 Design Features

- The base of processing and stockpile areas are graded to ensure runoff returns to the dredge pond and are prepared with a guard layer incorporating fine aglime.
- A stockpile of aglime will be maintained on site to use as a neutralising agent.
- Testing of the acid sulphate soil potential of the areas to be dredged to supplement the investigations completed to date, to inform liming rates of batters and ASS risk of materials.
- Surface water from the ridge line to the northwest of the modification area will be diverted to minimise potential erosion of batters.
- The processing/stockpile area is sited next to a deep section of the dredge pond suitable for reburial of reject material.
- Final batters of 3H:1V or flatter are suggested in areas excavated by mobile plant but will also need to be consistent with equipment which can be used to neutralise exposed ASS material within the batters or material exposed in the excavation floor.

6.6.3 Management Procedures

- Minimise the working area to limit the volume of leachate or exposed batters that may need to be treated with aglime at any one time.
- Monitor water quality (vertical profile) over the emplacement site within the dredge pond for confirmation that placed PASS material is not undergoing oxidation with resulting unacceptable water quality values, either overall or within a stratified water column (refer Section 8.7).
- Pipe reject materials (fines) back into the existing dredge pond for disposal below the permanent groundwater table.
- Where exposed or excavated ASS requires neutralisation within batters or in bunded treatment pads, the neutralisation will be carried out by mixing with aglime at rates determined by site specific testing.

6.7 VEGETATION CLEARING PROCEDURE

6.7.1 Performance Objective

- Source - Project approval: schedule 3, conditions 20 and 20A;
Statement of Commitments, Commitment No 21.

- Requirement - Ensure that a pre-clearing inspection for koalas is undertaken
- Do not clear any trees or other vegetation in the area marked "X" on Appendix 1 of the project approval (see Appendix A) without firstly obtaining the approval of the DPIE.
- Verification - Letter from ecologist to be obtained verifying the outcome of each pre-clearing survey and included in the AEMR.

6.7.2 Management Procedures

The following procedures apply for all vegetation clearing undertaken for the project, subject, in the locations indicated above, to firstly meeting pre-requisites or obtaining approval.

Vegetation clearing protocols are detailed in the Landscape and Rehabilitation Management Plan (see *Appendix D*). A summary of the requirements is as follows:

- i. There is no understorey in the vegetation to be cleared in the Modification 1 area, so there is no requirement to clear this ahead of time..
- ii. Arrange for an ecologist to inspect trees to be felled on the day proposed for felling. No trees to be cleared contain hollows.
- iii. If on the day of tree clearing a koala is present then clearing must be delayed until the koala has moved away of its own accord. This may take several days.
- iv. Trees are to be felled in a manner that does not damage adjoining forest to be retained.
- v. On the advice of the ecologist the site manager will retain suitable clearing debris including logs, crowns and mulch for use in site revegetation and habitat restoration.

6.8 SEVERING THE EAST-WEST LINK

6.8.1 Performance Objective

- Source - Project approval: schedule 3, condition 20(b)
- Requirement - The east-west link may not be severed until it is demonstrated to the satisfaction of the DPIE that established communities in the Northern Corridor comprise at least 60% of the species listed in Appendix 6 of the approval and the Northern Corridor is successful in terms of the criteria presented in section 8.8.
- Definitions - East-west link: refer to Figure 6-2.
- Northern Corridor: refer to Figure 6-2.
- Not sever: no works of clearing, tree removal or other habitat removal shall take place which will reduce or impede the function of the east-west link to provide connectivity to the National Park from the Swamp Sclerophyll Forest on the western side of the site, as measured by whether a majority of animal species utilising the east- west link are present in the Northern Corridor.
- Successful: the success of the Northern Corridor for the purposes of triggering removal of the east-west link is to be measured according to the criteria in Condition 25. These criteria are detailed in Section 8.8 (monitoring).

- Verification - Annual inspection of the east-west link to confirm that it has not been severed prior to receiving approval from the DPIE.

6.8.2 Management Procedures

The East-West link has now been severed following completion of all pre-requisites and approval from the DPIE. Prior to its severing, the following management procedures were in place to maintain the integrity of the corridor, as described below.

- Habitat was managed in formerly cleared areas of the east-west link prior to its severing by:
 - undertaking no further slashing; and
 - not removing weeds from this area.
- Ensuring that fencing was in place to prevent farm animals from entering the east-west link to retain its interim habitat value.
- Minimising intrusion by motor vehicles into the east-west link and confine any movements to existing tracks prior to its severing.

No further specific management measures are required for the former East-West link.

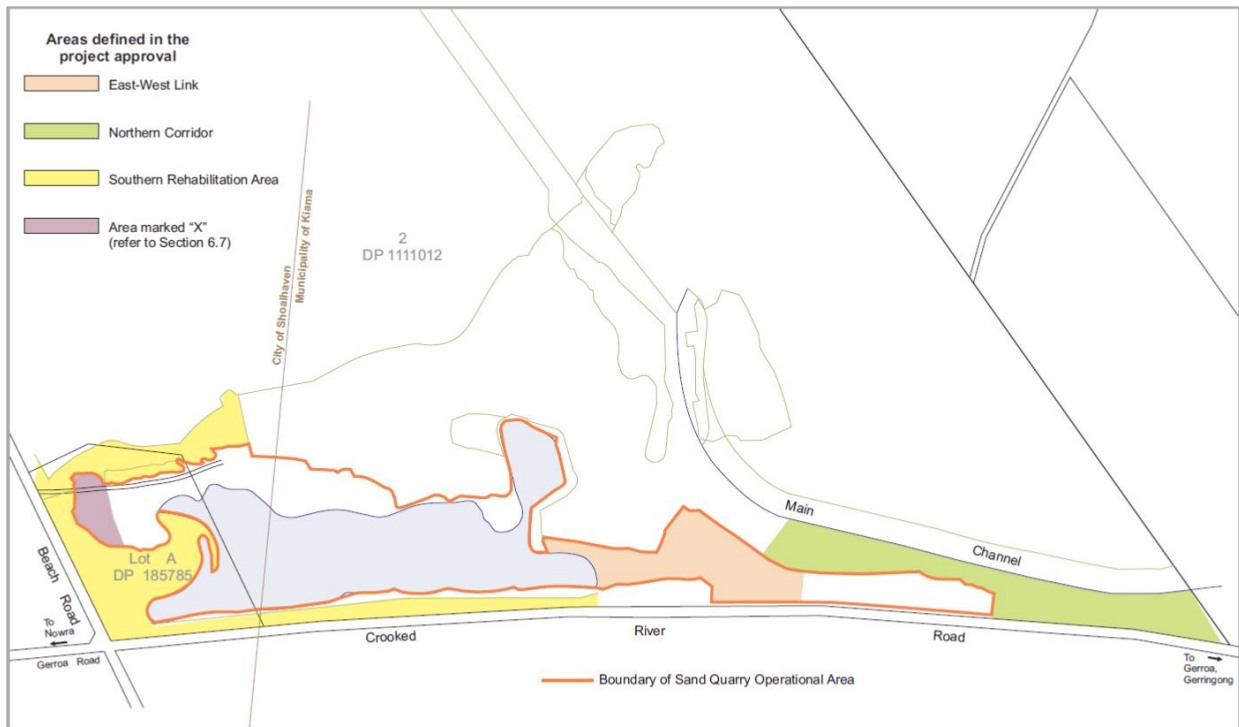


Figure 6-2 Defined Areas

6.9 LANDSCAPE AND HABITAT MANAGEMENT

6.9.1 Performance Objective

- Source - Project approval: schedule 3, conditions 17 to 25 and Landscape and Rehabilitation Management Plan (Appendix D).

- Requirement - Progressively rehabilitate the sand quarry site including:
- create safe and stable landforms with a natural appearance designed for low maintenance;

- progressively revegetate all land disturbed by sand mining using indigenous species to create wildlife habitat including wetland habitat;
- maintain vegetation by nurturing plantings, replacing failed specimens and countering weeds and other threats;
- at the completion of sand mining remove all sand mining artefacts and tracks, except as required for rural management.

Undertake the preparatory works described in section 4.1.5, being:

- create a visual screen along the Crooked River Road frontage;
- establish the Northern Corridor;
- plant *Banksia integrifolia* in the setback to the Littoral rainforest;
- commence the Compensatory Planting wherever specified; and
- achieve a specified species mix in the north and south habitat corridors.

Manage the rehabilitated, revegetated and protected lands to protect and enhance vegetation and wildlife habitat.

Maintain a bond with the DPE for the rehabilitation of the site, including for lands to be disturbed by the dredge pond and for the rehabilitation of areas to be planted.

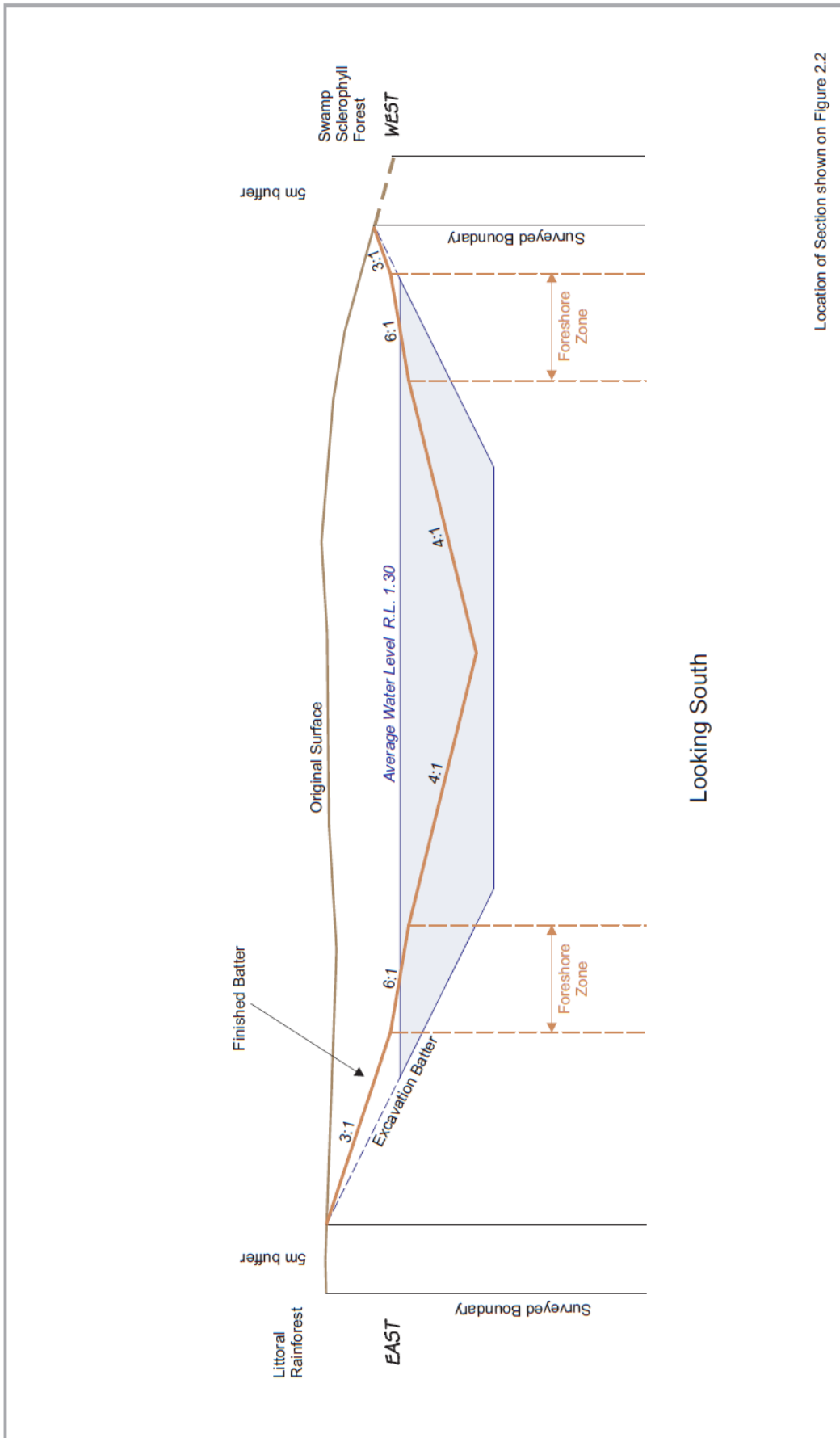
Verification - An ecologist to examine rehabilitation areas and the Conservation Area in detail once per year and provide a comprehensive report for inclusion in the AEMR (see section 8.8).

6.9.2 Design Features

- The extraction area has been set back from the Crooked River Road frontage and a bund established to form a visual screen.
- The northern end of the extraction area is several hundred metres from the northern property boundary to leave room to establish the Northern Corridor.
- The Southern Rehabilitation Area has been expanded from areas previously planted to establish a more effective link to retained vegetation on the site.
- The eastern boundary is configured to preserve an area of Littoral Rainforest, with a setback to be densely planted to minimise edge effects.
- The western boundary is configured to maintain a setback from Swamp Sclerophyll Forest.
- Finished dryland surfaces are designed for a maximum batter gradient of one in three and the pond foreshore will be one in six, to assist in maintaining stability Figure 6-3.

6.9.3 Management Procedures

Detailed management measures are described in the Landscape and Rehabilitation Management Plan (Appendix F) which will be implemented on the site.



Location of Section shown on Figure 2.2

Figure 6-3 Typical Pond Cross Section

6.9.4 Rehabilitation Bond

A rehabilitation bond (Bank Guarantee) has been lodged with the Department of Planning and Environment to account for the rehabilitation of the dredge pond area and all revegetation works proposed under the Landscape and Rehabilitation Management Plan. The amount of the revegetation bond has been calculated at a rate of \$2.50/m² for all dredge pond areas and \$1.00/m² for the revegetation areas, adjusted for CPI using a starting index based on the CPI as at March 2008. The value of the bond will be reviewed following each Independent Environmental Audit (refer Section 9.1), taking into consideration the area of disturbance, progression of revegetation activities (and expected future costs of maintenance), the change in the CPI since the last review, and the performance of the rehabilitation against the completion criteria of the LRMP. Following each review, the proposed bond recalculation will be provided to the DPE for approval. On approval from DPE of a modified value of the bond in accordance with this Section, Cleary Bros will replace the existing bond retained with DPE for a new bond to the approved value. This bond will be maintained with DPE for the duration of the Project, and will only be returned on DPE approval that all rehabilitation activities have been completed in accordance with the LRMP.

6.10 LONG TERM MANAGEMENT STRATEGY

6.10.1 Objectives

The objectives for the quarry closure and long term management include:

- remove from the site all sand quarrying artefacts including machinery, structures, buildings, signage, products and roads, except as required for site maintenance purposes or ongoing rural use of the property;
- leave safe and stable landforms with a natural appearance, designed for low maintenance;
- establish native vegetation on all land areas disturbed by the sand quarry in accordance with the Landscape and Rehabilitation Management Plan to create wildlife habitat including wetland habitat within and around the shoreline of the dredge pond;
- complete rehabilitation of land disturbed by quarrying as soon as possible following the cessation of extraction;
- in the post-closure period nurture to maturity vegetation planted as part of the quarry project;
- continue to provide protection to the vegetation on the land referred to as the “Conservation Area” in the Voluntary Planning Agreement (refer to Section 2.6);
- control weeds within the rehabilitation and compensatory planting areas;

6.10.2 Future Use

Cleary Bros will consider future use of the site when opportunities become available. In the absence of any firm proposal for alternative development the land will remain in rural use with the Conservation Area protected as provided in the Voluntary Planning Agreement.

6.10.3 Ongoing Environmental Effects

Potential ongoing environmental effects from the sand extraction operation would be monitored following completion of sand extraction and managed as follows:

- weather data will continue to be collected from the site weather station for as long as other monitoring continues on the site to assist with the interpretation of changes in dredge pond and groundwater levels;
- the foreshore of the dredge pond and associated batters will be monitored annually and rectification works undertaken for any erosion or slumping until an engineering geologist certifies that the landforms have achieved stability;
- dredge pond levels and groundwater levels will continue to be monitored biannually and remedial action taken as necessary until a hydrogeologist certifies that an equilibrium has been reached where the ongoing effects of the former sand quarry will not exacerbate climatic variations to threaten the survival of Swamp Sclerophyll Forest vegetation or ecosystems;
- revegetation areas and the Conservation Area will continue to be monitored annually and remedial work undertaken until an ecologist recommends that the vegetation is sufficiently mature and stable that monitoring is no longer required.

6.11 CULTURAL HERITAGE

The Aboriginal Cultural Heritage Management Plan (ACHMP) for the Modification 1 is included as Appendix G. The Aboriginal Heritage Management Plan (AHMP) for the existing dredge pond is included in Appendix H and was approved in 2009. The key management strategies of these plans are summarised below, including the site conservation areas, matters for further investigation, and an unexpected finds protocol.

6.11.1 Performance Objective

| | |
|--------------|---|
| Source | - Project approval: schedule 3, conditions 29 to 30B – Aboriginal Cultural Heritage Management Plan (ACHMP - Mod 1 - Appendix G) and Aboriginal Heritage Management Plan (AHMP – Existing dredge pond - Appendix H). |
| Requirement | - Protect and conserve Area A and Area C (see Appendices G and H). Implement the requirements of the Cultural Heritage Management Plan including: <ul style="list-style-type: none"> • protect Area A and Area C, and part of Area B; • map and salvage or relocate archaeological relics on the site, including the shell midden in the south-western corner; • follow documented procedures if any new objects or relics are discovered; and • continue to consult Aboriginal communities when matters arise regarding conservation and management of Aboriginal cultural heritage |
| Verification | - Environmental audit to verify that areas A, B and C are adequately marked and protected and that appropriate documentation of salvage works exists. |

6.11.2 Design Features

- The extraction area avoids Areas A and C. Hence they will be protected entirely.
- The boundary of the extraction area passes through Area B. The part of Area B excluded from the site will be protected.
- The boundary of Area A and C and the part of Area B to be protected will be fenced off to ensure protection and exclusion from disturbance.

6.11.3 Management Procedures

- All workers at the Gerroa Sand Quarry will undertake heritage training as part of the site induction process prior to the commencement of any work.
- Clearly and permanently mark the boundaries of Area A and Area C and the portion of Area B to be conserved so that quarry staff remain aware of those areas.
- The locations where salvage is to take place are identified on Figure 4-1, being locations recommended in the Modification area ACHMP with recorded sites and areas of identified cultural material. Prior to any soil disturbance at those locations, salvage operations are to take place, as described in Appendix G (ACHMP):
- If Aboriginal objects are discovered during topsoil stripping or other ground disturbance works, work at that location is to stop while the objects are initially assessed by an archaeologist to determine if they are likely to be culturally significant. Resumption of work will be upon the advice of the archaeologist.
- In the event that human remains are discovered at any time during the project, work at that location should immediately cease and the following procedure implemented:
 - Notify the NSW Police, Jerrinja LALC, Heritage NSW and DPE as soon as practicable and provide details of the remains and their location.
 - Establish an appropriate no-go area in consultation with NSW Police, Jerrinja LALC, Heritage NSW, DPE and if necessary, a qualified archaeologist.
 - Works will not be able to recommence within the location of the find until confirmation from NSW Police and DPE is obtained. If the remains are confirmed as not being human then works may recommence. In the event that remains are human then consultation, with NSW Police, DPE and the Aboriginal stakeholders to establish a plan of management.
 - Works in the vicinity of the find will only be able to commence once the plan of management has been established and approval has been obtained from all relevant parties.

6.12 TRAFFIC AND TRANSPORT

6.12.1 Performance Objective

| | |
|--------------|---|
| Source | - Project approval: schedule 3, conditions 31 to 34. |
| Requirement | - Confine truck movements to designated routes and designated times and improve safety at the site exit. Upgrade site entrance to a sealed BAL and BAR configuration, in accordance with the TfNSW's <i>Road Design Guide</i> . Ensure all loaded vehicles entering and leaving the site are covered and are cleaned of materials that may fall on the road before leaving. |
| Verification | - Environmental site audit. |

6.12.2 Design Features

- The existing internal access road connecting with Beach Road is the only permitted truck access.

- The intersection of the quarry access road and Beach Road was upgraded in 2008 to provide for basic left and right turns in accordance with the former RTA's *Road Design Guide*, which was applicable at the time of the upgrade.

6.12.3 Management Procedures

- Limit truck movements to or from the site as follows:
 - 7.00 am to 6.00 pm Monday to Friday;
 - 7.00 to 1.00 pm Saturdays;
 - no trucks on Sundays or public holidays.
- Trucks proceeding north from the site are to use the Princes Highway, accessed via Beach Road, Crooked River Road, Fern Street and Belinda Street.
- Trucks proceeding south from the site are to use the Princes Highway, accessed via the same route as above, except that trucks less than 3.4 metres in height may access the Princes Highway at Berry via Beach Road.
- Quarry trucks may travel on Gerroa Road only when the destination is accessed from that road and there is no other practical route.
- The following restrictions are in place on roads in the area and will be observed:
 - Beach Road – 3.4 metre height limit at the railway underpass;
 - Gerroa Road – 5-tonne load limit.
- The approved truck routes are shown on *Figure 6-4*.
- All loaded vehicles entering or leaving the site are to have covered loads.
- Prior to departure, all loaded vehicles leaving the site are to be cleaned of materials that might fall to the road.
- Should a vehicle be involved in a major accident on the premises, staff will initially attend to the needs of any injured personnel. If there is a spill of fuel, emergency response procedures will be initiated as described in Section 6.14.3. Should there be a spill of quarry material, steps will be taken to recover the material as far as practicable.

6.13 WASTE MANAGEMENT

6.13.1 Performance Objective

| | |
|--------------|--|
| Source | - Project approval: schedule 3, conditions 38 |
| Requirement | - To avoid the site becoming contaminated as a result of waste being disposed thereon. To minimise waste generation on the site |
| Verification | - Environmental site audit. |

6.13.2 Management Procedures

- Waste of any type or quantity that will not to be brought to the site, except in accordance with a Resource Recovery Exemption issued by the EPA.
- Waste generation on the site shall be minimised as far as practicable. This will be achieved through the use of purchasing practices that minimise packaging and the reuse of processing wastes as part of the final landform for the site.
- Waste generated on the site shall be removed to a facility approved by EPA to receive the waste.

- These procedures do not prevent VENM being brought to the site for the purposes of profiling extracted areas of the pond foreshore.



Figure 6-4 Approved Truck Routes

6.14 FUEL AND CHEMICALS

6.14.1 Performance Objective

Source - Project approval: schedule 3, conditions 39

- Requirement - Storage, handling and transport of dangerous goods are to be in accordance with the relevant Australian Standards, particularly AS1940 and AS1596 and the *Dangerous Goods Code*.
- Verification - Environmental site audit.

6.14.2 Design Features

- Calcium hydroxide and aglime will be stored at the site when required for managing acid sulphate soils.
- Fuel stored on site will be in accordance with the requirements of *AS1940 Storage and Handling of Flammable and Combustible Liquids*;
- Other small amounts of fuels and lubricants may be stored for maintenance purposes and for minor machinery. A container is used for storage of these small quantities of combustible or flammable liquids.
- No dangerous goods or gas cylinders will be stored on the site, and as such the requirements of *AS1596* and the *Australian Dangerous Goods Code* are not applicable.

