

Champions Quarry Expansion

LANDSCAPE MANAGEMENT PLAN

Final Report

Version 3.2 (October 2017)

REVISION HISTORY AND APPROVAL OF THE LANDSCAPE MANAGEMENT PLAN

Version	Date	Description	By	Review
1.0 (December 2013)	December 2013	Final Report Landscape Management Plan	Champions Quarry	Jeff Champion Completed
1.0 (December 2013)	January 2014	Final Report Landscape Management Plan	OEH	Approved
1.0 (December 2013)	January 2014	Final Report Landscape Management Plan	DRE	Completed
1.0 (December 2013)	January 2014	Final Report Landscape Management Plan	DPI (Agriculture)	Completed
1.0 (December 2013)	January 2014	Final Report Landscape Management Plan	LCC	Completed
1.0 (December 2013)	June 2014	Final Report Landscape Management Plan	DP & I	Approved
2.0 (February 2015)	February 2015	Final Report Landscape Management Plan	DP & I	Requested Amendments
3.0 (January 2017)	January 2017	Final Report Landscape Management Plan	Champions Quarry	Jeff Champion Completed
3.0 (January 2017)	January 2017	Final Report Landscape Management Plan	DP & E	Requested Amendments
3.1 (March 2017)	March 2017	Final Report Landscape Management Plan	Champions Quarry	Jeff Champion
			DP & E	Approved
3.2 (October 2017)	October 2017	Final Report Landscape Management Plan	Champions Quarry	Jeff Champion
			DP & E	Approved

This Management Plan has been prepared after due consideration of the Guidelines from DP & E which seek to ensure that this is an effective and user friendly Plan. It is not a prescriptive or detailed document but provides a broad framework and direction.

This Management Plan is considered a dynamic document and will be reviewed where necessary as part of the annual review process (see Section 8 of the EMS). This Management Plan and any subsequent revisions must be approved by Champions Quarry Management and DP & E. The Management Plan must be prepared in consultation with the Office of Environment and Heritage; Division of Resources and Energy within the NSW Department of Industry; Department of Primary Industries – Agriculture; Lismore City Council and then submitted to the Secretary (or a nominee) of the DP & E for approval in accordance with the Project Approval.

A copy of the revised Management plan will be available on the Proponent's website.

REVISION HISTORY AND APPROVAL OF PROJECT APPROVAL (CONDITIONS OF APPROVAL)

Date	Description	By	Review
30 August 2012	Project Approval	Champions Quarry	Jeff Champion
		DP & I	
29 October 2013	Notice of Modification (09_0080 MOD 1)	Champions Quarry	Jeff Champion
		DP & I	
16 September 2016	Notice of Modification (09_0080 MOD 2)	Champions Quarry	Jeff Champion
		DP & E	
9 August 2017	Notice of Modification (09_0080 MOD 3)	Champions Quarry	Jeff Champion
		DP & E	

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ANNEXURES

NIL

REFERENCES

GLOSSARY

Biodiversity Offset Strategy	The conservation and enhancement strategy described in the documents listed in condition 2(a) of Schedule 2, and shown in the figure in appendix 6 of the Project Approval
CoA	Planning and Assessment Commission of NSW Conditions of Approval dated August 30, 2012 (incorporating the Statement of Commitments (SoC) as amended from time to time)
Contractor	Contractor engaged by the Proponent to undertake activities associated with the Project (and includes Subcontractors)
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning and Environment
DoP	Department of Planning
DP & I	Department of Planning and Infrastructure (previously known as DoP)
DP & E	Department of Planning and Environment (previously known as DP & I)
DPI (Agriculture)	Department of Primary Industries - Agriculture
DPI (Water)	Department of Primary Industries - Water
DRG	Division of Resources and Geoscience within the NSW Department of Planning and Environment
Environment	Surroundings in which the Project operates within including: air, water, land, natural resources, flora, fauna, humans, heritage and their interrelation
Environmental Aspect	Element of organisational activities or products that can interact with the environment
Environmental Impact	Any changes to the environment, whether adverse or beneficial, wholly or partially resulting from an organisational aspect
Extraction Areas	The Central and Southern Extraction Areas, shown on Figure 9 in Appendix 6 of the Project Approval
EA	Champions Quarry Expansion, Environmental Assessment Report prepared by ERM Pty Limited and dated February 2010
EA (MOD 1)	Modification Application MP 09_0080 MOD 1 dated April 2013
EA (MOD 2)	Modification Application MP 09_0080 MOD 2 dated February 2016, the accompanying annexures A and B and the response to submissions dated April 2016

EA (MOD 3)	Modification Application MP 09_0080 MOD 3 dated February 2017, titled Annexure A – Application pursuant to Section 75W of the Environmental Planning and Assessment Act 1979, and the response to submissions dated July 2017
EMS	Environmental Management Strategy prepared in accordance with Schedule 5 Condition 1 of the Project Approval
EPA	NSW Environmental Protection Authority
ERM	Environmental Resources Management Australia
EP & A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environmental Protection Licence under the POEO Act
Guidelines	The Guidelines for Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004)
Incident	A set of circumstances that: <ul style="list-style-type: none">• cause or threaten to cause, material harm to the environment; and/or• breaches or exceeds the limits or performance measures/criteria in the Project Approval
LCC	Lismore City Council
Management Plan	Refers to this Landscape Management Plan
Minister	Minister for Planning, or delegate
OEH	Office of Environment and Heritage
POEO Act	<i>Protection and Environment Operations Act 1997</i>
Preferred Project Report (PPR)	Champions Quarry Expansion, Preferred Project Report prepared by ERM Pty Limited and dated December 2011
Project Approval	Project Approval issued by Planning and Assessment Commission of New South Wales containing the CoA dated 30 August 2012 as amended from time to time
Proponent	Reavill Farm Pty Ltd and Tucki Hills Pty Ltd and any other entity or person who seeks to carry out the development approved under the Project Approval
Response to Submissions (RTS)	Champions Quarry Response to Submissions, prepared by ERM Pty Limited and dated September 2010 and containing the Proposed Quarry Management Plan
RMS	Roads and Maritime Services
Secretary	Secretary of DP & E, or nominee
SB	Earthen surround bunds

SoC	Statement of Commitment (Appendix 3 of the Project Approval)
Subcontractor	Any company, body or person who is contracted to the Contractor for the purpose of supplying services or goods.