6.14.3 Management Procedures

- Ensure that items of mobile plant are refuelled away from the dredge pond where practicable.
- Take particular care to avoid spillage when refuelling the dredge.
- In the event of a leak or spill within a bunded area, a liquid waste contractor will remove any free liquid or contaminated water for disposal at a licensed facility.
- Spill kits will be held on site where fuel and other hydrocarbons are stored.

In the event of a significant spill outside of a bunded area the following actions will be taken:

- The person identifying the spill should immediately notify the Site Emergency Controller.
- Isolate the source of the spill in a safe manner to prevent further loss of hydrocarbon.
- Contain the spill from spreading or reaching the dredge pond or other drainage systems by using an appropriate spill kit and spill containment products. A front end loader is also available at all times at the site to form a bund from on site material and prevent any pollutant from entering a waterway.
- Contact the Environmental Officer for advice regarding clean up requirements and disposal at an appropriately licenced waste facility. If required, the Cleary Bros Environmental Officer will notify any external authorities in accordance with the PIRMP.
- Consult the Safety Data Sheet for information regarding the safe handling and disposal of the chemicals.

6.15 MAINTENANCE

Equipment maintenance takes place according to manufacturer's schedules or as required when repairs are needed, and will be undertaken to ensure all equipment remains in a proper and efficient condition. As far as practicable maintenance of a particular item of equipment is scheduled to take place at times when it is not required for service. There is built in redundancy for some items of equipment so that sand loading and delivery can continue with some equipment out of service.

Arrangements are in place with maintenance contractors who will service equipment at short notice to enable quick resumption of normal operations.

6.16 FLOODING

The Water Management Plan for the Project is included as Appendix E and provides greater detail on flood prevention and control measures and specifically addresses the requirements of the Development Consent. The key points relating to flood management including control strategies are included below.

The Development Consent requires the preparation of a detailed design for the flood mitigation bunds, their progressive construction around the perimeter of the new dredge pond, and a three-yearly review of their adequacy. This flood bund has been designed to exclude flood waters for events up to the 100 year ARI (incorporating climate change forecasts) including a 500mm buffer to allow for wind and wave run up. The detailed design for the flood mitigation bund is included as Annexure B of the Water Management Plan. Due to the nature of the site, the 100 year ARI level varies across the floodplain, with the required crest of the flood bund varying between 3.37 mAHD in the western parts of the site to 3.30 mAHD in the northernmost parts. A surface water diversion drain will also be constructed around the northwestern extent of the new dredge pond in later years to drain water from the hill once quarrying begins in this area.

To minimise the risk of flooding of adjoining properties, part of the existing dredge pond (the section northeast of the processing plant) will be returned to the flood plain. This will include the removal of a small section of flood bund from the existing dredge pond (shown as a red line in Figure 2 in the Water Management Plan) and the infilling and construction of a new flood bund spanning the narrowest part of the existing dredge pond (shown as a dark blue line in Figure 2 in the Water management Plan). The infill and bund construction near the processing plant will occur progressively over the early years of extraction from the new dredge pond as material becomes available, with the existing bund removed once the new bund has been developed to its design level.

The flood study for the Modification area identified that the "CP" area would need to be extracted separately from the remainder of the Modification area to prevent significant impacts to adjacent properties. To meet this aim, once extraction has been completed in the "CP" area, a flood bund will be constructed behind the advancing dredge pond (as shown spanning the northeastern finger in Figure 2 of the Water Management Plan). This northeastern area will be returned to the floodplain to ensure flooding of adjacent properties is not exacerbated as a result of dredging. There is some overlap in the "CP" and "South" areas to allow for the progressive dredging into the "South" area while construction of the flood bund within the "CP" area is carried out. Prior to the removal of any flood bunds, water quality monitoring will confirm that the water contained within the area to be returned meets the discharge criteria described in Section 6.4. The removal of flood bunds will not be undertaken during flood events, such that there will not be any surface water flows to or from the dredge pond as an immediate result of bund removal. Once the "CP" area has been returned to the floodplain, extraction of the remaining areas can proceed without exacerbating flooding on adjacent properties.

Flood bunds will be progressively constructed in the manner shown in Annexure A of the Water Management Plan, using the design shown in Annexure B of the Water Management Plan. Flood bunds will be constructed from either locally sourced material (such as topsoil treated as required under the ASSMP) or from VENM materials. Flood bunds will be surveyed following construction to confirm they have been constructed to the design level.

Cleary Bros will engage a hydrologist to review the flood model in 2025 and every three years thereafter. The purpose of this review will be to check the adequacy of the flood bunds using the most recent data available (hydrological, meteorological, climate). In the event the review identifies overtopping of the dredge pond in the 100 year ARI (incorporating climate change forecasts), the flood bund will be altered as required to ensure protection under the revised model.

6.16.1 Priorities

Should a major flood event occur external roads may be cut and the dredge pond may overflow to inundate the operational area. Under these circumstances actions will be prioritised in the following hierarchy:

- safety to personnel;
- securing and protecting plant and equipment;
- minimising pollution or other environmental damage;
- maintaining sand production.

6.16.2 Management Procedures

When flood conditions are expected:

- cease dredging and processing;
- check the flood bund for integrity and make any urgent repairs;
- cancel delivery of any fuel or external saleable products expected for the site;
- continue dispatch of saleable material to remove it from the site if possible;
- remove mobile machinery not required for emergency work, to higher ground. The elevated section of the access road where it forms part of the flood bund may be suitable for this purpose.

When the flood threatens:

- shut down and de-energise any electrical equipment likely to become inundated;
- move small items of office and other equipment (computers) to a safe height;
- close doors to the office to minimise floodwater entry;
- evacuate staff should a threatening situation develop or when directed to do so by the State Emergency Services;

As flood waters recede:

- test electrical circuits and re-energise when proven safe;
- return mobile plant and clean deposited debris from the roadway and operational area of the site;
- test internal flood water and if the pH of the water is between 6.0 and 8.5, or is closer to a neutral pH (pH 7) than surface water recorded at the flood gates on Blue Angle Creek, discharge from the site when the external level has dropped sufficiently;
- record details of water testing and the duration/quantity of discharge;
- wait for flood water to contract back into the dredge pond before resuming dredging and processing;
- do not recommence dredging and processing operations while discharging from either dredge pond;
- inspect the flood bund to assess need for any repairs ;
- restore any damage to the operational area and rehabilitation works as time permits.

6.17 BUSHFIRE

Remaining bushland on the site may be threatened by bushfire. In a major bushfire the office building, combustible liquids storage area and items of machinery will be at risk of being engulfed. The Rural Fire Service may request the company to use site machinery to assist in fire-fighting. Cleary Bros will assist the Rural Fire Service and/or other emergency services as much as reasonable possible in the event of a bushfire on site. All personnel should leave the site if ordered to do so by the police or Rural Fire Service.

6.17.1 Design Features

The following steps have been taken to minimise the risk of fire damage and ensure the site is suitably equipped to respond to fires on site:

- i. Fire-fighting equipment is stored at the site;
- ii. Extinguishers are kept on all mobile plant;
- iii. Staff are trained in fire procedures;
- iv. The fuel storage area complies with the requirements of AS1940, and as such has appropriate fire and hazard warning signs.

6.17.2 Management Procedures

Site work instructions include a fire management strategy. This will be reviewed from time to time to ensure the following matters are included:

- procedures to follow in the event of fire;
- equipment available on the premises;
- responsibilities of personnel;
- fire brigade contact details;
- weekly visual check and quarterly testing of equipment;
- signposting for flammable storage and fire-fighting equipment;
- staff training for fire emergencies.

In the event of a bushfire emergency on site the following actions will be taken:

- The person identifying the bushfire should immediately notify the Site Emergency Controller who will call 000-fire.
- The Site Emergency Controller takes control until Emergency Services arrives and will take the following measures as appropriate.
 - Arrange for a vehicle to be driven around the site to pick up workers and drive them back to the assembly area and evacuate the site if required.
 - Where appropriately trained and where doing so does not place the worker at unnecessary risk, hold back the fire from reaching fuel sources, plant, buildings or storage tanks using hand held extinguishing equipment and water cart.
 - Remove loose combustible materials from the fire path. Create a fire break with earthmoving equipment if safe to do so.
 - The Site Emergency Controller should notify any neighbours who may be downwind from the fire or otherwise affected. Where the neighbour is unable to be contacted by phone, attempts should be made to notify the neighbour(s) directly.
- When the Emergency Services arrive, the Site Emergency controller will hand control over to the officer in charge and brief them as to;

- Injured or trapped persons needing assistance
- Any flammable materials in close proximity to the fire
- Isolations and or draining of fuels carried out.
- Location of access tracks and available water supplies.

6.18 SECURITY

The following measures are in place to maintain security of the site and to ensure public safety:

- i. all personnel entering the site along the access road are required to report to the office;
- ii. vehicular access to the quarry from Beach Road is locked at times when the site is unattended;
- iii. a fence has been erected along the two road frontages of the site;
- iv. signs warning of the quarry excavation are displayed along the fence at 50 metre intervals.

6.19 VISUAL AMENITY

The visual impacts of the project will be minimised through the implementation of the following design measures:

- A tree screen is to be planted along the western boundary of the Modification 1 area (refer Section 4.1.6) to minimise views of the site from the Toolijooa Road area.
- The visibility of the site to motorists on the Crooked River Road and Beach Road are limited due to the presence of native vegetation which is to be retained under Voluntary Planning Agreement (refer Section 2.6) and the vegetated bund in the northern part of the existing dredge pond (refer Section 6.9.2).
- Operations on the site are not significantly visible from any other areas surrounding the project site.

Lighting to the site is minimised due to operational hours of the site (7am to 6pm), which limits any off-site impacts of any lighting. Where external lighting is used outside of these hours (such as security lighting), it will be installed in accordance with the requirements of *AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*.

No advertising signage will be displayed on the site without the approval of the DPE.

6.20 EMERGENCY RESPONSE

The emergency procedures for the site are included in Sections 6.12, 6.14, 6.16, and 6.17 for the following emergency scenarios that have been identified:

- Spills on Public Roads (Section 6.12);
- Chemical Spills (Section 6.14);
- Flooding and Severe Weather Events (Section 6.16); and
- Bushfire (Section 6.17).

In each instance the Quarry Production Manager will take the role of the Site Emergency Controller, with responsibilities of personnel as described for emergencies in Table 3-1. These procedures are included within the Pollution Incident Response Plan (PIRP), which has been prepared in accordance with the requirements of the *Protection of the Environment Operations (General) Regulation 2022*, and provides the detailed actions and notification pathways in the event of an incident which causes or threatens

material harm to the environment. A hard copy of the PIRP is maintained in the site office, and a reduced version is available on Cleary Bros website.

6.21 CUMULATIVE IMPACTS

The local area is comprised of a range of rural and rural residential landholdings, with agriculture the only other major industry. The Princes Highway and township of Gerroa are also close by, however noise and other impacts associated with these do not significantly impact the background levels at the site. Minor traffic on the Crooked River Road, and to a lesser extent on Berry Beach Road, are the primary contributors to the background noise environment. These impacts have been considered in the assessment of the cumulative impacts of the site, particularly related to traffic on local roads and associated road-noise impacts. Furthermore, these impacts have been relatively unchanged for many years, and as such characterise the background environment of the site.

The Gerroa Sand Resource is the only extractive industry in the locality and as such the implementation of the controls described in the QEMP will ensure the cumulative impacts of the extractive industry in the area are aligned with the requirements of the Development Consent, and will minimise the cumulative impacts of rural industries in the area to the environment and community.

7 COMPLAINTS MANAGEMENT

7.1 OVERVIEW

This complaints management system contains the following elements:

- advertised telephone number, postal address and email address for complaints;
- system for logging and investigating complaints;
- process for recording the outcome of investigations and action taken;
- feedback to complainants following investigation.

7.2 CONTACT DETAILS

7.2.1 Telephone Hot-line

The telephone number for emergency calls or for use by the public when making complaints is:

02 4275 1000

The number will be made known to the public by:

- i. publication on the Cleary Bros website;
- ii. inclusion on a sign at the property entrance; and
- iii. direct advice to councils, EPA and any persons who contact the company regarding a complaint by mail or using existing phone numbers.

The telephone number directs the caller to the Cleary Bros switchboard, where the caller will be transferred to the appropriate person to manage the caller's requests or concerns. Out of hours complaints will go to a message bank service which can be played back and the complainant contacted for further details.

7.2.2 Post and Email

Complaints may also be lodged to Cleary Bros by post or email as follows:

Gerroa Sand Complaints

Cleary Bros (Bombo) Pty Ltd

PO Box 210

PORT KEMBLA NSW 2505

email: info@clearybros.com.au

7.3 COMPLAINTS LOGGING

When a complaint is received by Cleary Bros, details will be recorded using the complaint management component of the Cleary Bros HSEQ Management System. Records of the complaints received will be available in the electronic database and may be inspected by representatives of the EPA or DPE.

7.4 COMPLAINTS INVESTIGATION

The following procedures will be followed whenever complaints are received:

- i. Every complaint is to be investigated as far as practicable, a response given to the complainant and a record created of the response.
- ii. The procedure for investigating complaints and responding is to be explained to the complainant at the time the complaint is recorded.
- iii. If the complaint is received by staff while an incident is claimed to be occurring, the location of the incident is to be visited, immediately if practicable, to verify and record details.
- iv. If the complaint is received after the incident when the grievance is no longer occurring, or if it is not practical to visit the location, the complainant is to be asked for more details.
- v. A record is to be made of the company's activities at the location of the incident during the period leading up to the time of the incident.
- vi. If the matter relates to air quality or noise, the wind strength and direction is to be obtained from the weather station data for the period of about one hour prior to the incident.
- vii. The complainant is to be contacted within two working days of the complaint being lodged to provide details of the investigations and other action taken in response to the complaint.
- viii. The Complaint Report is to be completed to summarise all actions taken to investigate the complaint including:
 - o time, date and location of incident;
 - o nature of the incident;
 - o name and address of complainant (if provided);
 - o name of the person conducting the investigation;
 - o activities at the location during the hour preceding the incident;
 - o average wind strength and direction during hour preceding a noise or dust incident;
 - o any observations as to the possible cause of the incident;
 - o proposed corrective action to rectify damage and/or prevent a recurrence;
 - o summary of information given to complainant in follow up call.
- ix. Anonymous complaints are to be recorded and investigated but in the absence of contact details, a response will usually not be possible.

Where the complainant advises they are not satisfied with Cleary Bros response, or believe the site is exceeding the impact assessment criteria within the Development Consent, Cleary Bros will suggest the complainant contact the DPE. Cleary Bros will provide the complainant with the contact details for the DPE in this instance, and Cleary Bros will follow the process outlined in Section 10.4.

8 ENVIRONMENTAL MONITORING PROGRAM

Monitoring will be carried out as required by the project approval and environment protection licence applying to the site (refer to appendices A and B). These documents require monitoring of meteorology, noise, air quality, surface water, groundwater, acid sulphate soils, rehabilitation, and vegetation management.

8.1 BOUNDARY MONITORING

- | | |
|--------------------------------------|---|
| Source | - Condition 19(c) in schedule 3 of the project approval requires a program to monitor that the defined boundary of the quarry extension area is maintained and not compromised during operations. |
| Frequency | - The boundary of the quarry extension including the boundary markers shall be inspected every three months. |
| Method | - The inspection shall be carried out either on foot or from a vehicle, where vehicular access adjacent to the boundary is possible. The survey plan of the approved extension area shall be the reference for boundary monitoring. |
| Performance targets | - The boundary must remain clearly marked at least at every change of direction and at intervals of not more than 50 metres where there are no changes of direction. Where boundary marking is indicated or supported by fencing, the fencing is to remain intact, as personnel may rely on the fence to indicate the limits of operation. There must be no evidence of any activity associated with sand quarry operations extending beyond the marked boundary and no threat of the boundary being breached by natural forces such as eroding batters. |
| Responsibility and corrective action | - The Production Manager is responsible for ensuring that the boundary is inspected and that any corrective action is taken. Such action may include replacing boundary markers that are lost or damaged, repairing fencing, attending to batter creep, repairing any damage beyond the boundary and/or reminding personnel of the need to confine activities to within the boundary. Corrective action should be taken whenever the Production Manager becomes aware of a boundary issue, rather than waiting for a programmed inspection. |
| Review and reporting | - The Production Manager will ensure that a written record is made to verify that the boundary inspection has taken place. The Environmental Officer will review monitoring information submitted from the quarry to confirm that boundary inspection is taking place. |

8.2 METEOROLOGICAL MONITORING

- | | |
|-----------|---|
| Source | - Condition 8 in schedule 3 of the project approval requires that meteorological monitoring be undertaken during the project. |
| Location | - The location of the weather station is shown on <i>Figure 8-1</i> . |
| Frequency | - The data are continuously recorded and averaged over one-hour intervals. |
| Method | - The site weather station was set up in 2003 to monitor temperature, wind and rainfall as detailed in <i>Table 8-1</i> . |

Table 8-1 Meteorological Monitoring Parameters

| Parameter | Units |
|-----------------------------|---------|
| Temperature at 2 metres | °C |
| Temperature at 10 metres | °C |
| Wind direction at 10 metres | degrees |
| Wind speed at 10 metres | m/s |
| Sigma theta at 10 metres | degrees |
| Rainfall | mm/hr |

- Performance targets - The weather station shall produce continuous records. Meteorological monitoring must satisfy the requirements in the *Approved Methods for Sampling Air Pollutants in New South Wales* publication.
- Responsibility and corrective action - The Environmental Officer is responsible for operation of the weather station, including downloading data and ensuring that data is continuous. Any malfunction of the weather station shall be rectified as soon as possible.
- Review and reporting - Meteorological data should be retained in the form of a digital file but shall be accessible on request from representatives of the EPA or the DPE. A summary of meteorological data collected at the site during the year shall appear in the Annual Review (refer to Section 9.3.1) together with progressive long term averages. Auditors should verify that data collection is ongoing and review any electronic failures to ensure corrective action has been taken.

8.3 NOISE MONITORING

- Source - The project approval requires preparation of a noise monitoring program for the project (schedule 3, condition 4). This section presents the noise monitoring program.
- Location - Noise monitoring locations are shown on *Figure 2-4* and are as follows:
 - 670 Beach Road;
 - 11 Bangarra Street; and
 - the Coralea property (as proxy for R4 Athelstane)
 - receivers R5 and R6 in Seven Mile Beach National Park; and
 - R3 Seven Mile Beach Holiday Park
- Frequency - Initial noise monitoring is to be undertaken within three months of the commencement of operations in the modification area. Subsequent noise monitoring will be undertaken annually during the winter months. Winter monitoring has been selected as this is the period which was identified as having the greatest likelihood of noise enhancing conditions.
- Method - Noise monitoring will be undertaken in accordance with the NSW EPA's Noise Policy for Industry (2017).
Operator attended measurements will be taken to quantify the maximum (L_{Amax}) and the average (L_{Aeq15min}) intrusive noise from site activities over a 15 minute measuring period. Measurements are to be taken during the daytime while the site is in normal operation.

All measurements will be made with acoustic instrumentation carrying current NATA or manufacturer calibration certificates. Instrument calibration will be checked before and after each measurement survey.

Noise measurements will be undertaken at the most affected point of the receptor boundary for residences, within the clearing at each recreational area, and at the southernmost boundary of the caravan park. Noise monitoring will be scheduled to target periods of calm conditions.

Where applicable the modification factors in Fact Sheet C of the Noise Policy for Industry will be applied to the measured noise level (these factors refer to noise that is tonal, impulsive, intermittent, irregular or with dominant low frequencies).

All noise measurements will be accompanied by qualitative and quantitative measurements of prevailing local weather conditions in line with Section B3 of the Noise Policy for Industry. The operator shall record any significant sand quarry generated noise sources and obtain the operating logs for quarry plant and equipment during the measurement period..

- Performance targets - The performance targets are fully described in section 6.2 of this QEMP. *Table 8-2* summarises the noise impact assessment criteria at the monitoring locations.

Table 8-2 Noise Impact Assessment Criteria at Monitoring Sites

| Location | $L_{Aeq(15 \text{ min})}$ dB(A) |
|--------------------------------|---------------------------------|
| 670 Beach Road | 41 |
| 11 Bangarra Street | 40 |
| Seven Mile Beach Holiday Park | 36 |
| Picnic Area 1 | 40 |
| Picnic Area 2 | 40 |
| Athelstane | 40 |
| Any other residential receiver | 40 |

8.4 AIR QUALITY MONITORING

- Source - The project approval requires preparation of an air quality monitoring program for the project (schedule 3, condition 7). This section presents the air quality monitoring program.
- Location - Dust monitoring gauges have been set up at the locations shown on *Figure 8-1*.
- Frequency - The contents of dust gauges are to be collected as near as possible to the same day each month and analysed for particulate matter.
- Method - The method to be used for dust sampling and analysis involves collection and analysis of insoluble solids as defined in Australian Standard AS 3580.10.1-2003 – Methods for Sampling and Analysis of Ambient Air – Determination of Particulates - Deposited Matter - Gravimetric Method. The monthly results are to be given in grams per square metre for averaging over a 12-month period.

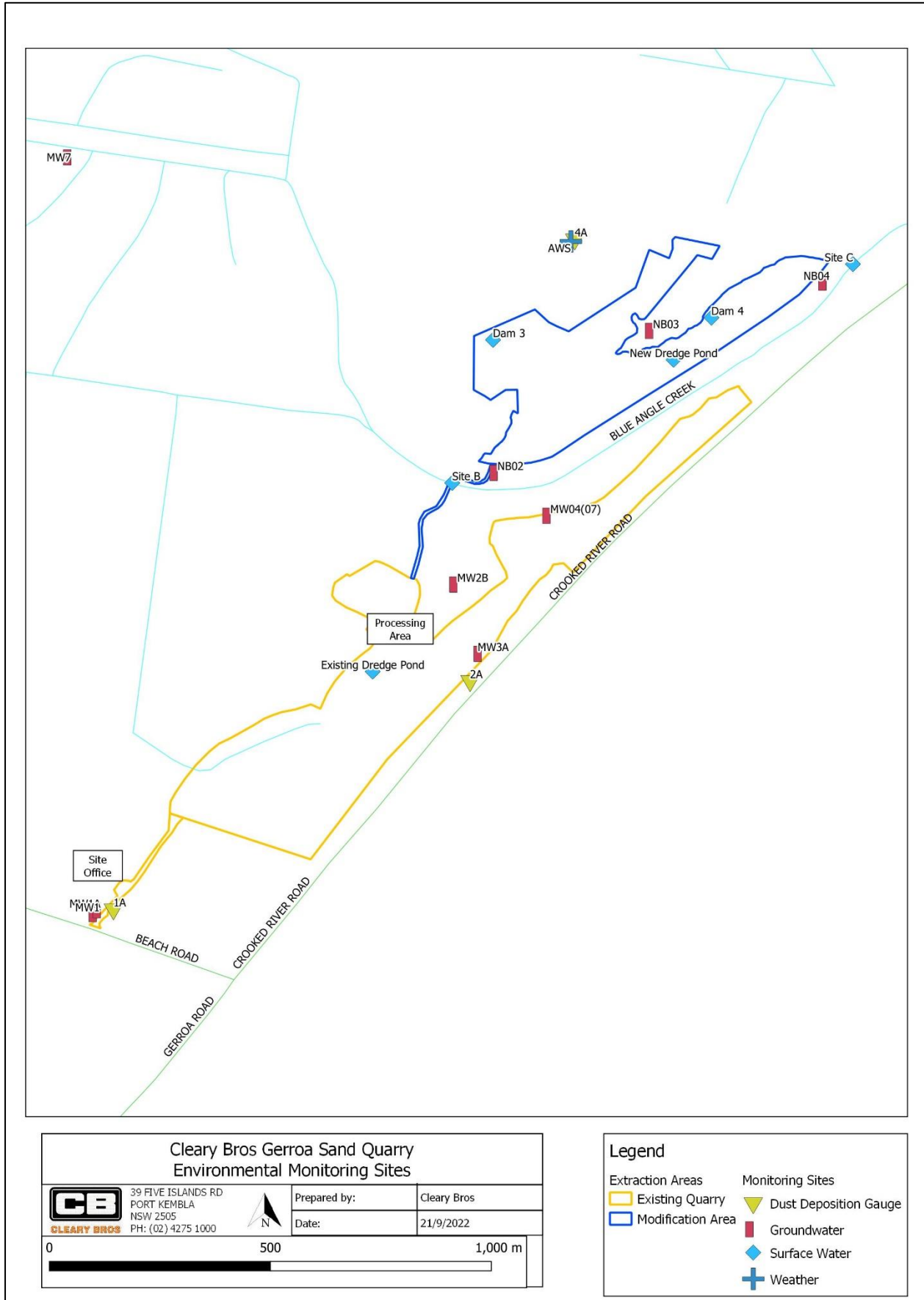


Figure 8-1 Location of Monitoring Devices

- Performance targets - The performance targets are fully described in section 6.3 of this QEMP. Numerical limits for dust deposition are reproduced in *Table 8-3*.