1 BACKGROUND

1.1 OVERVIEW

The Proponent has been granted Project Approval by the NSW Minister for Planning and Infrastructure under Section 75J of the EP & A Act to expand quarrying operations of the quarry known as Champions Quarry located at Tuckurimba (near Lismore) on the Far North Coast of New South Wales (herein referred to as “the Project”).

The approved expansion is to increase the extraction rate from a maximum of 29,000m³ (approximately 64,000 tonnes) of sandstone material to 250,000 tonnes of extractive materials per calendar year until the year 2038. Activities included as part of the expansion include but are not limited to, those activities required for clearing, top soil and over burden removal, extraction of quarry product, processing, stockpiling, loading and transportation of material.

As outlined in the EMS, the Project has undergone a high level of scrutiny as part of a detailed EA and subsequent investigations to evaluate the extent of impact of the proposed quarry expansion on the environment.

Figure 1.1 – Project Layout Plans

Known as Appendix 2 Project Layout Plans – Figure 2.2 (amended 1 June 2012) extracted from the Planning and Assessment Commission of NSW Conditions of Approval dated 30 August 2012

APPENDIX 2
PROJECT LAYOUT PLANS



Figure 2: Project Site and Nearest Residential Receivers

2 PURPOSE AND OBJECTIVES

2.1 PURPOSE

The primary purpose of this Management Plan is to provide procedures to:

- Ensure that the OEH, DRE, DPI (Agriculture), LCC and the Secretary are involved in the formulation of this Management Plan;
- Address the requirements of applicable legislation and any ongoing approvals as they are applicable to the Project;
- Meet the Project Approval; and
- Address the requirements of the EA.

2.2 OBJECTIVES

This Management Plan's objectives specifically in relation to the Project are to describe:

- the implementation of the Biodiversity Offset Strategy and how it would be integrated with the overall rehabilitation of the site;
- the short, medium and long term measures that would be implemented to:
 - manage remnant vegetation and habitat on site;
 - implement the Biodiversity Offset Strategy; and
 - ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;
- the performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and the rehabilitation of the site, including triggering remedial action (if necessary);
- the measures that would be implemented over the next 3 years, including the procedures to be implemented for:
 - ensuring compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;
 - enhancing the quality of remnant vegetation and fauna habitat;
 - restoring native endemic vegetation and fauna habitat within the biodiversity offset areas and rehabilitation area;
 - maximising the salvage of environmental resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse in the enhancement of the biodiversity areas or rehabilitation area;
 - collecting and propagating seed;
 - ensuring negligible environmental consequences for the local Koala population;
 - minimising the impacts on native fauna on site, including undertaking appropriate pre-clearance surveys;
 - controlling weeds and feral pests;
 - controlling erosion;

- managing grazing and agriculture on site;
 - controlling access; and
 - bushfire management.
- a consultation program regarding the potential removal of Bund A as part of the rehabilitation of the site. Receptors NAL 2 and 3, must be consulted as part of the program;
- a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;
- the potential risks to successful implementation of the Biodiversity Offset Strategy and rehabilitation of the site, and include a description of the contingency measure that would be implemented to mitigate against these risks; and
- who would be responsible for monitoring, reviewing, and implementing the plan.

Further in accordance with Schedule 5 Condition 3 of the Project Approval, this Management Plan includes the following information (as determined relevant to the landscape of the Project):

- baseline data;
- a description of:
 - relevant statutory requirements;
 - relevant limits or performance measures/criteria;
 - relevant performance indicators;
- a description of the measures that would be implemented to comply with relevant statutory requirements, limits, or performance measures /criteria;
- a program to monitor and report on:
 - the impacts and environmental performance of this Project;
 - the effectiveness and management measures;
 - a contingency plan to manage any unpredicted impacts and their consequences;
 - a program to investigate and implement ways to improve the environmental performance of the project over time;
- a protocol for managing and reporting any incidents, complaints, non-compliance with statutory requirements and exceedances; and
- a protocol for the periodic review of this Management Plan.

3 LEGISLATIVE OBLIGATIONS

3.1 LEGISLATION AND POLICIES

The applicable legal and other requirements related to flora and fauna environmental management for the Project are outlined in Table 3.1 below

Table 3.1 – Legal and other requirements for Environmental Management

Legislation and Policies
Environmental Protection and Biodiversity Conservation Act 1999
Environmental Planning and Assessment Act 1979
Threatened Species Conservation Act 1995 (TSC Act)
Native Vegetation Act 2003
Environmental Planning and Assessment Regulation 2000
Protection of the Environment and Operations Act 1997
National Parks and Wildlife Act 1974
Noxious Weeds Act 1993
Rural Lands Protection Act 1989
State Environmental Planning Policy #44 – Koala Habitat Protection (SEPP 44)
North Coast Regional Environmental Plan 1988 (NCREP)
Lismore Local Environmental Plan 2012 (Lismore LEP)

3.2 MINISTERS CONDITIONS OF APPROVAL

Pursuant to section 75B(1) of the EP & A Act, the Project was declared to be a project under Part 3A of the Act and project approval has been received from the Minister for Planning.

The primary conditions relevant to landscape in relation to the Project are contained within Conditions 40, 42, 43, 44, 45, 46 and 47. These Conditions and other additional clauses that are relevant to the landscape of the quarry are outlined below.

3.2.1 CONDITION 20 (COMPLIANCE) OF SCHEDULE 2 OF THE PROJECT APPROVAL

Condition 20 of Schedule 2 of the Project Approval states:

“The Proponent must ensure that all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities”.

3.2.2 CONDITION 3 OF SCHEDULE 3 OF THE PROJECT APPROVAL

Condition 3 of Schedule 3 of the Project Approval states:

“The Proponent must construct:

- Bund A prior to carrying out any quarrying operations on site under this approval;
- Bund D prior to carrying out any quarrying operations within the Southern Extraction Area; and
- Bund E prior to commissioning the sand washing plant within the Southern Extraction Area,

to the satisfaction of the Secretary.”

3.2.3 CONDITION 40 OF SCHEDULE 3 OF THE PROJECT APPROVAL (BIODIVERSITY OFFSET STRATEGY)

Condition 40 of Schedule 3 of the Project Approval states:

“The Proponent must implement the Biodiversity Offset Strategy, as described in the documents listed in condition 2(a) of Schedule 2, summarised in Table 7 and shown in the Figure in Appendix 6, to the satisfaction of the Secretary.”

Table 7: Biodiversity Offset Strategy

Area	Offset Type	Minimum Size (ha)
Area 1	Existing vegetation to be enhanced	1.71ha
Area 2	Existing vegetation to be enhanced	2.56ha
Area 3	Existing vegetation to be enhanced	2.14ha
Protected Revegetation Area	Vegetation to be established with the planting of native endemic flora species	1.5ha
TOTAL		7.91ha

3.2.4 CONDITION 42 OF SCHEDULE 3 OF THE PROJECT APPROVAL (LONG TERM SECURITY OF OFFSETS)

Condition 42 of Schedule 3 of the Project Approval states:

“By the end of June 2017, unless the Secretary agrees otherwise, the Proponent must make suitable arrangements to provide appropriate long term security for all of the offset areas in the Biodiversity Offset Strategy as identified in Table 7, and shown in the figure in Appendix 6, to the satisfaction of the Secretary.

Note: Mechanisms to provide appropriate long term security to the land must remain in force in perpetuity.”

3.2.5 CONDITION 43 OF SCHEDULE 3 OF THE PROJECT APPROVAL (REHABILITATION OBJECTIVES)

Condition 43 of Schedule 3 of the Project Approval states:

“The Proponent must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the proposed rehabilitation strategy in the EA, and comply with the objectives in Table 8.

Table 8: Rehabilitation Objectives

Feature	Objective
Site (as a whole)	Safe, stable and non-polluting
Surface Infrastructure	To be decommissioned and removed, unless the Secretary agrees otherwise
Benched Quarry Walls	Landscaped with native endemic flora species
Quarry Pit Floors	Suitable for grazing
Other land affected by the Project	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: <ul style="list-style-type: none"> • native endemic species; and • a landform consistent with the surrounding environment

3.2.6 CONDITION 44 OF SCHEDULE 3 OF THE PROJECT APPROVAL (PROGRESSIVE REHABILITATION)

Condition 44 of Schedule 3 of the Project Approval states:

“The Proponent must rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies must be employed when areas prone to dust generation cannot yet be permanently rehabilitated.”

3.2.7 CONDITION 45 OF SCHEDULE 3 OF THE PROJECT APPROVAL (LANDSCAPE MANAGEMENT PLAN)

Condition 45 of Schedule 3 of the Project Approval states:

“The Proponent must prepare a Landscape Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) be prepared in consultation with OEH, DRE, DPI (Agriculture) and Council;
- (b) be submitted to the Secretary for approval prior to carrying out any development on site (other than the construction of bunds and vegetative screening) under this approval;
- (c) describe how the implementation of the Biodiversity Offset Strategy would be integrated with the overall rehabilitation of the site;
- (d) describe the short, medium and long term measures that would be implemented to:
 - manage remnant vegetation and habitat on site;
 - implement the Biodiversity Offset Strategy; and
 - ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;
- (e) include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and the rehabilitation of the site, including triggering remedial action (if necessary);
- (f) include a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:
 - ensuring compliance with the rehabilitation objectives and progressive rehabilitation obligation in this approval;
 - enhancing the quality of remnant vegetation and fauna habitat;
 - restoring native endemic vegetation and fauna habitat within the biodiversity offset areas and rehabilitation area;
 - maximising the salvage of environmental resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse in the enhancement of the biodiversity areas or rehabilitation area;
 - collecting and propagating seed;
 - ensuring negligible environmental consequences for the local Koala population;
 - minimising the impacts on native fauna on site, including undertaking appropriate pre-clearance surveys;
 - controlling weeds and feral pests;
 - controlling erosion;

- managing grazing and agriculture on site;
 - controlling access; and
 - bushfire management.
- (g) include a consultation program regarding the potential removal of Bund A as part of the rehabilitation of the site. Receptors NAL 2 and 3, must be consulted as part of the program;
- (h) include a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;
- (i) identify the potential risks to successful implementation of the Biodiversity Offset Strategy and rehabilitation of the site, and include a description of the contingency measure that would be implemented to mitigate against these risks; and
- (j) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Proponent must implement the approved management plan as approved from time to time by the Secretary.”

3.2.8 CONDITION 46 OF SCHEDULE 3 OF THE PROJECT APPROVAL (CONSERVATION AND REHABILITATION BOND)

Condition 46 of Schedule 3 of the Project Approval states:

“Within 6 months of the approval of the Landscape Management Plan, the Proponent must lodge a Conservation and Rehabilitation Bond with the Department to ensure that the Biodiversity Offset Strategy and the rehabilitation of the site is implemented in accordance with the performance and completion criteria set out in the Landscape Management Plan. The sum of the bond must be determined by:

- (a) calculating the full future cost of implementing the Biodiversity Offset Strategy;
- (b) calculating the cost of rehabilitating the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and
- (c) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs;

to the satisfaction of the Secretary.

Notes:

- If capital and other expenditure required by the Landscape Management Plan is largely complete, the Secretary may waive the requirement for lodgement of a bond in respect of the remaining expenditure.
- If the Biodiversity Offset Strategy and rehabilitation of the site area are completed to the satisfaction of the Secretary, the Secretary will release the bond. If the Biodiversity Offset Strategy and rehabilitation of the site are not completed to the satisfaction of the Secretary, the Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.”

3.2.9 CONDITION 47 OF SCHEDULE 3 OF THE PROJECT APPROVAL

Condition 47 of Schedule 3 of the Project Approval states:

“Within 3 months of the completion of each Independent Environmental Audit (see condition 9 of schedule 5), the Proponent must review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:

- (a) effects of inflation;
- (b) likely cost of implementing the Biodiversity Offset Strategy and rehabilitating the site (taking into account the likely surface disturbance over the next 3 years of the project); and
- (c) performance of the implementation of the Biodiversity Offset Strategy and rehabilitation of the site to date.”