Table 8-3 Dust Deposition Limits

| Criterion | Limit |
|--|-------------------------|
| Maximum increase in deposited dust level | 2 g/m ² /mth |
| Maximum total deposited dust level | 4 g/m ² /mth |

The maximum dust deposition limit of 4 grams per square metre per month (annual average) applies at the nearest residence. In the absence of dispersion modelling, 4 g/m²/mth recorded at the dust collection gauges will be adopted as the trigger level for investigation.

8.5 SURFACE WATER MONITORING

The Water Management Plan (see *Appendix E*) has been prepared in accordance with the project approval (schedule 3, conditions 11 and 13). Monitoring requirements and target levels within the plan are summarised in the table below, along with action to be taken in response to meeting the trigger.

Table 8-4 Surface Water Monitoring Protocols

| Frequency | Site | What | Method | Objective |
|----------------------------------|--|---|--|---|
| Daily (during production) | Existing dredge pond | Water level, pH (surface), pH (at depth) | Fixed automatic monitoring station* | Objectives listed in 6.4.1 |
| | Modification dredge pond | Water level, pH (surface) | Fixed automatic monitoring station* | Objectives listed in 6.4.1 |
| | Blue Angle Creek above floodgates (Site C) | Water level, pH (surface) | Fixed automatic monitoring station* | Monitor only |
| Weekly | Leachate from sand stockpile | pH | Field measurement | 6.0 – 8.5 |
| Monthly | Existing dredge pond; Modification dredge pond; Site B, Site C, Rejects pipeline | pH, EC, DO, turbidity, temperature, alkalinity, acidity, dissolved metals | Field or grab sample and analysis at a NATA certified lab, on the same day that groundwater bores are sampled. | Refer to Table 8-6 |
| | Sand stockpile | Sulphur content (TOS) | Grab sample and analysis at a NATA certified lab | <= 0.03% |
| Quarterly | Modification dredge pond | Bank and bed monitoring; flood bund monitoring; erosion and sediment control monitoring | Foreshores, batters, and flood bunds around the full perimeter of the working area are to be inspected for evidence of instability, as well as the adequacy of | No significant soil instability or erosion. ESCP controls in place as per plan. |

| Frequency | Site | What | Method | Objective |
|---|--|--|--|--|
| | | | the current sediment and erosion controls | |
| | Existing dredge pond; Modification dredge pond | List of analytes in Section 6.4.1 (in addition to monthly suite) | Field or grab sample and analysis at a NATA certified lab, on the same day that bores are sampled. | Objectives listed in 6.4.1 |
| Following construction of each section of flood bund | Modification dredge pond | Crest of flood bund | Survey | Flood bund conforms to heights described in Figure 2-3 |
| During any discharge from a dredge pond | Relevant dredge pond | pH, turbidity | Field measurement | pH: 6.0 – 8.5 Turbidity ≤ 20 |

* in the event of a failure of the fixed automatic monitoring station, measurements will be manually recorded daily when dredging is undertaken, or weekly if not dredging.

Should the results indicate a significantly deteriorating trend in surface water quality, the Production Manager will seek advice from a suitable professional as to the likely cause, either natural or related to the sand extraction operation. If the deterioration is related to operations, the DPE will be informed, and advice of appropriate corrective action will be sought for implementation.

If significant soil instability or erosion is apparent in the foreshores or batters, the Production Manager shall arrange for corrective action to be implemented. This will involve repairing any damage that has occurred and installing preventive measures in accordance with the erosion and sediment control plan (see *Appendix E*).

8.6 GROUNDWATER MONITORING

The project approval requires preparation of a groundwater monitoring program for the project (schedule 3, conditions 11 and 14). Monitoring requirements and target levels within the plan are summarised in the table below, along with action to be taken in response to meeting the trigger.

Table 8-5 Groundwater Monitoring Protocols

| Frequency | Site | What | Method | Objective |
|--|--|--|---|--|
| Monthly (on same day as dredge pond monitoring) | MW1, MW1A, MW2B, MW3A, MW04(07), NB02, NB03, NB04, MW7 | Water level | Dip meter | Not move outside the range of two standard deviations from its mean level for more than six months, except when following a trend attributable to climatic effects, as evident in other monitoring bores |
| Quarterly (on same day as dredge pond monitoring) | MW1, MW1A, MW2B, MW3A, MW04(07), NB02, NB03, NB04, MW7 | List of groundwater analytes in Section 6.4.1, acidity, dissolved metals | Field or grab sample and analysis at a NATA certified lab | Objectives in Section 6.4.1 and Table 8-6 |

| Frequency | Site | What | Method | Objective |
|--|--------------------------|---|--|---|
| Annual | Swamp Sclerophyll Forest | Ecosystem health | Assessment by ecologist | No discernible deterioration of ecosystems or vegetation, attributable to measured changes in groundwater levels or quality |
| Following emplacement of imported material for batter construction | Dredge pond batter | Hydraulic conductivity of emplaced material | Field Permeability at 20m intervals by geotechnician | Field permeability not more than one order of magnitude less than the corresponding background site |

In the event that the water level in any bore lies outside the range of two standard deviations from the mean (of that bore) for more than 6 months and does not follow a trend that can be attributed to climatic events as evident in other monitoring bores, dredging and processing activities will stop and a hydrogeologist engaged to investigate as follows:

- Temporary bores or spears will be installed in the vicinity of the affected bore (based on the advice of the hydrogeologist) to identify the size and distribution of any anomaly.
- The hydrogeologist will assess the significance of the variance from the expected groundwater behaviour
- If the hydrogeologist considers that the variance is significant and is likely to adversely impact the Swamp Sclerophyll Forest community, they will recommend an appropriate remedial action plan. This plan may include the adjustment to the placement strategy for panels of high hydraulic conductivity material or other strategy based on the particular case. The remedial action plan will be submitted to the DPE for approval, and once approved, implemented on the site.

Should any other groundwater impacts be identified as a result of the groundwater monitoring program, the matter will be referred to a hydrogeologist for advice prior to implementing measures to mitigate, remediate and/or compensate for those impacts, as may be appropriate.

8.7 ACID SULPHATE MONITORING

The Acid Sulphate Soils Management Plan (see *Appendix E – Water Management Plan*) has been prepared in accordance with the project approval (schedule 3, condition 15). Monitoring requirements and target levels within the plan are summarised in Table 8-6, along with action to be taken in response to meeting the trigger.

Table 8-6 Acid Sulphate Soil Monitoring Protocols

| Monitoring Site | Frequency | Parameter | Acceptable Level | Trigger Response |
|---|-------------------------------|--|----------------------------------|---|
| Existing dredge pond New dredge pond | Continuous (minimum daily) | pH | ≥ 6.5 | Confirm result using hand-held probe undertake monthly testing suite |
| Existing dredge pond New dredge pond Site B Site C Rejects Pipeline | Monthly | pH | ≥ 6.5 | Confirm result and implement contingency measures |
| | | Dissolved oxygen | ≥ 3mg/L; and ≥ 50% saturation | |
| | | Total alkalinity, Total acidity | Positive net acidity | |
| | | Dissolved metals (Al, As, B, Ba, Be, Cd, Cr, | See Section 10 of WMP | |

| Monitoring Site | Frequency | Parameter | Acceptable Level | Trigger Response |
|--|-----------|--|--------------------------|--|
| | | Co, Cu, Mn, Ni, Pb, Se, V, Zn, Hg, Fe) | | |
| | | Turbidity, EC, Temperature | Monitor only | N/A |
| MW1 MW1A MW2B MW3A MW04(07) MW7 NB02 NB03 NB04 | Quarterly | pH EC Major ions (Ca, Mg, Na, K, SO ₄ , Cl) Total Alkalinity Total Acidity Dissolved metals (Al, As, B, Ba, Be, Cd, Cr, Co, Cu, Mn, Ni, Pb, Se, V, Zn, Hg, Fe) | See Section 10 of WMP | Confirm result and implement contingency measures |

In the event any monitoring results are outside of the acceptable levels, the relevant monitoring point will be re-sampled to confirm the result. In the event the re-sample returns a result that does not trigger the action criteria, no additional action will be undertaken. Where re-sampling confirms the action criteria have been triggered, Cleary Bros will implement the following:

- Stop dredging and processing activities
- Consult with a suitable environmental consultant, and implement one or more of the following depending on the nature of the exceedance (such as the relevance of the trigger to acid sulphate soil development) and the risk to the receiving environment:
 - Where the trigger relates to the existing dredge pond or nearby groundwater bores, consider in-line lime dosing of the rejects pipeline at 40g/L (may be adjusted based on testing).
 - Where the trigger relates to the new dredge pond or associated surface water monitoring sites, consider in-line lime dosing of the return water pipeline to achieve an alkalinity >60 mg/L.
 - Where the trigger relates to groundwater, consider the contingency measures described in Table 5-8 of the ASSMP.
- Review the adequacy of the ASSMP and update management strategies as appropriate.

Dredging and processing activities will recommence once either the appropriate contingency measure(s) has been implemented or further sampling demonstrates conformance with the action criteria.

8.8 REHABILITATION AND VEGETATION MONITORING

- Source - The Landscape and Rehabilitation Management Plan (see *Appendix D*) has been prepared in accordance with the project approval (schedule 3, conditions 21, 21A and 22). Monitoring requirements within the plan are detailed below.
- Location - Monitoring is to include all planted areas and conserved vegetation within the project site and the Conservation Area shown in Figure 1-1.

Frequency - Cleary Bros staff and/or contractors involved in managing the vegetation and rehabilitation works will monitor the relevant areas on a day to day basis as part of normal work. All areas subject to planting or conservation are to be inspected at least once every three months to assess progress and determine if remedial works are required.

A qualified ecologist will monitor the entire area annually.

Method - Day to day monitoring by Cleary Bros staff and/or contractors will involve inspection on an opportunistic basis associated with landscape management work, with the proviso that all areas are visited over a period of three months.

Monitoring by an ecologist is to include specific measures for the various forest types as described in the Landscape and Rehabilitation Management Plan (Appendix F). Such measures include:

- permanent plots and/or transects in retained forest;
- weed surveys including areas where weed control has been undertaken;
- general fauna observations;
- general observations on the condition of the forest and forest edges;
- photographic history of critical elements;
- permanent fauna sample sites and/or timed transects in revegetation zones;
- feral animal surveys.

Performance targets - General performance targets for landscape and rehabilitation management are set out in section 8.3 of the LRMP under several categories and are summarised in *Table 8-7* below.

Table 8-7 Landscape and Rehabilitation Targets

| Area of Monitoring | Performance Target |
|--|--|
| Existing forest within the Conservation Area | <ul style="list-style-type: none"> • no incursion of quarry activities or effect from quarry clearing; • no obvious negative impact on forest (die back, weed invasion, major species change); • weed growth reduced over time and not negatively impacting on habitat; • fauna use not diminished and populations being maintained. |
| Revegetation areas | <ul style="list-style-type: none"> • majority of plantings, or their replacements, have survived; • natural regeneration is occurring, including through manually spread seeds; • plant diversity is increasing over time; • use by native animals is increasing; • succession to second generation plants is occurring. |
| Fauna populations | <ul style="list-style-type: none"> • habitat features have been created and are being used by fauna; • natural regeneration is increasing habitat complexity; • fauna species diversity is increasing over time; • use of the habitat by fauna is increasing over time. |
| Weed control | <ul style="list-style-type: none"> • key weeds are reduced in extent and abundance and are moving towards being eliminated from the site; • weeds are not significantly hindering natural regeneration; • noxious weeds are adequately controlled on the land. |
| Feral animals | <ul style="list-style-type: none"> • feral animals are not having a detrimental effect upon the forest or revegetation areas; |

- rabbits, foxes and feral cats are controlled on the land.

The project approval includes specific performance targets to be met before the northern corridor would be considered “successful” and before the east-west link could be approved for severance (schedule 3 conditions 23 to 25). These prerequisites are included in *Table 8-8* below and have now been met.

Table 8-8 Prerequisites for Severing the East-West Link

| Requirement | Criteria |
|---|--|
| Successful establishment of the Northern Corridor | <ul style="list-style-type: none"> a) presence of native flora species; b) a majority of the flora species recorded from the removed forest occur in the area; (e.g. 60% of flora species recorded in removed forest are present); c) species from all four layers have been planted and at least 50% of the projected cover has been achieved for each of the shrub and ground cover layers; d) self-sustaining native plant populations (e.g regeneration of a second generation); e) no dominance by single flora species (e.g Bracken); f) weeds are not significantly impacting on the native vegetation; g) weeds do not represent a majority of the flora species or a higher percentage cover than the native flora species; and h) impacts such as grazing are excluded from the area. |
| Successful establishment of fauna habitat in the Northern Corridor | <ul style="list-style-type: none"> a) presence of species; b) a majority of the resident species recorded from the removed forest occur in the area; c) fauna populations are resident in the area; d) pest animals are controlled and not impacting upon the fauna or its habitat; and e) impacts such as grazing are excluded from the area. |
| Verification that the Northern Corridor is functional as a replacement corridor between the Conservation Area and the National Park | <ul style="list-style-type: none"> a) determine the presence of species in both the east- west link and northern corridor by conducting standard animal survey techniques at least twice in the first year (eg. Eliot trapping for small mammals, pitfall trapping for reptiles, observational surveys for frogs and birds, and spotlighting transects for arboreal animals); b) determine whether a majority of animal species (particularly those determined to be likely to be impacted by fragmentation) utilising the corridor in the east-west link are present in the conservation area and the northern corridor and the re-created link at the northern boundary; and c) conduct genetic analysis for a number of key species for whom genetic markers have already been developed (e.g. Brown Antechinus, Bush Rat and at least two skink species) to establish that genetic relatedness exists between individuals within the two corridors, the Conservation Area and National Park). |

If genetic relatedness exists between individuals in the northern corridor, Conservation Area and the National Park, but not in the east-west link, then this demonstrates that the east-west link is not functional, but the northern corridor is and therefore, the east-west link can be severed without creating additional fragmentation to animal populations.

If genetic relatedness exists between individuals in the Conservation Area, the east-west link and the National Park, but not the northern corridor, then this demonstrates that the northern corridor is not

functional and the east-west link cannot be severed until there is compliance with Conditions 23 and 24.

Responsibility and corrective action - Corrective action shall be implemented where the Production Manager considers it necessary to maintain adequate progress towards the achieving the key objectives for Retained Forest and Planted areas in sections 5 and 6 of the Landscape and Rehabilitation Management Plan.

The Production Manager is responsible for implementing corrective action where this is required to rectify matters revealed in the ecologist’s report.

The Environmental Officer will arrange for the ecologist to examine the site annually and prepare a detailed report.

Review and reporting - The Production Manager shall review progress of rehabilitation and vegetation management work at least once every three months. This review function involves regular discussion with staff and/or contractors undertaking the work and personal inspection of all areas subject to planting or conservation at least quarterly.

The Environmental Officer will review the report submitted by the ecologist engaged to undertake annual monitoring of implementation of the Landscape and Rehabilitation Management Plan and advise the Production Manager of any recommendations requiring corrective action.

The Environmental Officer will ensure that all landscape monitoring results and reports and details of any corrective action are forwarded to the CCC, included in the Annual Review and available for inspection by environmental auditors.

8.9 WATER TAKE MONITORING

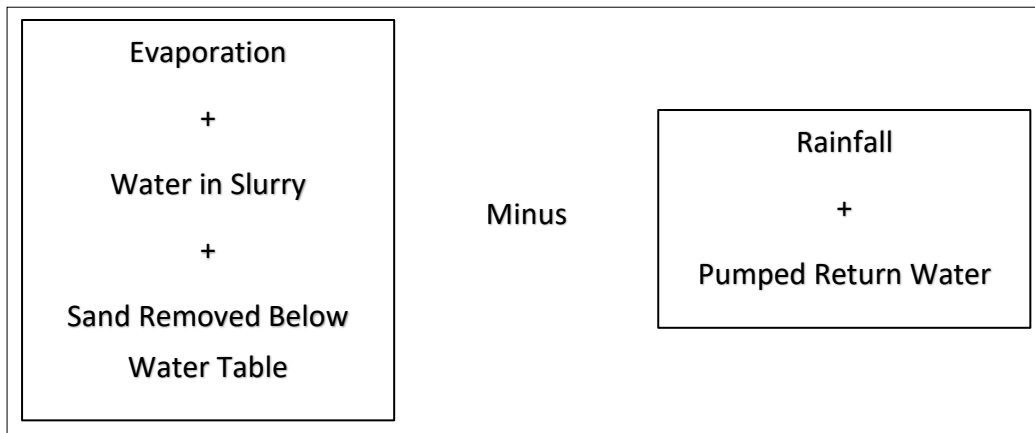
The methods for monitoring water take associated with WAL43272 are listed in Table 8-9.

Table 8-9 Water take monitoring protocols

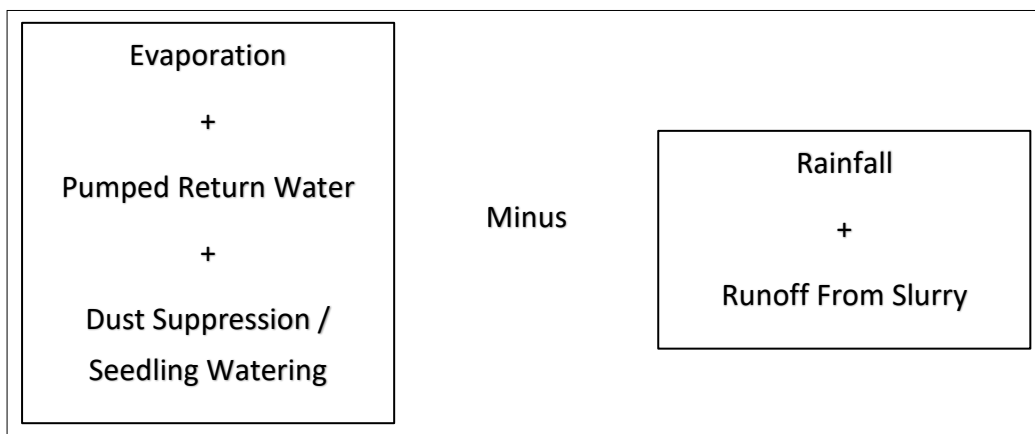
| Process | Rationale | Method | Frequency |
|---------------------------------------|---|---|---|
| Rainfall | Measurement of rainfall inflows to dredge ponds | Site weather station or SILO data in the event of any data loss | Aggregated annually |
| Evaporation | Measurement of evaporation losses from dredge ponds | SILO data for period of Morton evaporation over shallow lakes | Aggregated annually |
| Water in Slurry | Water used to transport sand slurry to processing plant | Flow meter at outlet of dredge; corrected for density | Recorded daily |
| Sand removed below water table | Void space created below water table. | Site production recorded from weighbridge converted to volume, and corrected for current groundwater level below surface of current extraction area | Aggregated monthly and corrected annually |
| Sand sales | Water entrained in sand exported from site | Site production recorded from weighbridge, corrected monthly for moisture based on dried measurements | Recorded daily and adjusted for sand moisture |

| Process | Rationale | Method | Frequency |
|----------------------------|---|--|--------------------|
| Pumped return water | To transfer the water pumped in the sand slurry back to the new dredge pond | Water meter record on pump | Recorded monthly |
| Runoff from slurry | Water which was used to pump sand, and drains to the existing dredge pond | Calculated by subtracting Water Entrained in Sand (Sales) from Water in Slurry | Calculated monthly |
| Dust suppression | Water used for suppressing dust on haul roads | Water meter record on pump / standpipe | Recorded monthly |
| Seedling watering | Water used for watering establishing seedlings in revegetation | Water meter record on pump / standpipe | Recorded monthly |

Water take associated with groundwater inflows to the new dredge pond will be calculated annually as follows:



Water take associated with groundwater inflows to the existing dredge pond will be calculated annually as follows:



9 AUDITING AND REPORTING

9.1 INDEPENDENT ENVIRONMENTAL AUDIT

(Schedule 5, condition 5, 6 and 7)

Independent environmental audits shall be carried out every third year from 2010. Independent Environmental Audits will be undertaken in accordance with Schedule 5 Condition 5 of the Consent. The name of the nominated auditor must be submitted to the DPE for approval prior to the audit commencing. Should a different auditor be proposed for any subsequent audit, the name must again be submitted for approval. The auditor must have expertise in flora and fauna assessment as well as quarry rehabilitation.

The audit is to include the following actions:

- include consultation with the EPA, BCD, DPE Water, KMC and SCC;
- assess the environmental performance of the quarry and its effects on the surrounding environment;
- assess whether the quarry is complying with the relevant standards, performance measures, and statutory requirements;
- review the adequacy of this Quarry Environmental Management Plan and any other strategy/plan/program required under the Development Consent; and, if necessary,
- recommend measures or actions to improve the environmental performance of the quarry, and/or this QEMP and its inclusions.

An audit report is to be prepared and submitted to the DPE, EPA, BCD, DPE Water, KMC, SCC and the CCC representatives within one month of completing the audit. The submission is to contain the company's response to any recommendations contained in the audit report.

Within three months of submitting an environmental audit report to the DPE the following aspects of this QEMP shall be reviewed and if necessary, revised and re-issued:

- Noise Monitoring Program;
- Air Quality Monitoring Program;
- Erosion And Sediment Control Plan;
- Surface Water Monitoring Program;
- Groundwater Monitoring Program;
- Acid Sulfate Soils Management Plan;
- Landscape and Rehabilitation Management Plan;
- Long Term Management Strategy;
- Aboriginal Cultural Heritage Management Plan;
- Environmental Management Plan;
- Environmental Monitoring Program.