3.2.10 CONDITION 3 OF SCHEDULE 5 OF THE PROJECT APPROVAL

Condition 3 of Schedule 5 of the Project Approval more broadly states the following in relation to the preparation of management plans:

“The Proponent must ensure that the Management Plans required under this approval are prepared in accordance with any relevant guidelines, and include:

- (a) detailed baseline data;
- (b) a description of:
 - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - any relevant limits or performance measures/criteria; and
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;
- (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
- (d) a program to monitor and report on the:
 - impacts and environmental performance of the project; and
 - effectiveness of any management measures (see (c) above);
- (e) a contingency plan to manage any unpredicted impacts and their consequences;
- (f) a program to investigate and implement ways to improve the environmental performance of the project over time;
- (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliance with statutory requirement; and
 - exceedances of the impact assessment criteria and/or performance criteria; and
- (h) a protocol for periodic review of the plan.

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.”

3.3 ENVIRONMENTAL PROTECTION LICENCE (EPL) CONDITIONS

An Environmental Protection Licence has been obtained for the operations – EPL 20562.

3.4 RELATED MANAGEMENT PLANS

This Management Plan forms part of an overarching environmental management system for the Project. Where relevant reference should be made to the other plans for the Project listed in Table 3.2.

Table 3.2 – Environmental Management Plan Requirements

Number	Environmental Plan	Condition ¹
EMP 1	Noise Management Plan	9
EMP 2	Air Quality Management Plan	12
EMP 3	Water Management Plan	17
EMP 4	Transport Management Plan	31
EMP 5	Waste Management Plan	33
EMP 6	Heritage Management Plan	36

3.5 STANDARDS, POLICIES, GUIDELINES AND MODELLING

The standards, policies, guidelines and modelling that have been used in the preparation of this Management Plan and that relate to the Project are listed in Table 3.3.

Table 3.3 – Environmental Standards, Policies, Guidelines and Modelling

Environmental Risk Issue	Standards, Policies, Guidelines and Modelling
Landscape	Planning for Bush Fire Protection – NSW Rural Fire Service 2006

3.6 CROSS REFERENCING REQUIREMENTS OF MANAGEMENT PLANS AND RELEVANT CHAPTERS/PARAGRAPH

Table 3.4 – Cross Referencing Requirements of Management Plans and Relevant Chapters/Paragraph

Relevant Condition	Statement of Project Approval	Paragraph/Chapter Dealing with Condition
Condition 45(c) – Schedule 3	A Landscape Management Plan that describe how the implementation of the Biodiversity Offset Strategy would be integrated with the overall rehabilitation of the site.	Paragraph 7.1
Condition 45(d) – Schedule 3	<p>A Landscape Management Plan that describes the short, medium and long term measures that would be implemented to:</p> <ul style="list-style-type: none"> manage remnant vegetation and habitat on site; implement the Biodiversity Offset Strategy; and ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval. 	Paragraph 10 and Table 10.1
Condition 45(e) –	A Landscape Management Plan that include detailed performance and completion criteria for evaluating the	Paragraph 11.1, 11.2 and Table 9.2

¹ Environmental Performance Conditions, Schedule 3 of the Project Approval

Schedule 3	performance of the Biodiversity Offset Strategy and the rehabilitation of the site, including triggering remedial action (if necessary).	
Condition 45(f) – Schedule 3	<p>A Landscape Management Plan that includes a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:</p> <ul style="list-style-type: none"> ensuring compliance with the rehabilitation objectives and progressive rehabilitation obligation in this approval; enhancing the quality of remnant vegetation and fauna habitat; restoring native endemic vegetation and fauna habitat within the biodiversity offset areas and rehabilitation area; maximising the salvage of environmental resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse in the enhancement of the biodiversity areas or rehabilitation area; collecting and propagating seed; ensuring negligible environmental consequences for the local Koala population; minimising the impacts on native fauna on site, including undertaking appropriate pre-clearance surveys; controlling weeds and feral pests; controlling erosion; managing grazing and agriculture on site; controlling access; and bushfire management. 	Chapter 8
Condition 45(g) – Schedule 3	A Landscape Management Plan that includes a consultation program regarding the potential removal of Bund A as part of the rehabilitation of the site. Receptors NAL 2 and 3, must be consulted as part of the program.	Paragraph 9.5
Condition 45(h) – Schedule 3	A Landscape Management Plan that includes a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria	Paragraph 11.1, 11.2 and Table 9.2
Condition 45(i) – Schedule 3	A Landscape Management Plan that identifies the potential risks to successful implementation of the Biodiversity Offset Strategy and rehabilitation of the site, and include a description of the contingency measure that would be implemented to mitigate against these risks;	Paragraph 7.1
Condition 45(j) – Schedule 3	A Landscape Management Plan that includes details of who would be responsible for monitoring, reviewing, and implementing the plan.	Paragraph 11.1

4 ROLES AND RESPONSIBILITIES

All quarry personnel and Contractors are accountable through conditions of employment or contracts with each individual responsible for ensuring that their work complies with the EMS procedures. An organisational structure for the Project is provided in Section 6 of the EMS.