Any amendment to the QEMP must be approved by the DPE. The sum of the Landscape and Rehabilitation Bond will also be reviewed at this time as described in Section 6.9.4.

9.2 EXTRACTIVE RETURNS

Production data for each 12 month reporting period will be reported to the Mining and Exploration Group of the NSW Government annually in line with their designated reporting methodology. A copy of this report will be included in the following years Annual Review.

9.3 REPORTING

9.3.1 Annual Review

Each year on or before the anniversary of the project approval (2 September) an Annual Review shall be prepared and submitted to the DPE. The Annual Review will also be made available to other stakeholders, including the EPA, KMC, SCC and the CCC.

The Annual Review will cover the year of 1 July to 30 June, and is to respond to the following requirements (schedule 5, condition 4):

- i. describe the activities associated with the project (including rehabilitation) that was carried out in the previous year, and the activities that are proposed to be carried out over the current year;
- ii. include a comprehensive review of the monitoring results and complaints records of the project over the previous year, which includes a comparison of these results against:
 - a. the relevant statutory requirements, limits or performance measures/criteria;
 - b. requirements of any plan or program required under this approval;
 - c. the monitoring results of previous years; and
 - d. the relevant predictions in the environmental assessments for the project;
- iii. identify any non-compliance or incident which occurred in the previous year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid recurrence;
- iv. evaluate and report on:
 - a. the effectiveness of the acid sulphate soils, noise amenity and water quality management and mitigation; and
 - b. compliance with the performance measures, criteria and operating conditions of this approval;
- v. identify any trends in the monitoring data over the life of the project;
- vi. identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
- vii. describe what measures will be implemented over the current financial year to improve the environmental performance of the project.

The Annual Review will also cover any other specific matters referenced in the supporting sub-plans included in the appendices to this QEMP.

9.3.2 Incident and Non-Compliance Notification

In the event of an environmental incident which causes or threatens to cause material harm, the Environmental Officer on becoming aware of the incident will immediately notify the DPE of the nature of the incident using the incident reporting form on the Major Projects portal. The Environmental Officer will also notify other relevant agencies as appropriate, such as in accordance with the Pollution Incident Report Plan.

In the event of any non-compliance with the conditions of the Development Consent (and which has not already been reported as an incident), the Environmental Officer will notify the DPE of the non-compliance within 7 days of becoming aware of the non-compliance using the incident reporting form on the Major Projects portal. The notification will include condition of the Development Consent that the quarry is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

9.3.3 Regular Reporting and Access to Information

Cleary Bros will maintain a summary of the results of all monitoring on the environmental performance of the Project on their website (www.clearybros.com.au), which will be updated on a regular basis (at least every 3 months). Monitoring results will generally be maintained on the website for a period of 3 years. Other information that will be made available on the website include:

- Development Consent, Environmental Protection Licence, and Environmental Management Plans
- Environmental Assessments
- Annual Reviews
- Independent Environmental Audits
- Community Consultative Committee minutes
- Complaints Register

Within one month of the approval of any management plans required under the Development Consent, a copy or link to the plan will be provided to the CCC and any relevant government agency for that management plan.

10 COMMUNITY ENGAGEMENT

10.1 COMMUNITY CONSULTATIVE COMMITTEE

10.1.1 Purpose

The purpose of the community consultative committee (CCC) is to review and provide advice regarding the environmental performance of the quarry. In particular the committee has the following functions:

- review environmental management of the quarry and community relations;
- undertake regular inspections of quarry operations;
- review community concerns or complaints about quarry operations and the complaints handling procedures;
- provide advice as follows:
 - to Cleary Bros on improved environmental management and community relations, including provision of information to the community and identification of community initiatives to which Cleary Bros could contribute;
 - to the DPE regarding conditions of the project approval; and
 - to the general community on performance of the quarry with respect to environmental management and community relations.

10.1.2 Membership

The committee membership is as follows:

- two Cleary Bros representatives, one of whom is the Environmental Officer;
- one representative from KMC (if available);
- one representative from SCC (if available);
- one representative of the Gerroa Environment Protection Society (if available);
- at least two representatives from the local community; and
- an independent chairperson.

The project approval requires appointment of all members, including any replacements for members who resign, to be approved by the DPE. In practical terms this would apply to community representatives and the chairperson as organisations such as the councils and Cleary Bros may substitute staff from time to time. It is the responsibility of Cleary Bros to establish the committee, invite membership including any replacement or additional members and obtain the DPE's approval for the nominees.

The membership of the committee should be reviewed on a regular basis, approximately every three years. If possible an alternate member should be appointed (and approved) for each of the local community representatives.

10.1.3 Meetings

The CCC meets at least twice per year, including one meeting to be held shortly after the Annual Review is submitted to the CCC members. Cleary Bros has the following responsibilities with respect to committee meetings:

- provide the venue and secretarial support to produce agendas and minutes;
- ensure that two company representatives attend each meeting;

- arrange site inspections when warranted;
- provide regular information to the CCC on the performance of the sand quarry including a copy of the Annual Review when it is submitted to the DPIE;
- respond to advice or recommendations from the committee regarding environmental management or community relations; and
- forward to the DPE a copy of the minutes of each meeting and display a copy of the minutes on the company's web site.

10.2 COMMUNITY INFORMATION

The following information regarding the quarry is to be made available to the community:

- this QEMP and any plan, strategy or program required under the project approval which has been produced as a separate document and approved by the DPE;
- any revision to the above documents;
- reports from independent audits;
- each Annual Review;
- a summary of the results of all monitoring required under the project approval, updated at least every three months;

The above documents are to be made available within one month of approval, or where approval is not required, within one month of being created. The means of making the material available is as follows:

- provide a copy to the CCC;
- provide a copy to EPA, KMC and SCC;
- make a copy available for inspection by the public at the quarry;
- place a copy on the web site for the quarry.

10.3 NOTIFICATION OF LANDOWNERS

Should the results of monitoring indicate that performance criteria (for example noise limits) specified in the project approval are being exceeded, notification shall be given to any affected landowner and/or tenant and the DPE also notified as described in Section 9.3.2. The notification shall include copies of monitoring results showing the exceedance. Further quarterly monitoring results shall be given to the landowners/tenants until the results show that the project is achieving compliance.

10.4 INDEPENDENT REVIEW AND DISPUTE RESOLUTION

The DPE may initiate the independent review process after considering a written request from a landowner. This would occur if the landowner believed that the performance goals specified in the development consent and reproduced in Section 6 of this QEMP were being exceeded.

If requested by the DPE, within three months Cleary Bros is to consult with the landowner, commission an independent review and submit the outcome to the DPE and the landowner. The review is to be conducted by an independent expert approved by the DPE. The expert is to conduct monitoring to determine if the performance criteria are being met and if not, the source of the exceedance. Having regard to the possibility of cumulative impacts from more than one source, the expert is also required to ascertain the contribution from Cleary Bros' quarry to the exceedance.

If the criteria are found not to be exceeded the independent review can be discontinued with the approval of the DPE. If exceedance is confirmed then Cleary Bros is to take all practicable measures to bring the quarry into compliance and conduct further monitoring to confirm that this has been achieved or enter a written agreement with the landowner allowing the exceedance to continue to the satisfaction of the DPE. If agreement cannot be reached either party may refer the matter to the DPE for resolution.

Should the DPE be unable to resolve a dispute within 21 days then the DPE is to refer the matter to an independent dispute resolution process for which an indicative outline appears in Appendix 9 of the project approval.

11 APPENDICES

Appendix A

2008 PROJECT APPROVAL

**In the Land and
Environment Court
of New South Wales**

No. 10801 of 2007

**Gerroa Environmental
Protection Society**
Applicant

Minister for Planning
First Respondent

Cleary Bros (Bombo) Pty Ltd
Second Respondent

Order

The Court makes the following orders:

1. The appeal is upheld.
2. Approval is granted to application 05/0099 for extraction and processing operations on land comprising Lot A DP 185785 and part of the land in Certificate of Title Vol 5841 Folio 139 subject to the conditions in Annexure A.
3. Exhibits may be returned.

Ordered: 2 September 2008

By the Court


Susan Dixon

Registrar



**IN THE LAND AND ENVIRONMENT COURT OF
NEW SOUTH WALES**

No. 10801 of 2007

GERROA ENVIRONMENT PROTECTION SOCIETY INC
Applicant

MINISTER FOR PLANNING
First Respondent

CLEARY BROS (BOMBO) PTY LTD
Second Respondent

**CONSOLIDATED
CONDITIONS OF APPROVAL**

25 August 2008

Modification 1 in blue

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DEFINITIONS

| | |
|--------------------------------------|--|
| Aboriginal object / Aboriginal place | Has the same meaning as the definition in section 5 of the <i>National Parks and Wildlife Act 1974</i> |
| AEP | Annual exceedance probability |
| Annual Review | Annual Review as required under condition 4 of Schedule 5 of this approval |
| BCD | Biodiversity Conservation and Sciences Directorate, within Environment and Heritage |
| CCC | Community Consultative Committee |
| Compensatory Planting | The Compensatory Planting marked 2A.1, 2A.2, 2A.3, 2B.1, 2B.2, 2C.1, 2C.2, 2D, 2E, 5C.1 on the figure in Appendix 3 |
| Conditions of this approval | Conditions contained in Schedules 2 to 5 |
| Conservation Area | The Vegetation Conservation Area shown in the figure in Appendix 4 |
| Construction | All physical works to enable quarrying operations to be carried out, including demolition and removal of buildings or works, and erection of buildings, structures and other infrastructure permitted by this approval |
| Department | Department of Planning and Environment |
| DPI-Fisheries | Fisheries Branch of the NSW Department of Primary Industries |
| DPE Water | The water group within the Department |
| EA | Environmental Assessment for the project titled <i>Gerroa Sand Quarry Proposed Extension Environmental Assessment Volumes 1 and 2</i> , prepared by Perram & Partners and dated October 2006; as modified by: <ul style="list-style-type: none">• Environmental Assessment for Modification 1 titled <i>Gerroa Sand Quarry Gerroa Sand Quarry Modification</i> prepared by Cardno and dated May 2018, including the Proponent's Response to Submissions and additional information provided by the Proponent dated 14 December 2018, 16 August 2019, 29 November 2019, 31 January 2020, 23 November 2020 and 12 February 2021 |
| East-West Link | Area shown cross-hatched on the figure in Appendix 3 |
| EMP | Environmental Management Plan |
| Environment | Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings |
| EPA | NSW Environment Protection Authority |
| EP&A Act | <i>Environmental Planning and Assessment Act 1979</i> |
| EP&A Regulation | <i>Environmental Planning and Assessment Regulation 2000</i> |
| EPL | Environment Protection Licence issued under the <i>Protection of the Environment Operations Act 1997</i> |
| Extraction and processing operations | The extraction, processing, stockpiling and transportation of extractive materials carried out on the site and the associated removal of vegetation, topsoil and overburden |
| Extraction Area | The extraction area as shown in the figures in Appendix 1 and confirmed by conditions 1 and 1A of Schedule 3 |
| Feasible | Means what is possible and practical in the circumstances |
| Heritage Item | An Aboriginal object, an Aboriginal place, or a place, building, work, relic, moveable object, tree or precinct of heritage significance, that is listed under any of the following: <ul style="list-style-type: none">• the <i>National Parks and Wildlife Act 1974</i>;• the State Heritage Register under the <i>Heritage Act 1977</i>;• a state agency heritage and conservation register under section 170 of the <i>Heritage Act 1977</i>;• a Local Environmental Plan under the EP&A Act;• the World Heritage List;• the National Heritage List or Commonwealth Heritage List under the EPBC Act; or• anything identified as a heritage item under the conditions of this approval. |
| Heritage NSW | Heritage NSW within the Department |
| Incident | An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance |
| KMC | Kiama Municipal Council |

| | |
|--|---|
| Land | Land means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval |
| Landscape and Rehabilitation Management Plan | The Plan approved by the Planning Secretary under condition 21 |
| Material harm | Is harm to the environment that: <ul style="list-style-type: none"> • involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial; or • results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment) This definition excludes “harm” that is authorised under either this approval or any other statutory approval |
| MEG | Regional NSW - Mining, Exploration and Geoscience |
| Minimise | Implement all reasonable and feasible mitigation measures to reduce the impacts of the project |
| Minister | Minister for Planning or delegate |
| Modification 1 – Extraction Area | The new extraction area approved by Modification 1 and shown in Appendix 1 (Figure 2) and confirmed by condition 1 and 1A of Schedule 3 . |
| National Park | Seven Mile Beach National Park |
| Non-compliance | An occurrence, set of circumstances or development that is a breach of this approval |
| Northern Corridor | Area shown stippled on the figure in Appendix 3 |
| Planning Secretary | Secretary of the Department, or nominee |
| POEO Act | Protection of the Environment Operations Act 1997 |
| Privately owned land | Land not owned by a public agency or the Proponent or its related companies |
| Project | The extension and continued operation of the Gerroa Sand Quarry as described in the EA |
| Project Area | As defined in Vegetation Management Area and Site Plan shown in the figures in Appendix 1 including the Modification 1 – Extraction Area |
| Proponent | Cleary Bros (Bombo) Pty Ltd, or its successors |
| Reasonable | Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements |
| Registered Aboriginal Parties | Means the Registered Aboriginal Parties for the project who were determined in accordance with the National Parks and Wildlife Regulation 2019 |
| Rehabilitation | The restoration of land disturbed by the project to a good condition, to ensure it is safe, stable and non-polluting |
| Relevant Agencies | DPE Water, EPA, BCD, SCC and KMC |
| Residence | Existing or approved dwelling at the date of grant of this approval |
| SCC | Shoalhaven City Council |
| Site | Land to which the project application applies |
| SSF | Swamp Sclerophyll Forest vegetation |
| Statement of Commitments | The commitments in Appendix 2 |
| Southern Rehabilitation Area | Zones 1.2, 1.3 and 2A.2 on the figure in Appendix 3 |
| TfNSW | Transport for NSW |

SCHEDULE 2 ADMINISTRATIVE

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all practicable measures to prevent or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

Terms of Approval

2. The Proponent shall carry out the project in accordance with the:
 - (a) EA;
 - (b) Statement of Commitments; and
 - (c) conditions of this approval.

Note: The layout of the project is shown in the figure in Appendix 1.

3. If there is any inconsistency between the EA, Statement of Commitments and conditions of this approval, the conditions shall prevail to the extent of the inconsistency.
4. The Proponent shall comply with any reasonable requirement/s of the [Planning Secretary](#) arising from the Department's assessment of:
 - (a) any reports, plans, programs or correspondence that are submitted in accordance with this approval; and
 - (b) the implementation of any actions or measures contained in these reports, plans, programs or correspondence.

Limits on Approval

5. Extraction and processing operations may take place until 31 July 2038.
- 5A. Under this approval, the Proponent is required to rehabilitate the site to the satisfaction of the [Planning Secretary](#). Consequently this approval will continue to apply in all other respects other than the right to conduct extraction and processing operations until the site has been rehabilitated to a satisfactory standard. Inter alia, to avoid doubt, the site has not been rehabilitated to a satisfactory standard unless conditions 16 and 17 of [Schedule 3](#) of this approval have been complied with.
6. The Proponent shall not transport more than 80,000 tonnes of product from the site in a year.

Note: This condition applies to the combined production of quarry products from the existing quarry and the quarry extension, and does not include the ancillary extractive material that would be imported onto the site and dispatched with the quarry's products.

Surrender of Consents

7. Within 3 months of the date of this approval, the Proponent shall surrender all existing development consents associated with the Gerroa Sand Quarry, in accordance with clause 97 of the EP&A Regulation.

Note: This approval will apply to all phases and components of the quarry from the date of this approval.

Operation of Plant and Equipment

8. The Proponent shall ensure that all plant and equipment used at the site is:
 - (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient condition.

Section 94 Contributions

9. The Proponent shall pay a contribution of:
 - (a) 30 cents per tonne of material hauled from the site to [SCC](#); and
 - (b) 20 cents per tonne of material hauled from the site to [KMC](#),for the maintenance/repair of public roads, to the satisfaction of the [Planning Secretary](#).

Note: These contribution rates shall be paid and indexed in accordance with the applicable Contributions Plan.

Notification of Commencement

10. The Department must be notified in writing of the date of commencement of any of the following phases of the development, at least two weeks before that date:
 - (a) extraction and processing operations associated with the Modification 1 – Extraction Area;
 - (b) cessation of extraction and processing operations (i.e. quarry closure); and

- (c) any period of suspension of extraction and processing operations greater than 12 months (i.e. care and maintenance).

Staging, Combining and Updating Strategies, Plans or Programs

- 11. With the approval of the Planning Secretary, the Proponent may:
 - (a) prepare and submit any strategy, plan or program required by this approval on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);
 - (b) combine any strategy, plan or program required by this approval (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined);
 - (c) update any strategy, plan or program required by this approval (to ensure the strategies, plans and programs required under this approval are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the project); and
 - (d) combine any strategy, plan or program required by this approval with any similar strategy, plan or program required by an adjoining quarrying consent or approval, in common ownership or management.
- 12. If the Planning Secretary agrees, a strategy, plan or program may be staged without addressing particular requirements of the relevant condition of this approval if those requirements are not applicable to the particular stage.
- 13. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this approval.

Application of Existing Strategies, Plans or Programs

- 14. The Proponent must continue to apply existing management plans, strategies or monitoring programs required under this approval prior to the approval, until the approval of a similar plan, strategy or program following the approval of Modification 1.

Compliance

- 15. The Proponent must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this approval relevant to activities they carry out in respect of the project.

Applicability of Guidelines

- 16. References in the conditions of this approval to any guideline, protocol, Australian Standard or policy are as at the date of inclusion in the condition.
- 17. However, consistent with the conditions of this approval and without altering any limits or criteria in this approval, the Planning Secretary may, in respect of ongoing monitoring and management obligations, agree to or require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

SCHEDULE 3 ENVIRONMENTAL PERFORMANCE

GENERAL EXTRACTION AND PROCESSING PROVISIONS

Identification of Boundaries

1. Within 3 months of the date of this approval and following any subsequent modification to this approval under the EP&A Act, or as otherwise agreed by the Planning Secretary, the Proponent shall:
 - (a) engage an independent registered surveyor to survey the boundaries of the approved limit of extraction, shown in Appendix 1;
 - (b) submit a survey plan of these boundaries and their GPS coordinates to the Planning Secretary; and
 - (c) ensure that these boundaries are clearly marked at all times in a permanent manner that allows operating staff and inspecting officers to clearly identify those limits.

Note: The limit of extraction, defined as the Extraction Area, is shown conceptually on the plans in Appendix 1.

NOISE

Noise Impact Assessment Criteria

2. The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 1 at any residence on privately-owned land:

Table 1: Noise impact assessment criteria

| <i>Location</i> | <i>Criterion</i> <i>L_{Aeq} (15 min) dB(A)</i> |
|--------------------------------|---|
| 670 Beach Road | 41 |
| 11 Bangarrai Street | 40 |
| Seven Mile Beach Holiday Park | 36 |
| Picnic Area 1 | 40 |
| Picnic Area 2 | 40 |
| Athelstane | 40 |
| Any other residential receiver | 40 |

- 2A. Noise generated by the project must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the *NSW Noise Policy for Industry* (EPA, 2017).
- 2B. The noise criteria in Table 1 do not apply if the Proponent has an agreement with the owner/s of the relevant residence or land to exceed the noise criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Hours of Operation

3. The project shall only operate:
 - (a) between 7.00am and 6.00pm Monday to Friday;
 - (b) between 7.00am and 1.00pm on Saturdays; and
 - (c) at no time on Sundays or Public Holidays.

Noise Operating Conditions

4. The Proponent must:
 - (a) take all reasonable steps to minimise noise from construction and operational activities, including low frequency noise and other audible characteristics, as well as road noise associated with the project;
 - (b) implement reasonable and feasible noise attenuation measures on all plant and equipment that will operate in noise sensitive areas;
 - (c) take all reasonable steps to minimise the noise impacts of the project during noise-enhancing meteorological conditions;
 - (d) carry out regular attended noise monitoring to determine whether the project is complying with the relevant conditions of this approval; and
 - (e) regularly assess the noise monitoring data and modify or stop operations on the site to ensure compliance with the relevant conditions of this approval.

Noise Management Plan

- 4A. The Proponent must prepare a Noise Management Plan for the project and submit it to Planning Secretary for approval prior to extraction and processing operations within the Modification 1 – Extraction Area. This plan must:
- (a) be prepared in consultation with EPA, by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;
 - (b) describe the noise management measures to be implemented to ensure:
 - i. compliance with the noise criteria and operating conditions in this approval;
 - ii. noise impacts of the project are minimised during noise-enhancing meteorological conditions;
 - (c) include a monitoring program that:
 - i. is capable of evaluating the performance of the project against the noise criteria;
 - ii. monitors noise at the nearest and/or most affected residences or other representative monitoring locations set out in the Noise Management Plan; and
 - iii. include a protocol for identifying any noise-related exceedance, incident or non-compliance and notifying the Department and the EPA of any such event; and
 - (d) be implemented as approved by the Planning Secretary.

Air Quality Criteria

5. The Proponent must ensure that particulate matter emissions generated by the project do not cause exceedances of the criteria in Table 2 at any residence on privately-owned land.

Table 2: Air quality criteria

| Pollutant | Averaging period | Criterion | |
|-----------------------------|------------------|---|---|
| ^c Deposited dust | Annual | ^b 2 g/m ² /month | ^a 4 g/m ² /month |

Notes:

a Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources).

b Incremental impact (i.e. incremental increase in concentrations due to the project on its own).

c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

6. The air quality criteria in Table 2 do not apply if the Proponent has an agreement with the owner/s of the relevant residence or infrastructure to exceed the air quality criteria, and the Proponent has advised the Department in writing of the terms of this agreement.
7. The Proponent must:
- (a) take all reasonable steps to:
 - i. minimise odour, fume and dust emissions of the project;
 - ii. minimise visible off-site air pollution generated by the project; and
 - iii. minimise the extent of potential dust generating surfaces exposed on the site;
 - (b) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events; and
 - (c) regularly assess meteorological and air quality monitoring data and relocate, modify or stop operations on the site to ensure compliance with the relevant conditions of this approval.

Air Quality Management Plan

8. The Proponent must prepare an Air Quality Management Plan for the project and submit it to the Planning Secretary for approval prior to activities taking place in the Modification 1 - Extraction Area. The plan must:
- (a) be prepared in consultation with EPA and by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;
 - (b) describe the measures to be implemented to ensure:
 - i. compliance with the air quality criteria and operating conditions in this approval; and
 - ii. air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events;
 - (c) include air quality monitoring procedures that can:
 - i. identify project related air quality- exceedance(s), incident or non-compliance; and
 - ii. notify the Department the EPA of any such event detailed in condition 8 c) i., above; and
 - (d) be implemented as approved by the Planning Secretary.

SURFACE AND GROUND WATER

Discharges

- 9 The Proponent shall not discharge any water from the quarry or its associated operations except for the purpose of restoring normal pond level after significant rainfall. Any such discharge shall be in accordance with an EPL.

Water Supply

- 9A. The Proponent must ensure that it has sufficient water allocation for all stages of the project and if necessary, adjust the scale of its water extraction so its within its available water allocation.
- 9B. The Proponent must report on water extracted from the site each year (direct and indirect) in the Annual Review, including water taken under each water licence.

Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Proponent is required to obtain all necessary water licences for the project.

Flood Management

- 9C. Prior to any construction or extraction and processing operations within the Modification 1 – Extraction Area, the Proponent must provide the Planning Secretary with the detailed design of the flood mitigation bunds shown conceptually in Appendix 10, to demonstrate that the flood mitigation bunds can prevent inundation of the Modification 1 – Extraction Area from a flood of 1% AEP with 0.5 m freeboard.
- 9D. Within three years of commencing extraction and processing operations within Modification 1 – Extraction Area, and every three years thereafter up until the year 2038, the Proponent must engage a suitably qualified person, approved by the Planning Secretary, to review the design of the bunds taking into consideration the on-site hydrological data, relevant metrological and climate data to determine if the heights of the bunds needed to be adjusted to prevent flood waters mixing with Modification 1 – Extraction Area pond water and discharging uncontrolled into the receiving environment.
- 9E. The Proponent must progressively construct the flood mitigation bunds detailed in condition 9C and shown in Appendix 10 and adjust the heights if required by condition 9D. The Proponent must regularly maintain and monitor the stability of the flood mitigation bunds throughout the extraction, rehabilitation and closure phases of quarry operations.

Water Quality Objectives

10. Unless otherwise approved by the [Planning Secretary](#), the Applicant shall aim to meet the water quality objectives in Table 3 for water in the [Extraction Area](#) dredge pond and in ground water adjacent the [Extraction Area](#) dredge pond.

| Pollutant | Unit of Measure | Water Quality Objective |
|----------------------------|------------------------|--------------------------------|
| Turbidity | NTU | 1-20 |
| pH | pH | 6– 8.5 |
| Salinity | µS/cm | <1,500 |
| Dissolved oxygen | mg/L (saturation) | >6 (>80-110%) |
| Total phosphorus | µg/L | <30 |
| Total nitrogen | µg/L | <350 |
| Chlorophyll-a | µg/L | <5 |
| Faecal coliforms | Median No./100mL | <1000 |
| Enterococci | Median No./100mL | <230 |
| Algae and blue-green algae | No.cells/mL | <15,000 |
| Sodium | mg/L | <400 |
| Potassium ion | mg/L | <50 |
| Magnesium ion | mg/L | <50 |
| Chloride ion | mg/L | <300 |
| Sulphate ion | mg/L | <250 |

| Pollutant | Unit of Measure | Water Quality Objective |
|------------------|------------------------|--------------------------------|
| Bicarbonate ion | mg/L | <750 |
| Soluble Iron ion | mg/L | <6 |
| Total Ammonium-N | µg/L | <20 |

Table 3: Water Quality Objectives

Notes:

- The objectives for dissolved oxygen, turbidity and algae are relevant to surface water only;
- The Department acknowledges that short term exceedances of these objectives may occur during natural events such as heavy rainfall or tidal saline water inflow.

Management and Monitoring

11. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the [Planning Secretary](#). This plan must:
 - (a) be submitted to the [Planning Secretary](#) within 3 months of the date of this approval;
 - (b) be prepared in consultation with the [DPE Water](#) and [EPA](#); and
 - (c) include a:
 - Erosion and Sediment Control Plan;
 - Surface Water Monitoring Program;
 - Ground Water Monitoring Program; and
 - Acid Sulfate Soils Management Plan.
 - (d) include a strategy for the placement of high hydraulic conductivity material progressively during the works. High conductivity material is to be placed at intervals along the length of the pond extension. This material is to be of a hydraulic conductivity, and placed at such intervals and in such places, that will maintain comparable typical groundwater flow through to the Swamp Sclerophyll Forest as existed prior to the proposed excavation. The existing and comparable typical groundwater flow is to be determined in accordance with the calculation based on the existing typical hydraulic gradient and the hydraulic conductivity of the *in-situ* strata provided for in condition 14(c) below.

12. The Erosion and Sediment Control Plan shall:
 - (a) be consistent with the requirements of *Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, 2004* (Landcom);
 - (b) identify activities that could cause soil erosion and generate sediment;
 - (c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;
 - (d) describe the location, function, and capacity of erosion and sediment control structures; and
 - (e) describe what measures would be implemented to maintain (and if necessary decommission) the structures over time.

13. The Surface Water Monitoring Program shall include:
 - (a) detailed baseline data on surface water quality in the main channel in Foys Swamp;
 - (b) surface water impact assessment criteria;
 - (c) a program to monitor surface water quality;
 - (d) a program to monitor bank and bed stability of the dredge pond;
 - (e) a protocol for the investigation, notification and mitigation of identified exceedances of the surface water impact assessment criteria; and
 - (f) a program to monitor the effectiveness of the Erosion and Sediment Control Plan.

14. The Ground Water Monitoring Program shall include:
 - (a) a statistical analysis of baseline ground water level and water quality data;
 - (b) ground water impact assessment criteria, including criteria for assessing any impacts on ground water dependent ecosystems and vegetation;
 - (c) a program to monitor:
 - hydraulic conductivity – upon the completion of the landscaping of each 20 metre wide extraction zone, tests shall be conducted to ensure that the hydraulic conductivity following the placement of material is similar to the conditions prevailing prior to excavation commencing;
 - impacts on ground water dependent ecosystems and vegetation (from at least 6 boreholes at the edge of the dredge pond); and
 - water levels (at no less than monthly intervals and taken on the same day) in the dredge pond, the drain at the flood gates, monitoring bores WM1, WM1A, WM2A, WM3A, WM4, WM5, 1/Aug07, 2/Aug07, 3/Aug07, 4/Aug07, 5/Aug07 and 6/Aug07 (locations shown on Drawing 6198/208bh Revision A prepared by KF Williams & Associates, 15/2/08), and any additional bores installed at the edge of the dredge pond;
 - the *in situ* strata at the perimeter of the dredge pond for its current hydraulic conductivity; and

- groundwater levels under the SSF.
- (d) monthly review of the results of the ground water monitoring by the Proponent's Environmental Officer;
- (e) a protocol for the investigation, notification and mitigation of any identified exceedances of the ground water impact assessment criteria. The protocol shall include the following measures to be undertaken in the event that the water level in any bore lies outside the range of two standard deviations from the mean for more than 6 months and does not follow a trend that can be attributed to climatic effects, as evident in other monitoring bores, undertake the following actions:
- sand extraction shall be halted immediately while further investigations and any necessary remedial action are undertaken;
 - additional water level measurements shall be taken in temporary bores in the vicinity of the affected bore to confirm the ground water levels in that locality;
 - a qualified hydrogeologist shall be engaged to assess the significance of the variance from expected ground water behaviour;
 - if the review of the hydrogeologist considers that it is necessary to maintain the pre-existing ground water regime in the vicinity of the SSF he/she shall be requested to recommend an appropriate remedial action plan. This plan may include the adjustment to the placement strategy for panels of high hydraulic conductivity material required by Condition 11(d); and
 - the recommended remedial action plan shall be submitted for the [Planning Secretary's](#) approval and subsequently implemented by the Proponent;
- (f) include measures to mitigate, remediate and/or compensate any identified ground water impacts.

Acid Sulfate Soils Management

15. The Proponent must prepare an Acid Sulfate Soils Management Plan for the project. The plan must:
- (a) be prepared in consultation with EPA and DPE Water, and by a suitably qualified person whose appointment has been approved by the Planning Secretary;
- (b) describe the measures that would be implemented to avoid and mitigate acid sulfate soils being mobilised during extraction and processing operations, including but not limited to:
- i. a monitoring program that includes consideration of trace metals;
 - ii. the deposition of acid sulfate fines beneath the average groundwater level;
 - iii. a protocol for the investigation and mitigation of identified exceedances of the relevant impact assessment criteria set within the project approval including the Water Management Plan;
- (c) include the results from an acid sulfate soils sampling program analysing the extent of acid sulfate soils within the Modification 1 – Extraction Area, which may be staged in accordance with condition of approval 12 of Schedule 2;
- (d) when addressing clauses (b) and (c), reference the relevant sections of the of the:
- i. *Douglas Partners (November 2018) Acid Sulfate Soil Management Plan, Proposed Sand Quarry Extension*;
 - ii. *National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual (June 2018)*;
 - iii. EPA's *Acid Sulfate Soils Manual (1998)*; and
- (e) be submitted for approval prior to commencing activities within the relevant stage of the Modification 1 – Extraction Area; and
- (f) be implemented as approved by the Planning Secretary.

Site Water Balance

- 15A. The Proponent must prepare a Site Water Balance for the project and submit it to the Planning Secretary for approval prior to extraction and processing operations in the Modification 1 - Extraction Area. This plan must:
- (a) be prepared by suitably qualified and experienced person/s whose appointment has been approved by the Planning Secretary;
- (b) be prepared in consultation with DPE Water;
- (c) includes details of:
- i. predicted annual inflows to and outflows from the site;
 - ii. sources and security of water supply for the life of the project (including authorised entitlements and licences);
 - iii. water storage capacity, use and management on the site;
 - iv. reporting of annual water extraction and maximum instantaneous pumping rates to the Department; and
 - v. procedures for the annual preparation of an updated site water balance; and
- (d) be implemented as approved by the Planning Secretary.

LANDSCAPE MANAGEMENT

Planning Agreement

16. Within 3 months of the date of the approval of [Modification 1](#), the Proponent shall:
- (a) enter into a Planning Agreement with the Minister under section 93F of the EP&A Act. This Agreement must be generally consistent with commitments in the terms of the offer made by the Proponent to the Minister on 1 May 2007, and must specifically provide for the:
 - (i) implementation of the Compensatory Planting shown in the plan in Appendix 3;
 - (ii) protection of the vegetation in the area shown in Appendix 4 (*Vegetation Conservation Area*);
 - (iii) identification by survey plan of the Conservation Area shown in the plan titled *Vegetation Conservation Area* (shown conceptually in Appendix 4);
 - (iv) implementation of the Landscape and Rehabilitation Management Plan for the site; and
 - (v) submission of a *Conservation Area Protection Bond*, with the Department, in the form of a bank guarantee, to ensure the Conservation Area is being protected as required by condition 16 (a)(ii) of Schedule 3. The sum of the bond must be determined by a suitably qualified person, approved by the Planning Secretary, by calculating the full cost of reasonably protecting the Conservation Area against the threat of fire or vandalism up until 31 July 2038. Following 31 July 2038, the Conservation Area Protection Bond will be released, with the approval of the Planning Secretary; and
 - (vi) call in of all or part of the Conservation Area Protection Bond, with the approval of the Planning Secretary, to restore the Conservation Area if it is damaged by fire or vandalism, up until 31 July 2038.
- 16A. Within 3 months of the date of the parties signing the Planning Agreement it must be registered on the title of the land in accordance with the *Real Property Act 1900*.

Landscaping and Rehabilitation

17. The Proponent shall:
- (a) progressively rehabilitate the site in a manner that is generally consistent with the rehabilitation objectives in Chapter 3.8 of the EA (see Appendix 5);
 - (b) ensure that within 4 years of the date of this approval, the additional plantings in the Northern Corridor and Southern Rehabilitation Areas are comprised of at least 60% of the plant species recorded for the representative plant communities in the quarry extension area, such as Bangalay Sand Forest and Littoral Rainforest;
 - (c) implement the Compensatory Planting in a manner that is consistent with the Landscape and Rehabilitation Management Plan referred to in Condition 21, including the:
 - establishment, conservation and maintenance of approximately 23.99 hectares of native vegetation;
 - enhance 5.25 hectares of the vegetation in Areas 4 and 5; and
 - conservation and maintenance of approximately 46.25 hectares of the remnant vegetation on the site (shown conceptually in Appendix 3); and the best practice guidelines set out in:
 - *Bringing the bush back to Western Sydney: Best practice guidelines for bush regeneration on the Cumberland Plain* Department of Infrastructure, Planning and Natural Resources (2003) ("DIPNR (2003)"); and
 - *Recovering bushland on the Cumberland Plains: Best practice guidelines for the management and restoration of bushland* Department of Environment and Conservation (2005) ("DEC (2005)");
- to the satisfaction of the [Planning Secretary](#).
18. Within 12 months of the date of this approval, the Proponent shall densely plant *Banksia Integriifolia* along the 5 metre setback zones to the Littoral Rainforest vegetation and these areas shall thereafter be planted with species as may be specified in the Landscape and Rehabilitation Management Plan.
19. The Proponent shall:
- (a) clearly identify the boundary of the extension area and the [Modification 1 – Extraction Area](#) in consultation with a suitably qualified ecologist prior to the commencement of any construction works to ensure that an adequate buffer distance is maintained from the dredging activities/quarry operations to the Conservation Area, SSF and lands zoned as E2 – [Environmental Conservation](#) and E3 – [Environmental Management under the Kiama Local Environmental Plan 2011 or the Shoalhaven Local Environment Plan 2014](#);
 - (b) ensure that all dredging activities and associated quarry operations remain within the defined boundary of the [Extraction Area](#) (shown on the plans in Appendix 1);
 - (c) develop a monitoring program and document it in the EMP to demonstrate that the defined boundary of the quarry extension area is maintained and not compromised during operations; and

- (d) revegetate the buffer areas with appropriate native species and be subject to the Landscape and Rehabilitation Management Plan for inclusion in the EMP for its long term restoration and management and be not less than 5 metres wide for the existing extension area shown in Figure 1, Appendix 1 (refer Proposed Dredge Pond).

20. The Proponent shall:

- (a) commence the Compensatory Planting and the vegetation screen along the Crooked River Road frontage north of the east-west link (as shown conceptually in Appendix 3), within 12 months of the date of this approval or when sufficient propagation material has been collected; and
- (b) not sever the east-west link until it can be demonstrated to the satisfaction of the [Planning Secretary](#) that the established communities represented in the Northern Corridor comprise at least 60% of the native flora species as set out in Appendix 6 and the Northern Corridor is successful according to the criteria in Condition 25;

to the satisfaction of the [Planning Secretary](#).

In this Condition, “**not sever**” means that no works of clearing, tree removal or other habitat removal shall take place which will reduce or impede the function of the East-West Corridor to provide connectivity to the National Park from Zone 1.1 as measured by Condition 25(b).

Restriction on clearing of certain land

20A Within the area marked “X” on Appendix 1, a person shall not clear any of the land of vegetation or trees without the consent of the [Planning Secretary](#).

Landscape and Rehabilitation Management Plan

21. The Proponent shall prepare and implement a Landscape and Rehabilitation Management Plan for the project to the satisfaction of the [Planning Secretary](#).

This plan must:

- (a) be submitted to the [Planning Secretary](#) for approval within 3 months of the date of this approval;
- (b) be generally in accordance with the draft Landscape and Rehabilitation Management Plan, dated 20 August 2008 prepared by Kevin Mills & Associates and accepted by the Land and Environment Court as appropriate;
- (c) be prepared in consultation with the [BCD](#) by suitably qualified expert/s approved by the [Planning Secretary](#);
- (d) clearly identify the biological purpose of the linkage and describe how its design, dimensions and management will achieve this purpose;
- (e) collect baseline data for the Project Area including flora species, fauna species and ecological function parameters;
- (f) include a figure showing the location, extent and size of areas to be planted/regenerated for each community to be impacted;
- (g) identify strategies to use the natural resources of the impacted areas to their full potential, including:
- all plant material to be used as a primary source for restoration and rehabilitation should be collected and propagated from relevant communities prior to clearing;
 - all areas proposed for replanting should be assessed initially for their regeneration potential appropriate restoration strategies should follow best practice guidelines as described in DIPNR (2003) and DEC (2005);
- (h) describe in general the short, medium and long-term measures that would be implemented to:
- rehabilitate the site;
 - implement the Compensatory Planting shown in Appendix 3;
 - manage the remnant vegetation and habitat on the site, including the areas of Bangalay Sand Forest to be retained (shown conceptually in Appendix 3); and
 - landscape the site (including the bunds) to mitigate visual impacts of the project.
 - Upgrade and protect the remaining area of Littoral Rainforest on the eastern side of the pond extension
- (i) describe in detail the measures that would be implemented over the first 5 years and every subsequent 5 year period, to rehabilitate and manage the landscape and vegetation on the site, including
- setting clear targets to the satisfaction of the [Planning Secretary](#) to determine the level of success and make timely changes to management strategies, as necessary;
 - monitoring each vegetation type separately;
- (j) set completion criteria for the rehabilitation of the site (i.e. when plantings are self-sustaining);
- (k) describe how the performance of these measures would be monitored over time; and
- (l) include a Long Term Management Plan.

- 21A The Proponent shall engage a qualified ecologist, bush regeneration or providence nursery group who will develop a program consistent with the objectives and procedures set out in the draft Landscape and Rehabilitation Management Plan and this program will address the following issues:
- (a) soil testing;
 - (b) on site collection of seed and other propagation material;
 - (c) an assessment of the need to develop plants on the site;
 - (d) a program of successional plantings and management that will achieve the agreed purposes of the planting;
 - (e) targets for short term, medium term and long term planting and management;
 - (f) monitoring requirements;
 - (g) reporting frequency and methodology;
 - (h) consultation with the relevant government agencies;
 - (i) water quality monitoring; and
 - (j) quantitative vegetation monitoring;
- unless otherwise incorporated in the draft Landscape and Rehabilitation Management Plan.
22. The Landscape and Rehabilitation Management Plan must include:
- (a) the objectives for the rehabilitation of the site and implementation of the Compensatory Planting and the vegetation screen along the Crooked River Road frontage north of the east-west link;
 - (b) a description of how the rehabilitation of the site and implementation of the Compensatory Planting and how the vegetation screen along the Crooked River Road frontage would be integrated with the surrounding vegetation to provide a comprehensive strategic framework for the restoration and enhancement of the landscape over time;
 - (c) a description of the short, medium, and long-term measures that would be implemented to:
 - rehabilitate the site;
 - implement the Compensatory Planting;
 - manage the remnant vegetation and habitat on the site; and
 - landscape the site (including the bunds) to mitigate visual impacts of the project;
 - (d) a detailed description of the performance and completion criteria for the rehabilitation of the site and implementation of the Compensatory Planting and the vegetation screen along the Crooked River Road frontage;
 - (e) a detailed description of what measures would be implemented over the next 5 years to rehabilitate the site, and implement both the Compensatory Planting and the vegetation screen along the Crooked River Road frontage, including the procedures for:
 - undertaking pre-clearance surveys;
 - conserving and reusing topsoil;
 - collecting and propagating seed for rehabilitation works;
 - salvaging and reusing material from the site for habitat enhancement, particularly tree hollows;
 - controlling weeds and feral pests;
 - controlling access;
 - bushfire management;
 - managing any potential conflicts between the proposed rehabilitation of the site and implementation of the Compensatory Planting and any Aboriginal cultural heritage values in those areas;
 - progressively rehabilitate the areas disturbed by sand extraction;
 - implementing revegetation and regeneration within the disturbed and compensatory planting areas, including the establishment of canopy, sub-canopy (if relevant), understorey and ground cover vegetation;
 - reducing the visual impacts of the project; and
 - protecting areas outside the disturbance areas;
 - (i) a detailed program to monitor the performance of the rehabilitation of the site and implementation of the Compensatory Planting and the vegetation screen along the Crooked River Road frontage against the relevant objectives and performance and completion criteria (see above);
 - (j) a description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and
 - (k) details of who is responsible for monitoring, reviewing, and implementing the plan.
23. Successful establishment of the Northern Corridor shall be measured by the following criteria:
- (a) presence of native flora species;
 - (b) a majority of the flora species recorded from the removed forest occur in the area; (e.g. 60% of flora species recorded in removed forest are present);
 - (c) Species from all 4 layers have been planted and at least 50% of the projected cover has been achieved for each of the shrub and ground cover layers;
 - (d) self-sustaining native plant populations (e.g regeneration of a second generation);
 - (e) no dominance by single flora species (e.g Bracken);
 - (f) weeds are not significantly impacting on the native vegetation;
 - (g) weeds do not represent a majority of the flora species or a higher percentage cover than the native flora species; and

- (h) impacts such as grazing are excluded from the area.
24. Successful establishment of fauna habitat in the Northern Corridor would be measured by:
- presence of species;
 - a majority of the resident species recorded from the removed forest occur in the area;
 - fauna populations are resident in the area;
 - pest animals are controlled and not impacting upon the fauna or its habitat; and
 - impacts such as grazing are excluded from the area.
25. Prior to the severance of the east-west link the Proponent shall:
- determine the presence of species in both the east-west link and northern corridor by conducting standard animal survey techniques at least twice in the first year (eg. Eliot trapping for small mammals, pitfall trapping for reptiles, observational surveys for frogs and birds, and spotlighting transects for arboreal animals);
 - determine whether a majority of animal species (particularly those determined to be likely to be impacted by fragmentation) utilising the corridor in the east-west link are present in the conservation area and the northern corridor and the re-created link at the northern boundary; and
 - conduct genetic analysis for a number of key species for whom genetic markers have already been developed (e.g. Brown Antechinus, Bush Rat and at least two skink species) to establish that genetic relatedness exists between individuals within the two corridors, the Conservation Area and National Park).
- If no genetic relatedness exists between individuals in the Conservation Area, northern corridor, east-west link and the National Park, then this demonstrates that neither the east-west link nor the northern corridor is functional and therefore the east-west link can be severed without creating additional fragmentation to animal populations.
- If genetic relatedness exists between individuals in the northern corridor, Conservation Area and the National Park, but not in the east-west link, then this demonstrates that the east-west link is not functional, but the northern corridor is and therefore, the east-west link can be severed without creating additional fragmentation to animal populations.
- If genetic relatedness exists between individuals in the Conservation Area, the east-west link and the National Park, but not the northern corridor, then this demonstrates that the northern corridor is not functional and the east-west link cannot be severed until there is compliance with Conditions 23 and 24.
26. The Long Term Management Strategy must be prepared in consultation with [SCC](#), [KMC](#), [BCD](#), [DPI-Fisheries](#) and the CCC, and must:
- define the objectives and criteria for quarry closure and post-extraction management;
 - investigate options for the future use of the site;
 - describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development; and
 - describe how the performance of these measures would be monitored over time.

Note: The Department accepts that the initial Long Term Management Strategy may not contain detailed information on post-extraction management.

- 26A. [The Proponent must implement the Landscape and Rehabilitation Management Plan and Long Term Management Strategy as approved by the Planning Secretary.](#)

Landscape and Rehabilitation Bond

27. Within 6 months of the date of this approval, the Proponent shall lodge a rehabilitation bond for the project with the [Planning Secretary](#). The sum of the bond shall be calculated at:
- \$ 2.50/m² for the total area to be disturbed by the proposed dredge pond as shown in Appendix 1; and
 - \$ 1.00/m² for the total area of land to be rehabilitated consisting of Zones 2A.1, 2A.2, 2A.3, 2B.1, 2B.2, 2C.1, 2C.2, 2D and 2E of Appendix 3,

or as otherwise directed by the [Planning Secretary](#).

- 28A. The rehabilitation bond shall continue to be retained after completion of the Compensatory Planting, [subject to the Planning Secretary's discretion in condition 28B below](#), to ensure that there shall be a continuation of the Planning Agreement; and
- 28B. The [Planning Secretary](#) may at his or her discretion and on advice from an independent environmental auditor release or vary the rehabilitation bond where conditions permit. If the rehabilitation is not completed to the satisfaction of the [Planning Secretary](#), the [Planning Secretary](#)

will call in all or part of the rehabilitation bond, and arrange for the satisfactory completion of the relevant works.