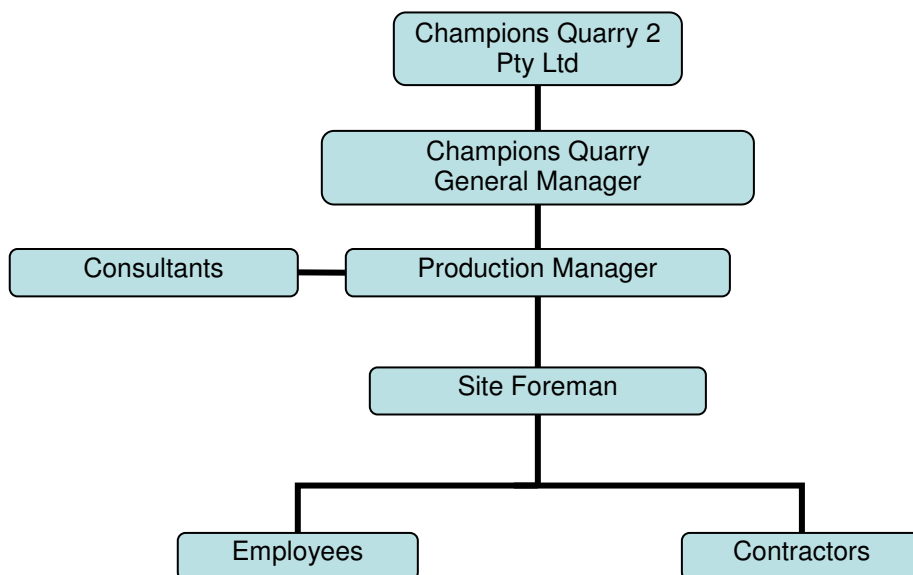
This section of the Strategy designates the responsibilities of the Proponent's personnel and Contractors in implementing this Strategy as it is relevant.

Table 4.1 – Champions Quarry Roles and Responsibilities

PRODUCTION MANAGER		
Action Number	Responsibility and Authority	Timing
LMP.PM.01	Ensuring the Project Approval, Project Commitments and any other relevant licences and approvals are adhered to.	At all times
LMP.PM.02	Prepare the Management Plan in consultation with the OEH, DRE, DRI (Agriculture) and LCC and submit the Management Plan to the Secretary for approval.	Prior to carrying out development onsite (except bunds and vegetative screening)
LMP.PM.03	Ensure staff and Contractors receive appropriate information relevant to their position outlining the biodiversity offset strategy.	At all times
LMP.PM.04	Respond to any complaints from the public that relate to biodiversity impacts.	When and if required
LMP.PM.05	Co-ordination of any site investigations in relation to any incidents affecting biodiversity at the site.	When and if required
LMP.PM.06	Ensuring all monitoring, reporting and review commitments included as part of this Management Plan are implemented.	As detailed in this Management Plan
LMP.PM.07	Implementing contingencies in the event of non-conformance with performance indicators that relate to site rehabilitation and the biodiversity offset strategy.	When and if required
SITE FOREMAN		
Action Number	Responsibility and Authority	Timing
LMP.SF.01	Ensuring the Project Approval, Project Commitments and any other relevant licences and approvals are adhered to.	At all times
LMP.SF.02	Ensure that all quarrying activities are undertaken in a manner that minimises impacts on biodiversity in accordance with the procedures outlined in this plan.	At all times
LMP.SF.03	Notify the Production Manager before any clearing is undertaken.	At all times
LMP.SF.04	Ensure the management actions associated with this plan are implemented to the satisfaction of the Production Manager.	At all times
LMP.SF.05	Inspect the Biodiversity Offset Areas and Protected Revegetation Areas Monthly for compliance and report findings to the Production Manager.	Monthly
QUARRY EMPLOYEES AND CONTRACTORS		
Action Number	Responsibility and Authority	Timing
LMP.EC.01	Employees and Contractors must take reasonable steps to prevent and control impacts to biodiversity during quarrying operations.	At all times

LMP.EC.02	Employees and Contractors must advise the Site Foreman and/or the Production Manager of any significant incident that may potentially impact the biodiversity.	At all times
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Figure 4.1 – Environmental Management Strategy Organisational Chart as it applies to the Landscape Management Plan (extracted from the EMS)



5 MANAGEMENT AND MITIGATION STRATEGIES

5.1 APPROVAL REQUIREMENTS

This Management Plan has been provided to the OEH, DRE, DPI (Agriculture) and LCC for consultation purposes as required by the Project Approval.

5.2 TRAINING AND AWARENESS

As part of the general site induction process, all Project employees and Contractors will be made aware of biodiversity offset areas (known as Areas 1, 2 and 3 and the Protected Revegetation Area) and their responsibilities in avoiding those areas.

6 QUARRYING APPROACH

Below is an overview of the proposed bunds and a critical path for the development. It should be noted that the details below and associated Figures 6.1 – 6.4 are notional and indicative only. Plans are not conclusive and will be adopted and then adapted by the Proponent in carrying out the Project.

6.1 OVERVIEW OF BUNDS

All quarrying operations will be undertaken in work cells behind leading permanent and/or sacrificial vegetated bunds and in deepening pits, which should be substantially shielded from view to the receivers to the north and east. The progression of quarry operations are set out below.

Figure 6.1 shows the indicative locations of the proposed bunds and tree planting.

Overview of Bunds:

- Bund A – Long term bund which will be planted with groundcover plantings and grass only as this bund may be removed upon completion of the Project. A single row of non-Koala habitat trees will also be planted on the south-western side of the bund on natural ground level.
- Bund B – Permanent low earth mound approximately 10 metres wide to be planted with non-Koala habitat trees/shrubs and grass. There will be 2 rows of larger tree species, with tree spacing for the larger tree species being approximately 6 metres apart in the rows, and approximately 5 metres between each row with offset planting.
- Bund C – Medium term sacrificial low earth mound approximately 10 metres wide to be planted with non-Koala habitat trees/shrubs and grass. There will be 2 rows of larger tree species, with tree spacing for the larger tree species being approximately 6 metres apart in the rows, and approximately 5 metres between each row with offset planting.
- Bund D – Permanent bund approximately 10 metres wide to be planted with grass and non-Koala habitat trees/shrubs beside the bund. There will be 2 rows of larger tree species, with tree spacing for the larger tree species being approximately 6 metres apart in the rows, and approximately 5 metres between each row with offset planting.
- Bund E – Medium/Long term bund approximately 6 metres tall and 10 metres wide running east-west only, to be planted on the northern side with a single row of non-Koala habitat trees/shrubs and grass. Bund E at the indicative location shown in Figure 5.3 must be constructed prior to commissioning the sand washing plant within the Southern Extraction Area.
- Bund F – Long term sacrificial low earth mound approximately 10 metres wide to be planted with non-Koala habitat trees/shrubs and grass. There will be 2 rows of larger tree species, with tree spacing for the larger tree species being approximately 6 metres apart in the rows, and approximately 5 metres between each row with offset planting.
- Earthen surround bunds (SB) – Short term moving bunds. Throughout quarry operations the Proponent may construct earthen surround bunds (comprising topsoil, overburden and/or quarry product) at the leading edges of each new work cell for acoustic and visual attenuation purposes. The exact location of these bunds will be flexible and determined by the Production Manager and may be constructed where work cells are not shielded by permanent or longer-term bunds.