28C The bond may be in the form of a Bank Guarantee or as directed by the [Planning Secretary](#).

ABORIGINAL HERITAGE

Aboriginal Site Conservation

29. The Proponent shall protect and conserve Areas A and C, as described in the EA (as shown on the plan in Appendix 8, to the satisfaction of the [Planning Secretary](#).

29A. The Proponent must ensure that the project does not cause any direct or indirect impact on any identified heritage items located outside the Extraction Area, beyond those predicted in the document/s listed in condition 2(a) of Schedule 2.

Note: Identified heritage items are shown in the figures in Appendix 8.

29B. If suspected human remains are discovered on the site, then all work surrounding the area must cease, and the area must be secured. The Proponent must immediately notify NSW Police Force, Heritage NSW, and the Department and work must not recommence in the area until authorised by NSW Police Force and the [Planning Secretary](#).

29C. The Applicant must ensure that all known Aboriginal objects or Aboriginal places on the site are properly recorded, and those records are kept up to date, in the Aboriginal Heritage Information Management System (AHIMS) Register.

Aboriginal Heritage Management Plan

30. The Proponent shall prepare and implement an Aboriginal Heritage Management Plan for the project to the satisfaction of the [Planning Secretary](#). This plan must:

- (a) be submitted to the [Planning Secretary](#) within 3 months of the date of this approval and prior to disturbance of any identified Aboriginal object;
- (b) be prepared in consultation with the [Heritage NSW](#) and relevant Aboriginal communities; and
- (c) include a:
 - description of the measures that would be implemented to protect Area A and that part of Area B proposed to be conserved, as described in the EA (as shown on the plan in Appendix 8);
 - description of the measures that would be implemented for the mapping and salvage or relocation of the archaeological relics in the site including the shell midden deposit situated at the South Western corner of the Extraction Area (as shown on the plan in Appendix 8);
 - description of the measures that would be implemented if any new Aboriginal objects or relics are discovered during the project; and
 - protocol for the ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site.

Modification 1 – Extraction Area Aboriginal Cultural Heritage Management Plan

30A. The Proponent must prepare a Modification 1 – Extraction Area Aboriginal Cultural Heritage Management Plan for the project. This plan must:

- (a) be prepared:
 - i. by suitably qualified and experienced person/s whose appointment has been endorsed by the [Planning Secretary](#);
 - ii. in consultation with the [Heritage NSW](#) and Registered Aboriginal Parties and be submitted to the [Planning Secretary](#) for approval prior to disturbance of any Aboriginal heritage objects/items in the Modification 1– Extraction Area;
 - iii. in general accordance with the *Biosis (2019). Gerroa Sand Quarry modification: Aboriginal cultural heritage management plan. Report for Cleary Bros (Bombo) Pty Ltd.*
- (b) include a:
 - i. description of the measures that would be implemented to salvage sites within the Modification – 1 Extraction Area (GCB-A1, GCB-A2 and GCB-A3, as shown in Appendix 8);
 - ii. a description of the measures to be implemented on the site to comply with the heritage-related conditions of this approval;
 - iii. description of measures to ensure all workers receive suitable Aboriginal cultural heritage inductions prior to carrying out any activities which may cause impacts to Aboriginal objects or Aboriginal places, and that suitable records are kept of these inductions;

- iv. description of the measures that would be implemented to manage the discovery of suspected human remains and any new Aboriginal objects or Aboriginal places, including provisions for burials, over the life of the project;
- v. description of the measures that would be implemented to maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the Modification 1 – Extraction Area);
- vi. protocol for the ongoing consultation and involvement of the Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site including the long term management of salvaged items and objects; and
- vii. description of the measures to be implemented on the site to manage interactions with the Landscape and Rehabilitation Management Plan.

Note: The Aboriginal Heritage Management Plan required by condition 30 above and the Modification 1 – Extraction Area Aboriginal Cultural Heritage required by condition 30A may be combined in accordance with condition 11 (b) of Schedule 2.

- 30B. The Proponent must implement the Modification 1 – Extraction Area Aboriginal Cultural Heritage Management Plan as approved by the Planning Secretary.

TRAFFIC AND TRANSPORT

Transport Routes

31. The Proponent shall ensure that all truck movements travelling to or originating from areas:
 - (a) south of the site use the Princes Highway, via Beach Road (except as provided for by condition 32 below); and
 - (b) north of the site use the Princes Highway, via Beach Road, Crooked River Road, Fern Street and Belinda Street.
32. The Proponent shall ensure that no trucks associated with the project use Gerroa Road, except where the destination lies along or adjacent to that road.

Haul Road

33. Within 3 months of the date of this approval, the Proponent shall upgrade the internal haul road and Beach Road intersection to a sealed Type BAL left turn and sealed Type BAR right turn configuration, in accordance with the TFNSW's *Road Design Guide*

Road Haulage

34. The Proponent shall ensure that:
 - (a) all loaded vehicles entering or leaving the site are covered; and
 - (b) all loaded vehicles leaving the site are cleaned of materials that may fall on the road, before they leave the site.

VISUAL

Visual Amenity

35. The Proponent shall minimise the visual impacts of the project to the satisfaction of the [Planning Secretary](#).

Lighting Emissions

36. The Proponent shall:
 - (a) take all practicable measures to mitigate off-site lighting impacts from the project; and
 - (b) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*, to the satisfaction of the [Planning Secretary](#).

Advertising

37. The Proponent shall not erect or display any advertising structure(s) or signs on the site without the written approval of the [Planning Secretary](#).

Note: This does not include traffic management and safety or environmental signs.

WASTE MANAGEMENT

Waste Minimisation

38. The Proponent shall minimise the amount of waste generated by the project to the satisfaction of the [Planning Secretary](#).

EMERGENCY AND HAZARDS MANAGEMENT

Dangerous Goods

39. The Proponent shall ensure that the storage, handling, and transport of dangerous goods are conducted in accordance with the relevant *Australian Standards*, particularly AS1940 and AS1596, and the *Dangerous Goods Code*.

Safety

40. The Proponent shall secure the project to ensure public safety to the satisfaction of the [Planning Secretary](#).

Bushfire Management

41. The Proponent shall:
- (a) ensure that the project is suitably equipped to respond to any fires on-site; and
 - (b) assist the rural fire service and emergency services as much as possible if there is a fire on-site.

PRODUCTION DATA

42. The Proponent shall:
- (a) provide annual production data to the [MEG](#) using the standard form for that purpose; and
 - (b) include a copy of this data in the [Annual Review](#).

SCHEDULE 4 ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. If the results of monitoring required in Schedule 3 identify that impacts generated by the project are greater than the relevant impact assessment criteria, then the Proponent shall notify the [Planning Secretary](#) and the affected landowners and/or existing or future tenants (including tenants of quarry owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the relevant criteria.

INDEPENDENT REVIEW

2. If a landowner of privately owned land considers that the operations of the quarry are exceeding the impact assessment criteria in Schedule 3, then he/she may ask the Proponent in writing for an independent review of the impacts of the project on his/her land.

If the [Planning Secretary](#) is satisfied that an independent review is warranted, the Proponent shall within 3 months of the [Planning Secretary](#) advising that an independent review is warranted:

- (a) consult with the landowner to determine his/her concerns;
 - (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the [Planning Secretary](#), to conduct monitoring on the land, to determine whether the project is complying with the relevant criteria in Schedule 3, and identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and
 - (c) give the [Planning Secretary](#) and landowner a copy of the independent review.
3. If the independent review determines that the quarrying operations are complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the [Planning Secretary](#).
 4. If the independent review determines that the quarrying operations are not complying with the relevant criteria in Schedule 3, and that the quarry is primarily responsible for this non-compliance, then the Proponent shall:
 - (a) implement all reasonable and feasible measures, in consultation with the landowner, to ensure
 - (b) that the project complies with the relevant criteria; and
 - (c) conduct further monitoring to determine whether these measures ensure compliance; or
 - (d) secure a written agreement with the landowner to allow exceedances of the relevant criteria in Schedule 3,to the satisfaction of the [Planning Secretary](#).

If the additional monitoring referred to above subsequently determines that the quarrying operations are complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the [Planning Secretary](#).

If the Proponent is unable to finalise an agreement with the landowner, then the Proponent or landowner may refer the matter to the [Planning Secretary](#) for resolution.

If the matter cannot be resolved within 21 days, the [Planning Secretary](#) shall refer the matter to an Independent Dispute Resolution Process (see Appendix 9).

5. If the landowner disputes the results of the independent review, either the Proponent or the landowner may refer the matter to the [Planning Secretary](#) for resolution.

If the matter cannot be resolved within 21 days, the [Planning Secretary](#) shall refer the matter to an Independent Dispute Resolution Process (see Appendix 9).

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, MONITORING, REPORTING & AUDITING

ENVIRONMENTAL MANAGEMENT PLAN

1. The Proponent shall prepare and implement an Environmental Management Plan for the project to the satisfaction of the [Planning Secretary](#). This plan must:
 - (a) be submitted to the [Planning Secretary](#) within 6 months of the date of this approval;
 - (b) be prepared in consultation with the Relevant Agencies;
 - (c) provide the strategic context for environmental management of the project;
 - (d) identify the statutory requirements that apply to the project;
 - (e) describe in general how the environmental performance of the project would be monitored and managed;
 - (f) describe the procedures that would be implemented to:
 - keep the local community and Relevant Agencies informed about the construction, operation and environmental performance of the project;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the life of the project;
 - respond to any non-compliance;
 - manage cumulative impacts; and
 - respond to emergencies; and
 - (g) describe the role, responsibility, authority, and accountability of the key personnel involved in the environmental management of the project.

ENVIRONMENTAL MONITORING PROGRAM

2. The Proponent shall prepare an Environmental Monitoring Program for the project to the satisfaction of the [Planning Secretary](#). This program must be submitted to the [Planning Secretary](#) within 6 months of the date of this approval, and consolidate the various monitoring requirements in Schedule 3 of this approval into a single document.
- 2A. Within 3 months of the date of this approval, the Proponent shall nominate a suitably qualified and experienced Environmental Officer(s) to perform environmental management duties. The Environmental Officer(s) shall be:
 - (a) responsible for reviewing the monitoring programs required under this consent; and
 - (b) responsible for considering and advising on matters specified in the conditions of this consent, and all other licences and approvals related to the environmental performance and impacts of the development;

The Proponent shall notify the [Planning Secretary](#), and Relevant Agencies of the name and contact details of the Environmental Officer, and any changes to that appointment that may occur from time to time.

Note: the Environmental Officer(s) duties need not necessarily be limited to environmental management and may be an existing employee with appropriate qualifications.

Revision of Strategies, Plans & Programs

- 2B. Within 3 months of:
 - (a) the submission of an incident notification under condition 3 below;
 - (b) the submission of an Annual Review under condition 4 below;
 - (c) the submission of an Independent Environmental Audit report under condition 5 below; and
 - (d) the approval of any modifications to this approval (unless the conditions require otherwise),

the Proponent must review the suitability of existing strategies, plans, and programs required under this approval.

If necessary to either improve the environmental performance of the project, cater for a modification or comply with a direction, the strategies, plans, and programs required under this approval must be revised, to the satisfaction of the [Planning Secretary](#) and submitted to the [Planning Secretary](#) for approval within six weeks of the review.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.

REPORTING

Incident Notification

3. The Proponent must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing through the Department's Major Projects Website and identify the project (including the project number and name) and set out the location and nature of the incident.

Non-Compliance Notification

- 3A. Within seven days of becoming aware of a non-compliance, the Proponent must notify the Department of the non-compliance. The notification must be in writing through the Department's Major Projects Website and identify the project (including the development application number and name), set out the condition of this approval that the project is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Regular Reporting

- 3B. The Proponent must provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.

ANNUAL REVIEW

4. By the end of September each year, or other timing as may be agreed by the Planning Secretary, the Proponent must review the environmental performance of the project to the satisfaction of the Planning Secretary. This review must:
 - a) describe the activities associated with the project (including rehabilitation) that was carried out in the previous financial year, and the activities that are proposed to be carried out over the current financial year;
 - b) include a comprehensive review of the monitoring results and complaints records of the project over the previous financial year, which includes a comparison of these results against:
 - the relevant statutory requirements, limits or performance measures/criteria;
 - requirements of any plan or program required under this approval;
 - the monitoring results of previous years; and
 - the relevant predictions in the documents listed in condition 2(a) of Schedule 2;
 - c) identify any non-compliance or incident which occurred in the previous financial year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid recurrence;
 - d) evaluate and report on:
 - the effectiveness of the acid sulfate soils, noise amenity and water quality management and mitigation; and
 - compliance with the performance measures, criteria and operating conditions of this approval;
 - e) identify any trends in the monitoring data over the life of the project;
 - f) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
 - g) describe what measures will be implemented over the current financial year to improve the environmental performance of the project.

The Proponent must ensure that the Annual Review is submitted to the Planning Secretary and is available to the members of the CCC and any interested person on request.

INDEPENDENT ENVIRONMENTAL AUDIT

5. Within 12 months of the date of the commencement of the project, and every 3 years thereafter, unless the Planning Secretary directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
 - (a) be conducted by a suitably qualified, experienced, and independent person(s) whose appointment has been approved by the Planning Secretary;
 - (b) include consultation with the Relevant Agencies;
 - (c) assess the environmental performance of the project, and its effects on the surrounding environment;
 - (d) assess whether the project is complying with the relevant standards, performance measures and statutory requirements;

- (e) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
- (f) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.

Note: The person(s) conducted the audit must have expertise in flora and fauna assessment as well as quarry rehabilitation.

- 6. Within 1 month of completion of each Independent Environmental Audit, the Proponent shall submit a copy of the audit report to the [Planning Secretary](#), Relevant Agencies and CCC, with a response to any of the recommendations in the audit report.
- 7. Within 3 months of submitting a copy of the audit report to the [Planning Secretary](#), the Proponent shall review and if necessary revise:
 - (a) each of the environmental management and monitoring strategies/plans/programs in Schedules 3 and 5; and
 - (b) the sum of the Landscape and Rehabilitation Bond (see Schedule 3). This review must consider:
 - the effects of inflation;
 - any changes to the total area of disturbance; and
 - the performance of the rehabilitation against the completion criteria of the Landscape and Rehabilitation Management Plan,
 to the satisfaction of the [Planning Secretary](#)

COMMUNITY CONSULTATIVE COMMITTEE

- 8. Within 3 months of the date of this approval, the Proponent shall establish a Community Consultative Committee (CCC) for the project. The CCC shall:
 - (a) be comprised of:
 - 2 representatives from the Proponent, one of which will be the Environmental Officer nominated under Condition 2A of Schedule 5;
 - representatives of both [KMC](#) and [SCC](#) (if available);
 - 1 representative of the Gerroa Environment Protection Society (if available); and
 - at least 2 representatives from the local community,
 whose appointment has been approved by the [Planning Secretary](#);
 - (b) be chaired by an independent chairperson, whose appointment has been approved by the [Planning Secretary](#);
 - (c) meet at least twice a year including one meeting shortly after submission of the [Annual Review](#) under Condition 4 of Schedule 5;
 - (d) review the Proponent's performance with respect to environmental management and community relations;
 - (e) undertake regular inspections of the quarry operations;
 - (f) review community concerns or complaints about the quarry operations, and the Proponent's complaints handling procedures; and
 - (g) provide advice to:
 - the Proponent on improved environmental management and community relations, including the provision of information to the community and the identification of community initiatives to which the Proponent could contribute;
 - the Department regarding the conditions of this approval; and
 - the general community on the performance of the quarry with respect to environmental management and community relations.

Notes:

- *The CCC is an advisory committee. The Department and other Relevant Agencies are responsible for ensuring that the Proponent complies with this approval.*
- *The membership of the CCC should be reviewed on a regular basis (every 3 years).*
- *If possible, an alternate member should be appointed for each of the representatives from the local community.*

- 9. At its own expense, the Proponent shall:
 - (a) ensure that 2 of its representatives attend CCC meetings;
 - (b) provide the CCC with regular information on the environmental performance of the project, including a copy of the [Annual Review](#);
 - (c) provide meeting facilities for the CCC;
 - (d) arrange site inspections for the CCC, if necessary;
 - (e) respond to any advice or recommendations the CCC may have in relation to the environmental management or community relations;
 - (f) take minutes of the CCC meetings; and
 - (g) forward a copy of these minutes to the [Planning Secretary](#), and put a copy of these minutes on its website.

ACCESS TO INFORMATION

10. Within 1 month of the approval of any plan/strategy/program required under this approval (or any subsequent revision of these plans/strategies/programs), or the completion of the audits or [Annual Review](#) required under this approval, the Proponent shall:
 - (a) provide a copy of the relevant document/s to the Relevant Agencies and the CCC; and
 - (b) ensure that a copy of the relevant document/s is made publicly available on its website and at the quarry.

 11. During the project, the Proponent shall:
 - (a) make a summary of monitoring results required under this approval publicly available on its website and at the quarry; and
 - (b) update these results on a regular basis (at least every 3 months).
-

APPENDIX 1 VEGETATION MANAGEMENT AREAS AND SITE PLAN

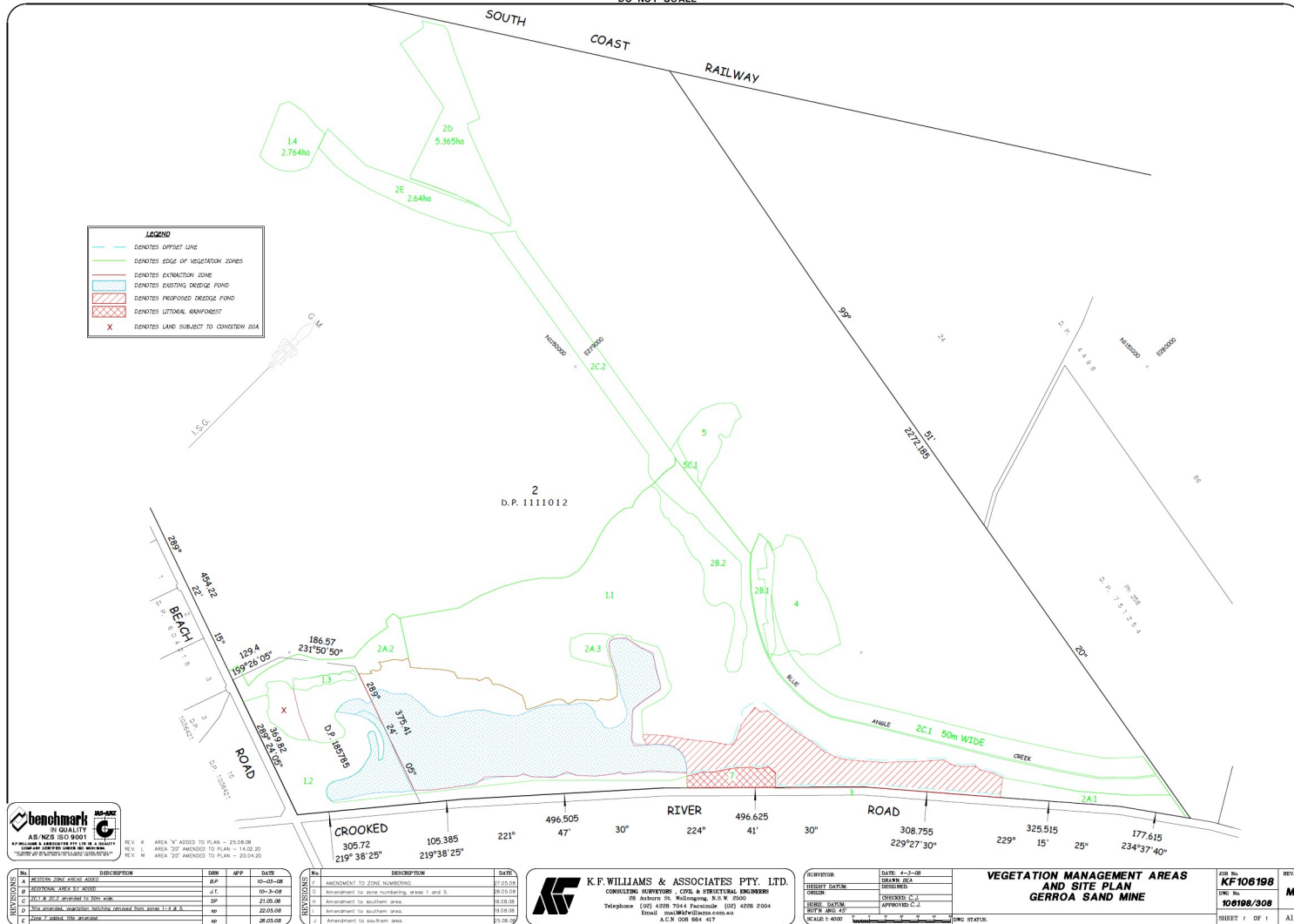


Figure 1: Vegetation Management Areas and Site Plan



Figure 2: Modification 1 – Extraction Area

APPENDIX 2 STATEMENT OF COMMITMENTS

- 1) Undertake the extension of the Gerroa sand quarry in a manner consistent with the Environmental Assessment and Statement of Commitments;
- 2) Comply with obligations under any Act;
- 3) Update the Environmental Management Plan (EMP) for the site to include all relevant matters contained in the Environmental Assessment and any requirements emanating from the Land and Environment Court for the project;
- 4) Operate the sand quarry within the requirements of the EMP as updated in 3) above (Note: the existing EMP embraces the requirements of the existing development consent with regard to such matters as environmental management, monitoring, auditing, reporting and community consultation. These requirements will be retained except where superseded in the approval for the current application).
- 5) Survey and mark at regular intervals the approved boundary of the proposed extension and ensure that all activities associated with sand extraction other than rehabilitation or approved mitigation works remain within the marked area;
- 6) Maintain annual production within an upper limit of 80,000 tonnes per year;
- 7) Progressively rehabilitate all areas disturbed by the sand mining operations in accordance with the Environmental Assessment and the EMP;
- 8) Protect from disturbance and maintain existing native vegetation around the periphery of the sand quarry;
- 9) Undertake compensatory planting in the locations identified in the Environmental Assessment and nurture the vegetation and created habitat to maturity in accordance with the Landscape and Rehabilitation Management Plan, to be incorporated in the EMP;
- 10) Protect from disturbance Area A (shown on the figure in Appendix 8), of significance for potential Aboriginal relics;
- 11) Arrange for targeted salvage excavations for Aboriginal artefacts to take place as recommended by Navin Officer and to include the shell midden deposit situated at the South Western corner of the extraction area prior to mining occurring in the nominated locations (shown on the figure in Appendix 8);
- 12) Prior to extending workings into any part of the extension, ensure that a screen of vegetation, with or without bunding, effectively prevents viewing of the land to be disturbed from any publicly accessible locations;
- 13) Ensure that the requirements of the acid sulphate soils management plan are incorporated in the EMP and implemented where indicated to prevent degeneration of water quality in the dredge pond and in groundwater
- 14) Include a section on fish management in the dredge pond in the revised EMP for the site.
- 15) Forward annual production data to the Department of Primary Industries.
- 16) Prior to finalising the revised EMP, forward a draft to DECC for comment.
- 17)
 - a. In surveying the boundary of the extraction area (see 5 above) include a minimum of 5 metres buffer to protect vegetation.
 - b. The external areas of the vegetation shall be fenced so as to exclude access by any farm animals to the satisfaction of the [Planning Secretary](#).
- 18) Include a requirement to monitor compliance with the approved boundary in the revised EMP.
- 19) Revegetate and maintain the buffer area in conjunction with adjoining vegetation, except where the buffer is used for access.
- 20) Update the groundwater monitoring program in the revised EMP.
- 21) Include a tree clearance protocol in the revised EMP incorporating pre-clearing inspection for koalas.
- 22) Incorporate in the revised EMP a standard of revegetation to be achieved to the north and south of the extraction area before the existing east-west link can be severed. Do not completely remove the existing link until a qualified ecologist has confirmed that the required standard of revegetation has been achieved including the establishment of 60% of the plants species representative of the plant communities in the quarry area and in accordance with Appendix 6.
- 23) Include a revegetation monitoring program in the revised EMP to include all areas being revegetated as part of the project.
- 24) Define the compensatory vegetation land by survey and include an appropriate plan in the EMP.

- 25) Include a detailed site rehabilitation program in the EMP addressing the matters listed in item 5a) of the submission from DECC dated 22 December 2006 (and shown in Appendix 8).
- 26) Maintain ongoing consultation with the Aboriginal community including notification of approvals and requirements that relate to Aboriginal heritage with an invitation to contribute to any heritage management activities.
- 27) Submit updated site information to DECC's AHIMS register when archaeological salvage is complete.
- 28) Include in the revised EMP, reference to protection of Aboriginal heritage items located in Area A as part of management of that land and consult the Aboriginal community in developing and implementing the management protocols.
- 29) Should any sand mining impacts occur within Area A, consult DECC and the Aboriginal community as soon as possible in developing an appropriate response.
- 30) Investigate and if practicable, install "clacker" reversing alarms on mobile plant within the sand quarry site.

APPENDIX 3 COMPENSATORY PLANTING



benchmark IN QUALITY
AS/NZS ISO 9001

KF
K.F. WILLIAMS & ASSOCIATES PTY LTD IS A QUALITY
MANAGEMENT SYSTEM ISO 9001 CERTIFIED
THE ABOVE IS NOT A GUARANTEE OF A SERVICE LEVEL

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SCALE & AREA HAVE BEEN DEDUCED
FROM IMAGERY INTERPRETATION &
ARE APPROXIMATE ONLY

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| NO. | DESCRIPTION | CHK | APP | DATE |
|-----|--------------------------------|------|-----|----------|
| A | AREA X & Y 20000 | BvA | | 6-3-08 |
| B | CONSIDER BENCH MARK | J.F. | | 10-3-08 |
| C | REV 2 AREA ZONING TO SOFT LINK | SP | | 21-05-08 |
| D | FIELD AREA | SP | | 22-05-08 |
| E | REV 2 AREA | SP | | 26-05-08 |

| | | |
|--------|---|----------|
| REV 1 | AMENDMENTS TO ZONE BOUNDARIES | 27-05-08 |
| REV 2 | AMENDMENTS TO ZONE BOUNDARIES | 29-05-08 |
| REV 3 | REV 1 EAST-WEST LINK ZONE AREA | 19-06-08 |
| REV 4 | REV 1 NORTHERN CORRIDOR TO EAST-WEST LINK & NORTHERN CORRIDOR | 18-08-08 |
| REV 5 | REV 2 SOUTHERN AREA AMENDMENTS | 19-08-08 |
| REV 6 | REV 2 SOUTHERN AREA AMENDMENTS | 19-08-08 |
| REV 7 | REV 2 SOUTHERN AREA AMENDMENTS | 25-08-08 |
| REV 8 | REV 2 SOUTHERN AREA AMENDMENTS | 25-08-08 |
| REV 9 | REV 2 AREA ZP AMENDMENTS | 14-09-08 |
| REV 10 | REV 2 AREA ZP AMENDMENTS | 14-09-08 |
| REV 11 | REV 2 AREA ZP AMENDMENTS TO PLAN | 20-04-09 |

K.F. WILLIAMS & ASSOCIATES PTY. LTD.
CONSULTING SURVEYORS, CIVIL & STRUCTURAL ENGINEERS & PLANNERS
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A.C.N. 008 664 417

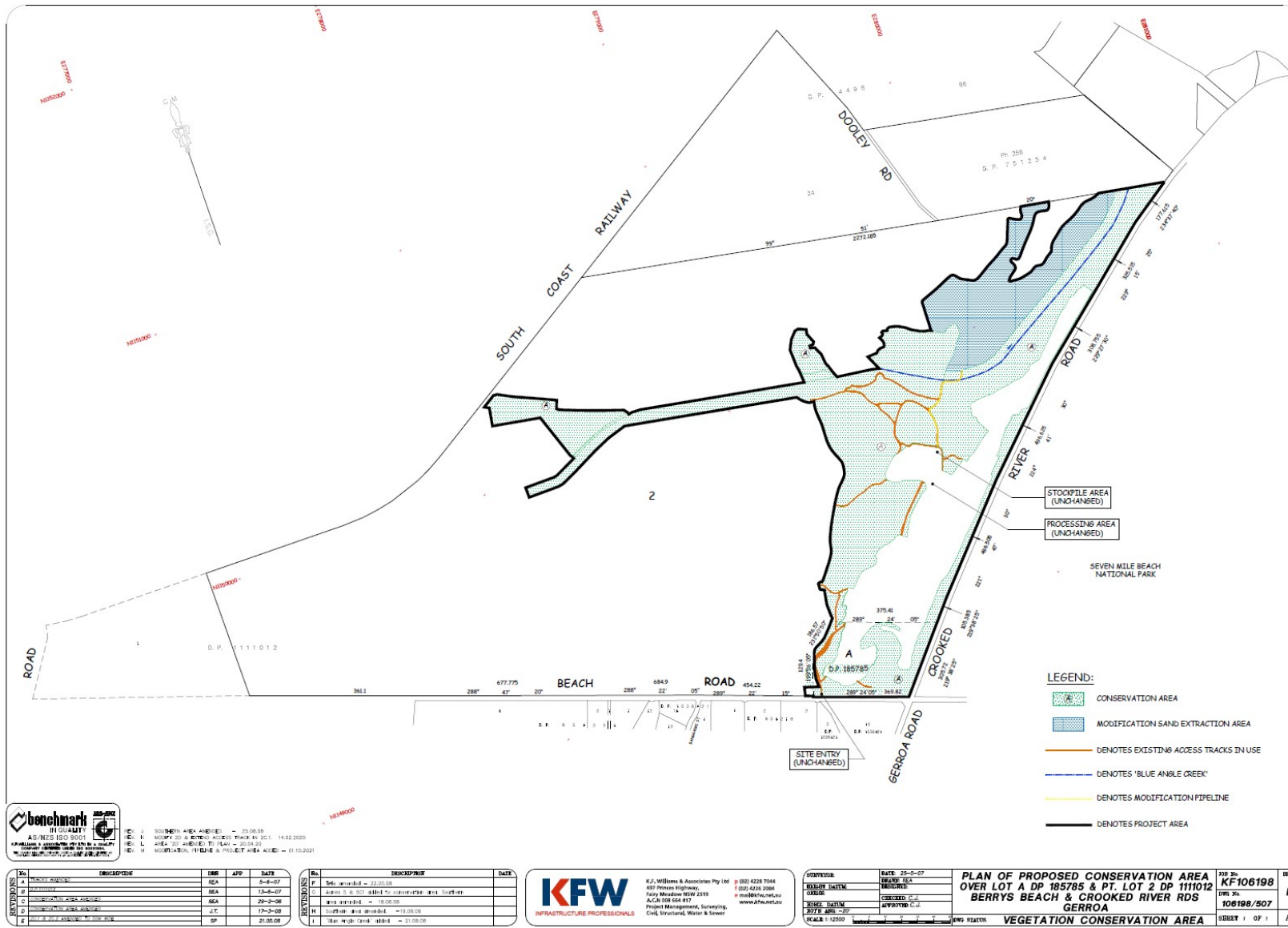
| SHOWROOM C.O. | DATE | 5-3-08 |
|---------------|------|--------|
| DESIGNER | DATE | REV |
| DESIGNER | DATE | REV |
| DESIGNER | DATE | REV |
| DESIGNER | DATE | REV |
| DESIGNER | DATE | REV |

**PLAN SHOWING MANAGEMENT ZONES
GERROA SAND MINE**

| | | | |
|---------|--------------------------|-----|---|
| DWG No. | KF106198 | REV | M |
| DWG No. | 6198/308 | | |
| DATE | 21-05-08 | | |
| SCALE | 1:1 | | |
| SCALE | 1:12500 POINT SCALE ONLY | | |

DWG STATUS: **COMPENSATORY PLANTING** SHEET 1 OF 1 A3

APPENDIX 4 VEGETATION CONSERVATION AREA



APPENDIX 5 REHABILITATION OBJECTIVES

The objectives of site rehabilitation are as follows:

- after the conclusion of sand mining, leave the site free from all sand mining artefacts including machinery, structures, buildings, signage, products and roads, except as required for rural purposes;
- create safe and stable landforms with a natural appearance designed for low maintenance;
- establish indigenous vegetation on all land areas disturbed by the sand quarry to create wildlife habitat including wetland habitat within and around the shoreline of the dredge pond;
- nurture to maturity vegetation screens and compensatory planting established during the sand mining operation;
- control weed growth within the rehabilitation areas and compensatory planting areas;
- retain a minimum of access tracks for maintenance or as required for ongoing rural use of the property;
- progressively rehabilitate sections of the site when they are no longer required for operations to minimise the extent of work remaining when extraction ceases; and
- continue rehabilitation beyond closure of the sand mine until these objectives have been achieved.

**APPENDIX 6
SPECIES LIST**

**APPENDIX 6
PLANT LIST FOR LITTORAL RAINFOREST VEGETATION TO BE REMOVED**

Tall Canopy Trees

Banksia integrifolia C
Eucalyptus botryoides C
Eucalyptus pilularis C

“Rainforest Species” (11 species)

Middle Canopy Trees (individual counts)

Clerodendrum tomentosum (3 plants)
Endiandra sieberi (1 plant)
Glochidion ferdinandi (110 plants)

Understorey

Acronychia oblongifolia R
Breynia oblongifolia U
Cayratia clematidea U
Clerodendrum tomentosum R
Eustrephus latifolius R
Ficus obliqua R
Marsdenia rostrata R
Pittosporum revolutum U
Pyrrhosia rupestris R

Other species (14 native species)

Acacia maidenii VC
Billardiera scandens R
Commelina cyanea C
Desmodium varians R
Dichondra repens U
Hibbertia scandens R
Imperata cylindrica U
Lomandra longifolia VC
Oplismenus imbecillis VC
Pteridium esculentum U
Rubus parvifolius R
Stephania japonica R
Themeda australis U
Viola hederacea U
**Lantana camara* VC

Subjective assessment of abundance: VC – very common, C – common, U – uncommon, R - rare



APPENDIX 7
DECC LETTER

Appendix 7

22/12 2006 10:53 FAX 61 2 42244110

DEC

0000010
002

Date reference : WC78814 (poc0654751;poc0650272)H
Contact : Paul Weir, (02) 4224 4100

Department of Planning
Major Development Assessment
(Attention: Michael Young)
GPO Box 39
SYDNEY NSW 2001



Dear Sir

PROPOSED EXPANSION OF CLEARY BROB SAND MINE GERROA
PROJECT APPLICATION: 05 0099

We are writing in reply to the exhibited Project Application, Environmental Assessment (EA) and accompanying information for the proposed expansion of the Gerroa Sand Quarry received by the Department of Environment and Conservation (DEC) on 8 November 2006.

We have been working through environmental issues relating to this proposal with the proponent and the Department of Planning (DoP) throughout the exhibition period. This has included a meeting between representatives from DoP, the proponent and DEC on 20 November 2006. A letter dated 28 November 2006 was sent to DoP from DEC confirming the outcomes of these discussions. In addition site visits have also been undertaken by DEC with the proponent's representatives on 1 December 2006 and 8 December 2006.

In response to these discussions, DEC has received a subsequent written report from the proponent on 13 December 2006 which further addresses some of the key issues associated with this proposal. In general the outcomes of these discussions have resulted in changes to the proposal in relation to such matters as the adequacy of the compensatory package and proposed management practices to address both ecological and Aboriginal cultural heritage issues.

Based on the outcomes of the above discussions, including a review of the submitted information, the DEC has determined that it is able to support the proposal subject to DoP seeking the additional statement of commitments (SOC), detailed in Attachment 1. These relate to the following two key issues with the development:

1. Biodiversity Conservation; and
2. Aboriginal Cultural Heritage.

We would also appreciate receiving a copy of the submissions received by DoP in response to the exhibition of the EA and the proponent's response to these submissions. We may provide comments on these responses if necessary on matters we regulate to assist DoP in their determination of the development.

PO Box 513, Wollongong NSW 2520
Level 3, 84 Crown Street, Wollongong NSW
Tel: (02) 4224 4100 Fax: (02) 4224 4119
ABN 30 841 387 271
www.environment.nsw.gov.au

Department of Environment and Conservation

In addition, we would also appreciate being provided a copy of the draft Director General's Environmental Assessment report and associated conditions for perusal to ensure the above matters have been addressed. This is because we consider them essential for the development as well as ensuring DEC's effective ongoing regulation of the premises should Approval be granted.

The site is currently licensed for Dredging Works under the Protection of the Environment Operations (POEO) Act 1997 (Environment Protection Licence (EPL) No 4146). This licence may require amendments if development approval is granted. Should the Minister of DoP decide to grant approval the proponent may need to make a separate application to DEC to vary the EPL under the POEO Act 1997 for the proposed extension prior to any construction or operational works commencing on site.

There are also some conditions on the existing EPL which will also relate to the proposed development. These conditions will not be subject to variation, however to ensure that any approval is consistent with the existing licence, DoP should consider these conditions when drafting any approval conditions.

If necessary we would be able to meet at a suitably convenient time with DoP and the proponent to clarify any of the comments provided above and outlined in our attachment.

If you have any questions, or wish to discuss this matter further please contact Paul Wearna on 4224 4100.

Yours sincerely



PETER BLOEM
A/Manager Ilwarrara
Environment Protection and Regulation

22/12/06

Att:

(N:\Part 3A\Drafts\Proposed Cleary Bros Sand Quarry Barco.doc)



ATTACHMENT 1

The Department of Environment and Conservation (DEC) considers that the draft Statement of Commitments (SOC) detailed in the Environmental Assessment (EA) should be adopted in the development of any proposed approval conditions. In addition, we have also provided the following additional comments and SOC to address issues that have arisen during DEC's assessment of the development.

For the purpose of these comments the following terms have been adopted:

- **Conservation area** This is defined in the EA and refers to the area to the east of the site consisting of *Littoral Rainforest* and significant Aboriginal cultural heritage values including Area A
- **Compensatory package** This refers to the overall conservation measures for the site including areas of remnant Endangered Ecological Community (EEC) such as *Swamp Sclerophyll Forest*, *Bangsaly Sand Forest*, *Littoral Rainforest* and *Swamp Oak Floodplain Forest*. It also includes the conservation area and areas of rehabilitation and replanting at the site (the exact area of this package is yet to be defined).

BIODIVERSITY CONSERVATION

1. Boundary of Extension Area

The footprint of the proposed extension area borders the conservation area and a remnant of *Swamp Sclerophyll Forest* which is an EEC. To avoid any potential adverse impacts to these areas we recommend that an adequate separation distance is maintained from the dredging activities/mine operations. DEC considers it crucial that the edge around these sensitive areas is managed to avoid such impacts. To address this issue we recommend the following additional SOCs:

- a) *The boundary of the extension area must be clearly defined in consultation with a fully qualified ecologist prior to the commencement of any construction works to ensure that an adequate buffer distance is maintained from the dredging activities/ mine operations to the conservation area and Swamp Sclerophyll Forest.*



- All dredging activities and associated mine operations must remain within the defined boundary.*

- A monitoring program must be developed and documented in the QEMP to demonstrate that the defined boundary of the extension area is maintained and not compromised during operations.*

- The buffer area should be revegetated with appropriate native species and should be subject to a vegetation management plan for inclusion in the QEMP for its long term restoration and management.*

2. Hydrology

DEC considers the remnant of *Swamp Sclerophyll Forest* adjoining the proposed extension area is regionally important. *Swamp Sclerophyll Forest* is reliant upon a particular hydrology as defined in the Scientific Determination to exist. Information provided to DEC by the proponent and their ecological consultants during the exhibition process state that current sand mining process have had no significant effect on the ground water quality or level. In addition the current mine has had no significant impact on the adjoining vegetation health and its composition. On the basis of this information, the proposal is unlikely to have a significant impact on this EEC. However to properly validate these conclusions we recommend the development and implementation of a groundwater monitoring program linked to an ecological assessment of the adjoining *Swamp Sclerophyll Forest*.



We recommend the following additional SOC:

- a) *The proponent must develop and implement a groundwater monitoring program as part of the QEMP to demonstrate that dredging activities and associated mine operations will not result in any actual or potential impacts to ground waters and the Swamp Sclerophyll Forest. DEC must be consulted in the development of the plan.*

3. **Fauna habitat and movement, the East-West link**

The proposed sand quarry will sever an east-west link between Seven Mile Beach National Park and a remnant of Swamp Sclerophyll Forest which is situated on Cleary Bros land. This link is likely to be used by fauna as habitat and to move between the two areas. The importance of this linkage has also been highlighted by the recent (unconfirmed) sighting of a Koala in the local area.

The proponent has proposed to compensate for the severing of the east west link with revegetation of a link to the north and south of the proposed footprint which would enable fauna to move between the National Park and the remnant.

In relation to the koala, information provided in the EA indicates that there are some feed trees to the west and east of the site. While information held by DEC revealed that there has been no recorded sightings of koalas in the adjoining Seven Mile Beach National Park, nor has DEC undertaken any survey work for this species, DEC considers that the re-establishment of linkages to the north and south of the site important elements for the project in regards to fauna movement and to act as compensatory habitat. In relation to the southern area this would involve continuation of current rehabilitation activities.

The above measures, however, are dependant on the success of planting a highly modified and cleared area in the north of the site and the period of time it would take for this area to become established. In response to this issue, DEC requested the company provide information on an existing rehabilitated area planted in approximately 1993 located in the northern section of the current east west link in order to evaluate its success. A review of this information which included vegetation survey and site inspection revealed that the site was successfully regenerating.

The company has indicated that this should also be the case to the north of the site and that a replanted area should be able to act as a fauna habitat, and thus a suitable compensatory fauna corridor. In this regard we recommend that the complete removal of the east west link should not occur until the northern and southern vegetated areas have been successfully established.

The submitted information also indicated that the existing link consisted mainly of Blackbutt trees containing very few hollows, however the site does contain a number of large Bangalay trees. Bangalay trees are known to contain large hollows and a higher concentration of hollows which provide potential for fauna habitat. The proposal includes removal of some Bangalay trees. To minimise impact to fauna during the removal of any potential habitat trees we recommend the development of a *Tree Clearance Protocol* as part of the QEMP. The aim of this measure is to reduce the direct impacts to any tree dwelling fauna species during the construction phase.

To address the above issues we recommend the following SOCs:

- a) *A Tree Clearance Protocol must be developed by a suitably qualified person as part of the QEMP to reduce any direct impacts to any tree dwelling Threatened Species or arboreal mammals during the construction phase. The DEC must be consulted in the preparation of this protocol.*



- b) *The northern and southern rehabilitation areas must be established for fauna movement to the satisfaction of DEC before the East West link is severed.*
- c) *The northern and southern revegetation areas must be monitored for regeneration success as part the QEMP. The DEC must be consulted in the preparation of this monitoring program.*

4. Compensatory package

The original proposed compensatory package in the EA did not fully satisfy DEC guidelines. Recent discussions between DEC, Cleary Bros and their ecological consultants have revealed that the Swamp Sclerophyll Forest remnant will now be included as part of the compensatory package. The DEC considers this remnant as regionally significant and as such an appropriate offset for inclusion in the compensatory package. A subsequent report received from Ferram and Partners on 13 December 2005 confirms the remnant is to be included in the compensatory package. However the long term security of this remnant and other areas covered by the compensatory package is a major issue and is yet to be resolved. In this regard we recommend the following SOCs:

- a) *Documentation must be developed defining both the area to be included in the compensatory package and associated management strategies for their protection.*
- b) *The areas covered by the compensatory package must be secured for long term conservation prior to operations commencing through a means agreed to by the DoP Cleary Bros and DEC.*
- c) *Any future development of the land must not compromise the compensatory package for this proposal.*

5. Site Rehabilitation and End of Mine uses

DEC understands that Cleary Bros have numerous options for end of mine uses including a proposed golf course and tourist development. There is the potential that these proposals together with the proposed sand quarry could have cumulative impacts on the environment. For this reason any end of mine uses must ensure any areas included in the compensatory package are protected.

While end of mine uses is an important consideration, DEC appreciates that a final land use may not yet be determined. Irrespective DEC considers that rehabilitation should be staged to manage not only exposed areas of the site which contribute to wind blown dust emissions and polluted stormwater runoff, but also to contribute towards progressive revegetation over the life of the quarry. We also consider that opportunities exist as part of staged rehabilitation to implement programs to increase biodiversity values of the land such as the construction of shallow areas within and surrounding the edge of the pond to promote habitat for fauna such as wading birds. While a SOC has been recommended for progressive rehabilitation in accordance with the QEMP we recommend the following additional SOC to assist in guiding the development of this plan.

- a) *A site rehabilitation program must be developed by a suitably qualified person and documented as part of the QEMP. The DEC must be consulted in the preparation of this program. The plan must:*
 - (i) *incorporate staged rehabilitation of the extraction area based on best practice and appropriate guiding principles at the time of rehabilitation;*
 - (ii) *be consistent with the Department of Primary Industries – Mineral Resources Rehabilitation and Mine Closure Environmental Policy Implementation Principles*
 - (iii) *detail practices that protects surface and groundwater from pollution*



- (iv) detail practices that maintains or improves biodiversity so there is no net impact on threatened species or native vegetation
- (v) detail practices that protects places, objects and features of significance to Aboriginal people
- (vi) outline performance criteria/goals/principles for staged rehabilitation during the life of the quarry and post mining.

ABORIGINAL CULTURAL HERITAGE

6. Review of Aboriginal Cultural Heritage Assessment

The site has important and significant aboriginal cultural heritage values. The proposal involves the mining of the dune crest which contains aboriginal cultural heritage items comprised mainly of shell (pip) midden and stone artefacts.

DEC has engaged in discussions with DoP, Cleary Bros and heritage consultants on numerous occasions in regards to the aboriginal cultural heritage values of the site. DEC also visited the site on 8 December 2006 with Cleary Bros and Navin Officer Heritage Consultants to assess and discuss the Aboriginal cultural heritage values. The EA states that the Jerrinja Local Aboriginal Land Council and Jerrinja Consultants have been consulted in regards to the development. Local Aboriginal representatives were also on site during the archaeological subsurface testing program.