The tree species and planting procedures are set out in section 6.3 of this Management Plan.

The Proponent must vegetate Bunds A – F as soon as practicable after the completion of the construction of the bunds.

6.2 ADDITIONAL PLANTINGS

In addition to the construction/planting of the Bunds above, the Proponent will carry out planting to the north of the main access road and a koala habitat planting area. Figure 6.1 shows the indicative locations of the proposed planting and are detailed below:

- Area to the North of the Main Access Road – The area to the north of the main access road will be planted with non-Koala habitat trees/shrubs and grass. There will be 2 rows of larger tree species, with tree spacing for the larger tree species being approximately 6 metres apart in the rows, and approximately 5 metres between each row with offset planting.

There will be a break in screen planting near the junction of the main access road and Wyrallah Road to discourage directing terrestrial fauna on to the road (in accordance with Statement of Commitment 4 in the Appendix 3 of the Project Approval).

The planting of the area to the north of the main access road is to be established to the satisfaction of the Secretary prior to the Proponent commencing extraction in the Southern Extraction Area beyond the area shown as Progression 1 (Progression 1 of the Western Quadrant of the Southern Extraction Area) depicted in Figure 5 of Appendix 2 of the Project Approval.

- The Koala Habitat Area – The Koala habitat area will be approximately 300 metres long and 20 metres wide at the indicative location set out in Figure 6.1. The area will be planted with Koala habitat trees/shrubs and grass. There will be 4 rows of larger tree species, with tree spacing for the larger tree species being approximately 6 metres apart in the rows, and approximately 5 metres between each row with offset planting.

The Koala habitat area was increased from being initially 10 metres wide to now being 20 metres wide and reduced in length to ensure that Koalas are not drawn towards Wyrallah Road, but a comparable number of Koala food trees are planted.

The Koala habitat area will be initially fenced to exclude cattle and remove grazing pressures until the trees thrive and increase in size.

The Koala habitat area will be planted on or before September 2017.

6.3 PROPOSED PLANTINGS – TREE SPECIES AND PLANTING PROCEDURES

Plantings will comprise of either Koala habitat species or non-Koala Habitat species and/or groundcover plantings (grasses).

Non-Koala Habitat Plantings

The non-koala habitat plantings will be treated as follows:

- Tree species may include Brush Box, Pink Bloodwood, Blackbutt, Casuarina, Melaleuca, Lilly Pilly and Hoop Pine.
- Tree spacing for larger tree species should be approximately 6 metres apart in the rows, and approximately 5 metres between each row with offset planting;
- Trees should be planted into soils formed from subsoil bunds with topsoil cover, or into deep ripped existing soil profiles.
- A suitable slow release fertiliser should be used at recommended rates.
- The ground within 1 metre of planted trees should be maintained in a weed free condition from planting until the trees are at least 3 metres tall.
- Trees should be mulched with woodchip or surrounded by weedmat to retain soil moisture and prevent weed growth around the young trees.

- Dead trees should be replaced at 1 month, 3 months and 12 months after initial planting.
- Corridors will be fenced to exclude livestock where required.

Koala Habitat Plantings

Koala habitat species will be treated as follows:

- Tree species may include Tallowwood, Forest Red Gum and Flooded Gum.
- Koala trees should be planted into soils formed from sub-soil bunds with topsoil cover or into deep-ripped existing soil profiles.
- A suitable slow release fertiliser should be used at recommended rates.
- The ground within 1 metre of planted trees should be maintained in a weed free condition from planting until the trees are at least 3 metres tall.
- Trees should be mulched with woodchip or surrounded by weedmat to retain soil moisture and prevent weed growth around the young trees.
- Dead trees should be replaced at 1 month, 3 months and 12 months after initial planting.
- Corridors will be fenced to exclude livestock where required.

Groundcover Plantings

The groundcover plantings will be treated as follows:

- Perennial; species may include Setaria sp, Siratro sp and Wynn Cassia.
- Seasonally appropriate annual grasses (including winter - Ryegrass and summer - Japanese Millet) may be used as quick cover where appropriate.
- Groundcover planting will be carried out as soon as practicable after ground disturbance is completed. Target foliage cover of the ground surface should be 70+ percent and this is expected to be achieved within 1 year of planting/sowing.