Previous reports have identified Area A and Area B as areas of archaeological significance (Paton 1992), as shown in Figure 5.4 of the EA. These areas have been reassessed as part of this current proposal. In the original report by Paton the locations of Area A and Area B were sketched, however, precise grid references were not given. Cleary Bros had surveyors plot their locations based on Paton's descriptions (Navin Officer pers. comm.) and as such their locations may not be exact. Reassessment of these areas (Navin Officer 2006) have concluded that there was no material of archaeological significance in Area B, and as such it is likely that mining the proposed area of Area B will have minimal impact on Aboriginal cultural heritage values. Cleary Bros proposed to remove the conservation status for Area B to allow mining to occur in that area. They also propose that Area A be extended to include more of the dune crest and that this area be conserved through a long term agreement.

The proposed sand mining will destroy the pip midden and any other objects of Aboriginal cultural heritage significance present on the dune, further reducing their occurrence within the Seven Mile Beach area. DEC considers these Aboriginal cultural heritage items significant both locally and regionally. In this regard we recommend that a suitable compensation strategy is developed to mitigate against the loss of Aboriginal cultural heritage in addition to the proposed archaeological salvage and conservation of Area A. This compensation strategy should be prepared in consultation with DEC, the DoP, the local Aboriginal community and Cleary Bros. In this regard we recommend that the following additional SOC be added:

- a) The compensation strategy for the mining of areas containing Aboriginal cultural heritage objects must be negotiated prior to operations commencing to the satisfaction of DEC, the DoP, the local aboriginal community and Cleary Bros.
- b) The recommendations provided in the report by Navin Officer Heritage Consultants in Appendix L of the Environmental Assessment must be followed.
- c) The compensatory package must include the area labelled 'Area A' in figure 5.4 of the EA and must be secured for long term conservation prior to operations commencing through a means agreed on by DEC, the DoP and Cleary Bros.
- d) DEC be consulted regarding the research design for the archaeological salvage work that is to be undertaken prior to further sand mining.

- e) *Consultation with the Aboriginal community should be ongoing. The Aboriginal community must be provided with notification of development approvals and requirements as they relate to Aboriginal heritage and be invited to contribute to any further heritage management activities including the archaeological salvage and management of Area A.*
- f) *Once the archaeological salvage is complete, DEC's AHIMS register must be provided with updated site information.*
- g) *As per the Navin Officer report, the protocol for Human Skeletal Remains must be followed.*

The section identified as 'Area A' in Figure 5.4 of the EA has been identified to conserve some of the cultural heritage and threatened species values on site. It is understood that weed eradication and other rehabilitation works will occur in this area. Due to the aboriginal cultural heritage values of Area A the DEC consider it important that any disruption to the area is minimised. In this regard we recommend the following additional SOCs be added:

- h) *The Environmental Management Plan that is to be developed for conservation Area A must include consideration for the protection of Aboriginal heritage items within that area. The management plan should be developed in consultation with the Aboriginal community (Jerinja LALC and Jerinja Consultants) and a suitably qualified archaeologist.*
- i) *Any vegetation clearing or other maintenance works within Area A must be undertaken in consultation with the local Aboriginal community.*
- j) *Should any impacts occur within Area A as a result of sand mining related activities (such as erosion impacts) DEC and the Aboriginal community must be advised immediately so as to develop an appropriate strategy to minimise impacts.*



APPENDIX 8
 ARCHAEOLOGICAL AREAS

Appendix 8

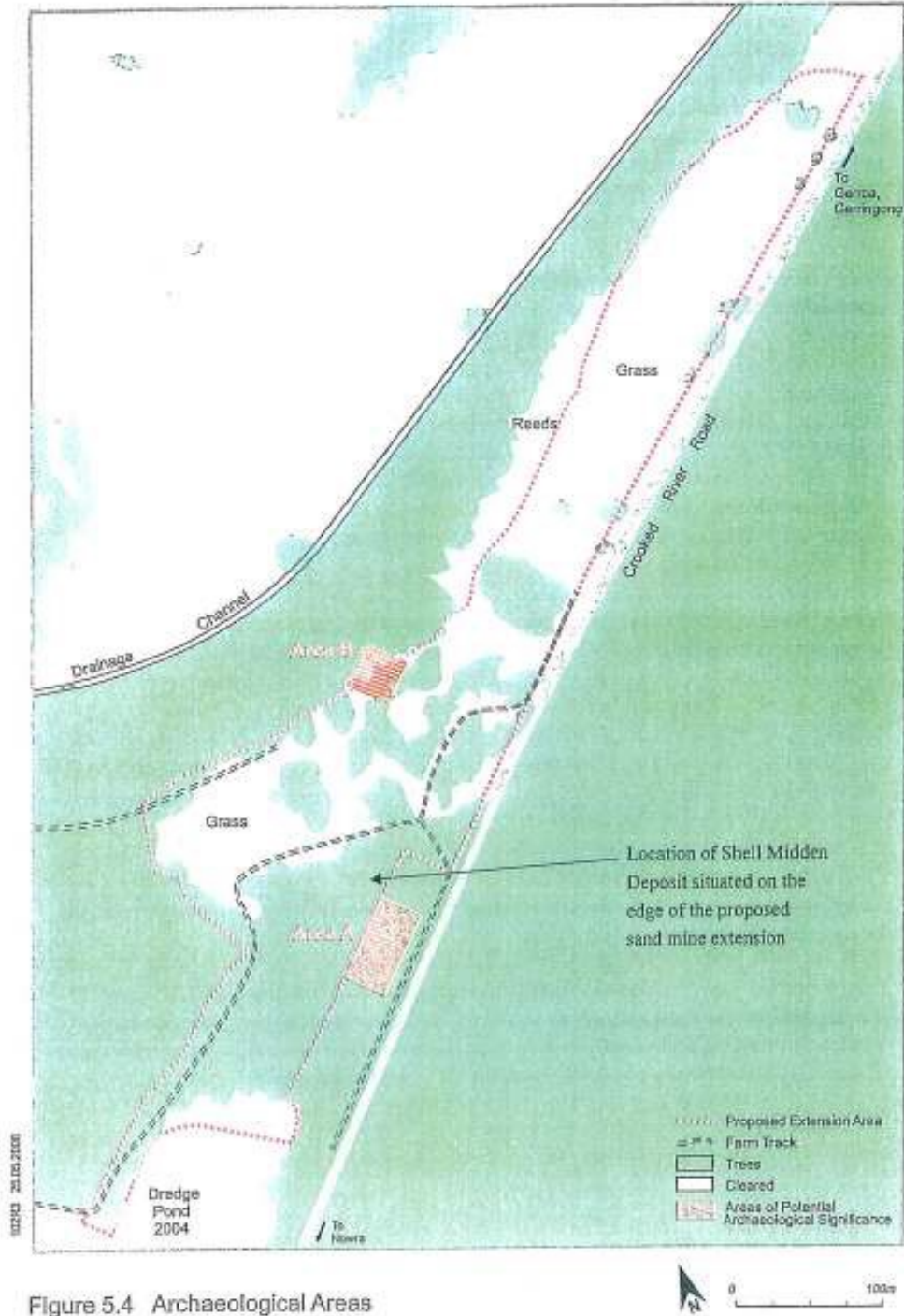


Figure 5.4 Archaeological Areas

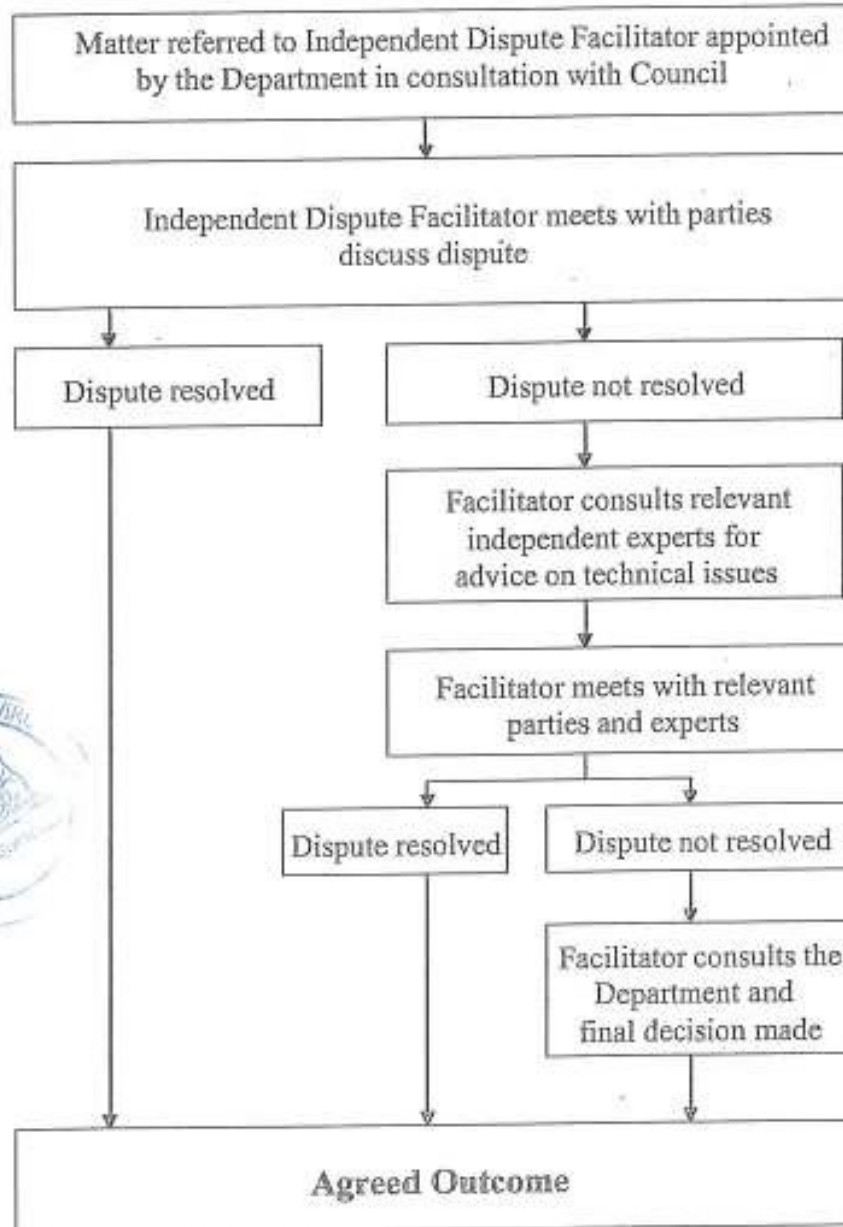
Cultural Heritage Sites relating to the Modification 1 – Extraction Area



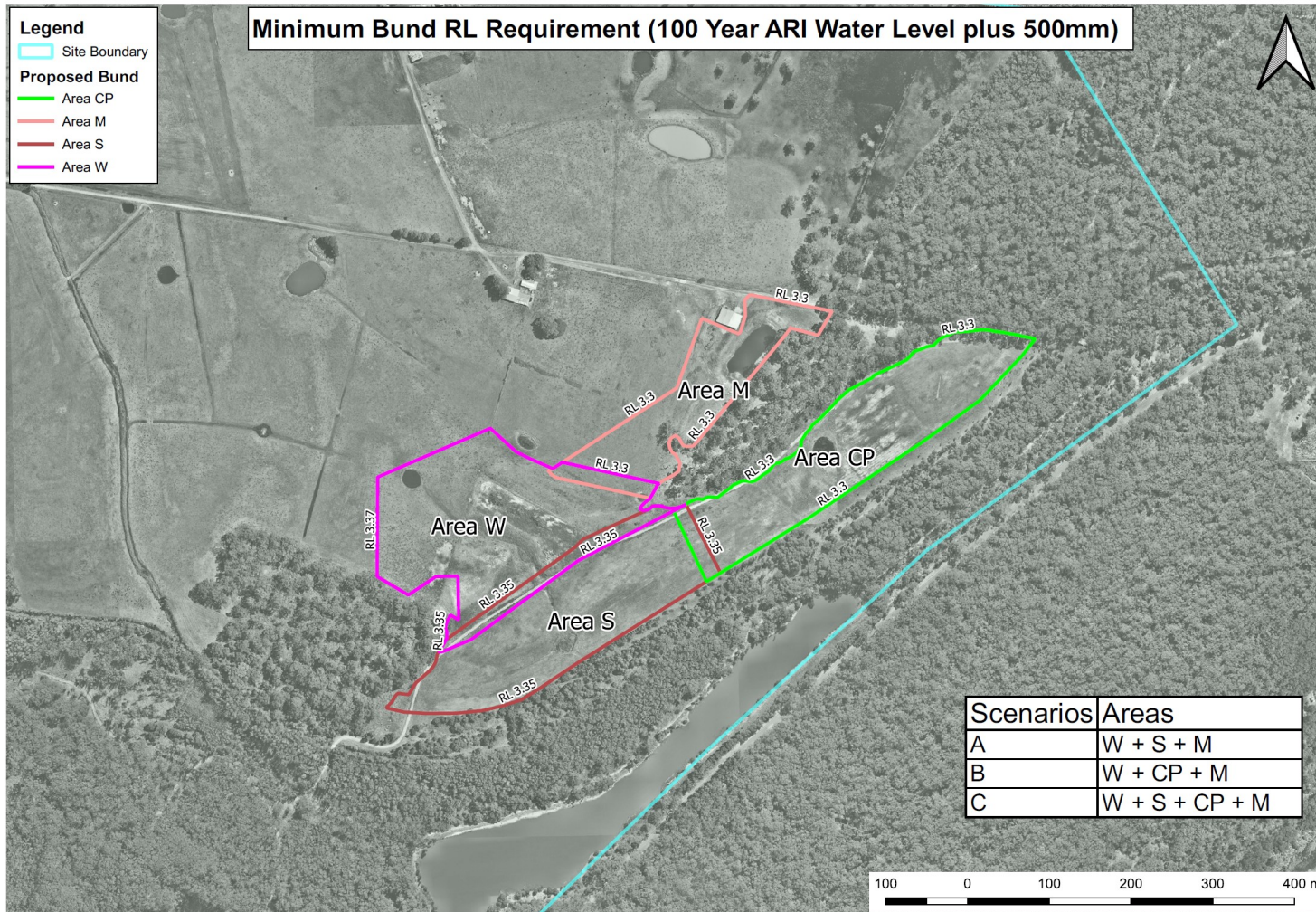
**APPENDIX 9
INDEPENDENT DISPUTE RESOLUTION PROCESS**

**APPENDIX 9
INDEPENDENT DISPUTE RESOLUTION PROCESS**

**Independent Dispute Resolution Process
(Indicative only)**



APPENDIX 10
FLOOD MITIGATION BUNDS



Appendix B

ENVIRONMENTAL PROTECTION LICENCE 4146

Environment Protection Licence

Licence - 4146

Licence Details

| | |
|-------------------|-------------|
| Number: | 4146 |
| Anniversary Date: | 01-February |

Licensee

CLEARY BROS (BOMBO) PTY LTD

PO BOX 210

PORT KEMBLA NSW 2505

Premises

GERROA SAND QUARRY

BEACH ROAD

GERROA NSW 2534

Scheduled Activity

Crushing, grinding or separating

Extractive activities

Fee Based Activity

Scale

| | |
|----------------------------------|--|
| Crushing, grinding or separating | > 30000-100000 T annual processing capacity |
| Extractive activities | > 50000-100000 T annually extracted or processed |

Contact Us

NSW EPA

4 Parramatta Square

12 Darcy Street

PARRAMATTA NSW 2150

Phone: 131 555

Email: info@epa.nsw.gov.au

Locked Bag 5022

PARRAMATTA NSW 2124



Environment Protection Licence

Licence - 4146

| | |
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| Duration of licence | 3 |
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| Fees and annual return to be sent to the EPA | 3 |
| Transfer of licence | 4 |
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Environment Protection Licence

Licence - 4146

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).



Environment Protection Licence

Licence - 4146

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

| |
|------------------------------------|
| CLEARY BROS (BOMBO) PTY LTD |
| PO BOX 210 |
| PORT KEMBLA NSW 2505 |

subject to the conditions which follow.

Environment Protection Licence

Licence - 4146

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

| Scheduled Activity | Fee Based Activity | Scale |
|----------------------------------|----------------------------------|--|
| Crushing, grinding or separating | Crushing, grinding or separating | > 30000 - 100000 T annual processing capacity |
| Extractive activities | Extractive activities | > 50000 - 100000 T annually extracted or processed |

A2 Premises or plant to which this licence applies

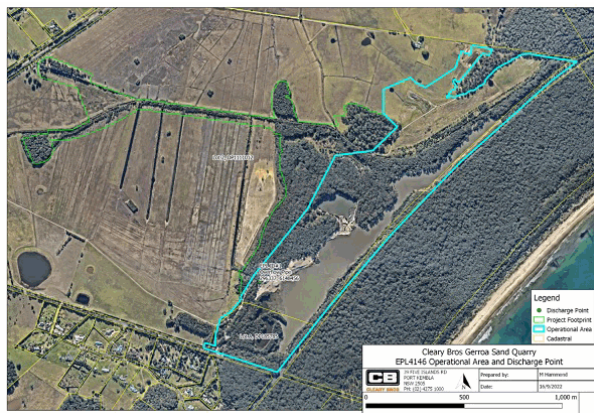
A2.1 The licence applies to the following premises:

| Premises Details |
|--|
| GERROA SAND QUARRY |
| BEACH ROAD |
| GERROA |
| NSW 2534 |
| LOT A DP 185785, PART LOT 2 DP 1111012 |
| THE AREA BORDERED IN BLUE ON THE BELOW MAP TITLED "CLEARY BROS GERROA SAND QUARRY EPL4146 OPERATIONAL AREA AND DISCHARGE POINT" AND DATED 16/09/2022. SAVED ON FILE AS CM9 DOC22/842623. |

A2.2 The premises location is shown on the map below.

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A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

| EPA Identification no. | Type of Monitoring Point | Type of Discharge Point | Location Description |
|------------------------|--------------------------|-------------------------|----------------------|
|------------------------|--------------------------|-------------------------|----------------------|

Environment Protection Licence

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| | | |
|---|---------------------|---|
| 1 | Discharge to waters | The end of the "Overflow Pipe" from the dredge pond as labelled on the map titled "Cleary Bros Gerroa Sand Quarry EPL4146 Operational Area and Discharge Point" and dated 16.09.2022 (saved on file as CM9 DOC22/842623). |
|---|---------------------|---|

3 Limit Conditions

L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

- O1.1 Licensed activities must be carried out in a competent manner.
This includes:
- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
 - b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
- a) must be maintained in a proper and efficient condition; and
 - b) must be operated in a proper and efficient manner.

5 Monitoring and Recording Conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
- a) in a legible form, or in a form that can readily be reduced to a legible form;
 - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 - c) produced in a legible form to any authorised officer of the EPA who asks to see them.

- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

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- a) the date(s) on which the sample was taken;
- b) the time(s) at which the sample was collected;
- c) the point at which the sample was taken; and
- d) the name of the person who collected the sample.

M2 Recording of pollution complaints

- M2.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M2.2 The record must include details of the following:
- a) the date and time of the complaint;
 - b) the method by which the complaint was made;
 - c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - d) the nature of the complaint;
 - e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - f) if no action was taken by the licensee, the reasons why no action was taken.
- M2.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M2.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M3 Telephone complaints line

- M3.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M3.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M3.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
- 1. a Statement of Compliance,
 - 2. a Monitoring and Complaints Summary,
 - 3. a Statement of Compliance - Licence Conditions,
 - 4. a Statement of Compliance - Load based Fee,



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5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.
- R1.3 Where this licence is transferred from the licensee to a new licensee:
- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
 - b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.
- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
 - b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.
- R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').
- R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.
- R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
- a) the licence holder; or
 - b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R2 Notification of environmental harm

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material

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harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
 - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
 - b) the type, volume and concentration of every pollutant discharged as a result of the event;
 - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
 - d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
 - e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
 - f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
 - g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

Environment Protection Licence

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Dictionary

General Dictionary

| | |
|--|--|
| 3DGM [in relation to a concentration limit] | Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples |
| Act | Means the Protection of the Environment Operations Act 1997 |
| activity | Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997 |
| actual load | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| AM | Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> . |
| AMG | Australian Map Grid |
| anniversary date | The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act. |
| annual return | Is defined in R1.1 |
| Approved Methods Publication | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| assessable pollutants | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| BOD | Means biochemical oxygen demand |
| CEM | Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> . |
| COD | Means chemical oxygen demand |
| composite sample | Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume. |
| cond. | Means conductivity |
| environment | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| environment protection legislation | Has the same meaning as in the Protection of the Environment Administration Act 1991 |
| EPA | Means Environment Protection Authority of New South Wales. |
| fee-based activity classification | Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009. |
| general solid waste (non-putrescible) | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |

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| | |
|--|--|
| flow weighted composite sample | Means a sample whose composites are sized in proportion to the flow at each composites time of collection. |
| general solid waste (putrescible) | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| grab sample | Means a single sample taken at a point at a single time |
| hazardous waste | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| licensee | Means the licence holder described at the front of this licence |
| load calculation protocol | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| local authority | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| material harm | Has the same meaning as in section 147 Protection of the Environment Operations Act 1997 |
| MBAS | Means methylene blue active substances |
| Minister | Means the Minister administering the Protection of the Environment Operations Act 1997 |
| mobile plant | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| motor vehicle | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| O&G | Means oil and grease |
| percentile [in relation to a concentration limit of a sample] | Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence. |
| plant | Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles. |
| pollution of waters [or water pollution] | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| premises | Means the premises described in condition A2.1 |
| public authority | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| regional office | Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence |
| reporting period | For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act. |
| restricted solid waste | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| scheduled activity | Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997 |
| special waste | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| TM | Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> . |

Environment Protection Licence

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| | |
|-------------------------|---|
| TSP | Means total suspended particles |
| TSS | Means total suspended solids |
| Type 1 substance | Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements |
| Type 2 substance | Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements |
| utilisation area | Means any area shown as a utilisation area on a map submitted with the application for this licence |
| waste | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| waste type | Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste |
| Wellhead | Has the same meaning as in Schedule 1 to the Protection of the Environment Operations (General) Regulation 2021. |

Ms Nadia Kanhoush

Environment Protection Authority

(By Delegation)

Date of this edition: 22-August-2000

End Notes

- 1 Licence varied by notice 1019326, issued on 25-Jul-2002, which came into effect on 19-Aug-2002.
- 2 Licence varied by change to DEC Region allocation, issued on 17-Mar-2006, which came into effect on 17-Mar-2006.
- 3 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 4 Licence varied by legislative change to Sched. Act. name, issued on 28-Apr-2008, which came into effect on 28-Apr-2008.
- 5 Licence varied by notice 1502807 issued on 09-Dec-2011
- 6 Licence varied by notice 1621576 issued on 06-Oct-2022

Appendix C

NOISE MANAGEMENT PLAN

Appendix D

AIR QUALITY MANAGEMENT PLAN

Appendix E

WATER MANAGEMENT PLAN

Appendix F

LANDSCAPE AND REHABILITATION MANAGEMENT PLAN

Appendix G

MODIFICATION 1 – EXTRACTION AREA ABORIGINAL CULTURAL HERITAGE MANAGEMENT PLAN

Appendix H

ABORIGINAL HERITAGE MANAGEMENT PLAN (ORIGINAL EXTRACTION AREA)