Figure 6.1 – Indicative Bund Locations and Proposed Tree Planting

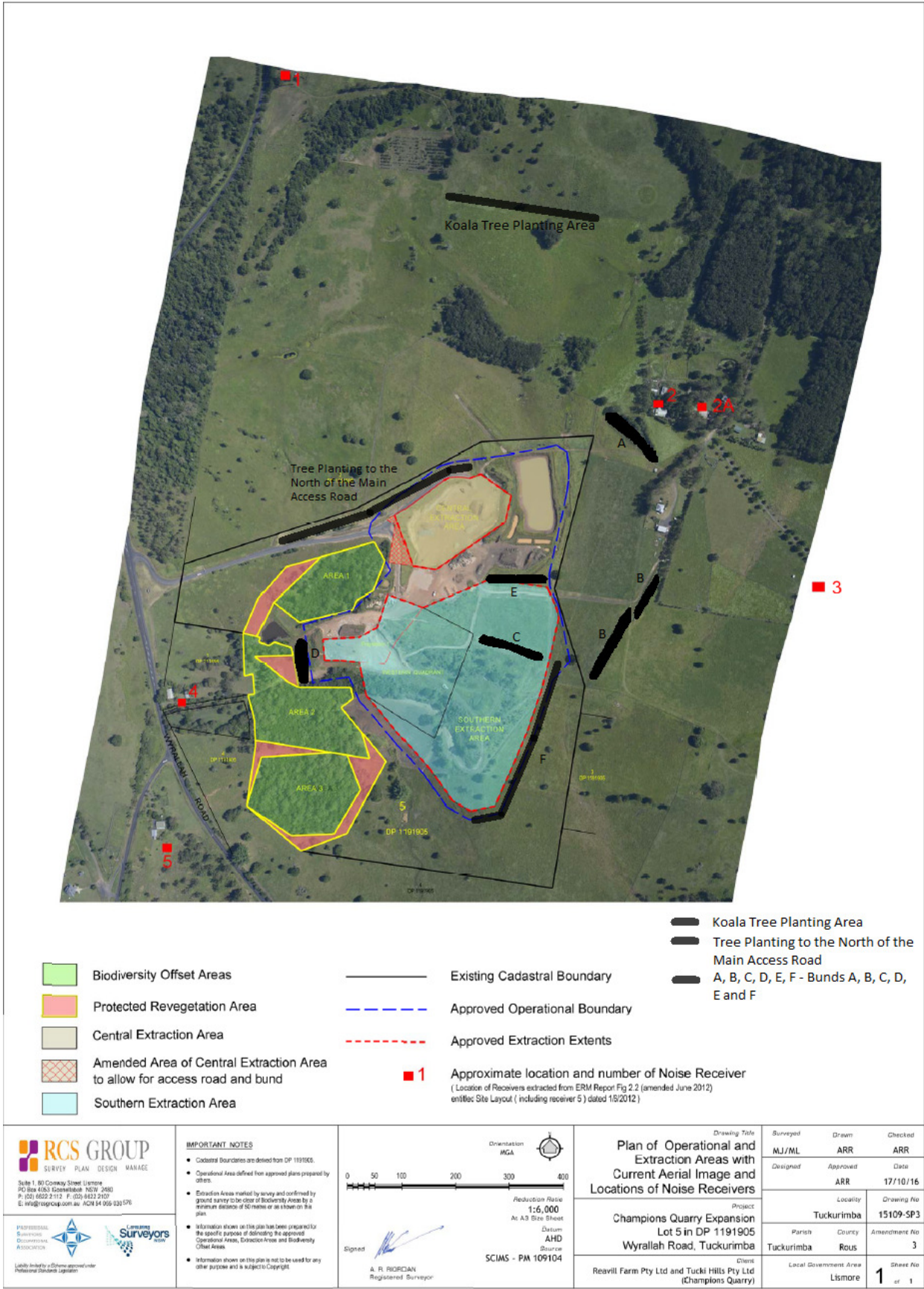


Figure 6.2 – Indicative Location of Bund E

Known as Appendix 2 Project Layout Plans – Figure 3 extracted from the Planning and Assessment Commission of NSW Conditions of Approval dated 30 August 2012 (as amended by Modification 3).

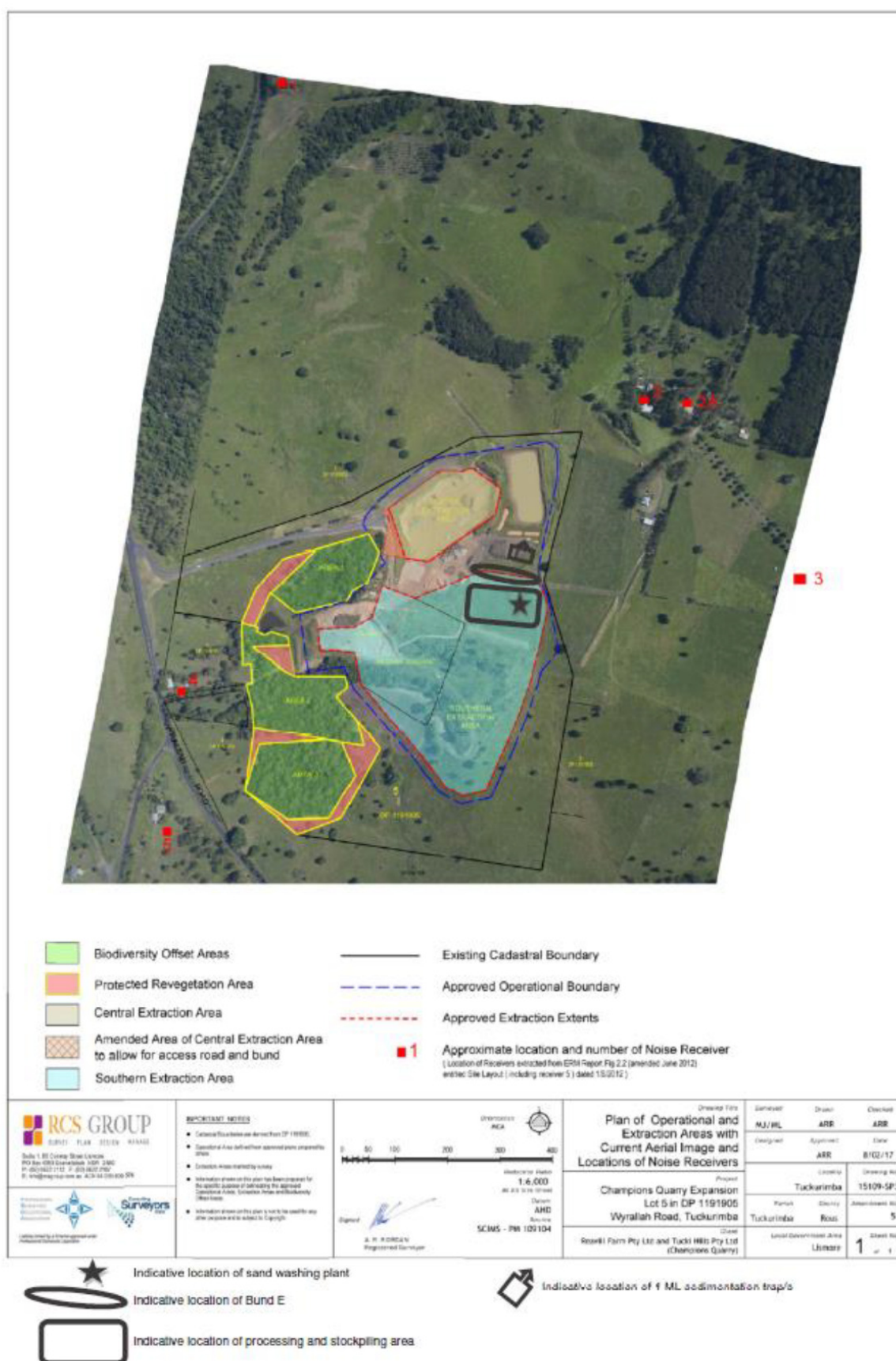


Figure 3: Site Features and Neighbouring Receivers

6.4 CRITICAL PATH AND QUADRANTS

A summary of the critical events path is set out in Table 6.1 below and an in-depth analysis of the critical events are set out below.

For the purposes of determining the critical events, the Southern Extraction Area has been notionally divided into 4 indicative quadrants as shown in Figure 6.3. The quadrants are shown as the Northern Quadrant, the Eastern Quadrant, the Southern Quadrant and the Western Quadrant.

It should be noted that more than one quadrant may be operational at any one time. For example, the Proponent may operate in the Central Extraction Area and the Western and Eastern Quadrants in the Southern Extraction Area at the same time. Further, quadrants will be progressively rehabilitated on an opportunistic basis.

Table 6.1 – Summary of Critical Events Path

Before extraction begins in new expanded areas	Works required – bunds low earth mounds and plantings
Central Extraction Area	A
Southern Extraction Area – Western and Eastern Quadrants	A, B, C and D
Prior to commissioning sand washing plant	E
Southern Extraction Area – Southern and Northern Quadrants	E and F – 3 years in advance

6.5 STAGE 1 – CENTRAL EXTRACTION AREA AND WESTERN QUADRANT OF SOUTHERN EXTRACTION AREA

- Prior to commencing extraction in the Southern Extraction Area beyond the area shown as Progression 1 (Progression 1 of the Western Quadrant of the Southern Extraction Area) depicted in Figure 5 of Appendix 2 of the Project Approval:
 - Construct bunds A, B, C and D and carry out associated planting (with grasses and/or native endemic shrubs and/or trees as appropriate); and
 - Establish vegetative screening of planted trees to the north of the access road as identified in Figure 6.1.
- Continue to use Central Extraction Area quarry floor for processing, stockpiling and water treatment until completion of all work cells upon which time the Central Extraction Area will be fully rehabilitated.
- Continue to use portions of the Southern Extraction Area quarry floor for processing, stockpiling and water treatment until completely rehabilitated upon completion of final work cell.
- If not earlier, 3 years prior to completion of quarrying activities in the Western Quadrant Bund F must be constructed and associated planting undertaken (with grasses and native endemic shrubs and/or trees).
- Bund E must be constructed (with grasses and native endemic shrubs and/or trees) prior to commissioning the sand washing plant within the Southern Extraction Area.

6.6 STAGE 2 – CENTRAL EXTRACTION AREA AND EASTERN QUADRANT OF SOUTHERN EXTRACTION AREA

- Continue to use Central Extraction Area quarry floor for processing, stockpiling and water treatment until completion of all work cells upon which time the Central Extraction Area will be fully rehabilitated.

- Continue to use portions of the Southern Extraction Area quarry floor for processing, stockpiling and water treatment until completely rehabilitated upon completion of final work cells.
- If not earlier, 3 years prior to commencing quarrying activities in the Eastern Quadrant:
 - Construct bund F and carry out associated planting (with grasses and native endemic shrubs and/or trees) so it has been in place for a minimum of 3 years before extraction progresses to the eastern part of the Eastern Quadrant; and
 - Recommend bund E be constructed and associated planting undertaken (with grasses and native endemic shrubs and/or trees) at this stage.
- Upon exhaustion of the Eastern Quadrant the eastern side of the Eastern Quadrant will be progressively battered, rehabilitated and grassed.
- Upon exhaustion of the Eastern Quadrant and adjacent areas, the relevant portion of the quarry floor within the Eastern Quadrant will be progressively rehabilitated and grassed.

6.7 STAGE 3 – CENTRAL EXTRACTION AREA AND SOUTHERN QUADRANT OF SOUTHERN EXTRACTION AREA

- Continue to use Central Extraction Area quarry floor for processing, stockpiling and water treatment until completion of all work cells upon which time the Central Extraction Area will be fully rehabilitated.
- Continue to use portions of the Southern Extraction Area quarry floor for processing, stockpiling and water treatment until completely rehabilitated upon completion of final work cells.
- 3 years prior to completion of quarrying activities in the Southern Quadrant bund E must be constructed (if not already) and associated planting undertaken (with grasses and native endemic shrubs and/or trees) so that Bund C and its plantings can be removed in due course.

6.8 STAGE 4 – CENTRAL EXTRACTION AREA AND NORTHERN QUADRANT OF SOUTHERN EXTRACTION AREA

- Continue to use Central Extraction Area quarry floor for processing, stockpiling and water treatment until completion of all work cells upon which time the Central Extraction Area will be fully rehabilitated.
- Continue to use portions of the Southern Extraction Area quarry floor for processing, stockpiling and water treatment until completely rehabilitated upon completion of final work cells.
- If not before, 3 years prior to commencing quarrying activities in the Northern Quadrant bund E must be constructed (if not already) and associated planting undertaken (with grasses and native endemic shrubs and/or trees) so that Bund C and its plantings can be removed in due course.
- Remove Bund C to expand extraction into the Northern Quadrant.

6.9 STAGE 5 – EXHAUSTION OF RESOURCES IN THE CENTRAL EXTRACTION AREA AND SOUTHERN EXTRACTION AREA

- Processing area is to be decommissioned and all completed work cells are to be rehabilitated to pasture.

Figure 6.3 – Indicative Southern Extraction Area Quadrants

(Known as Figure 3.5 – Southern Extraction Area Quadrants extracted from the Champions Quarry Expansion Quarry Management Plan dated September 2010 being Annexure E in the RTS dated September 2010)

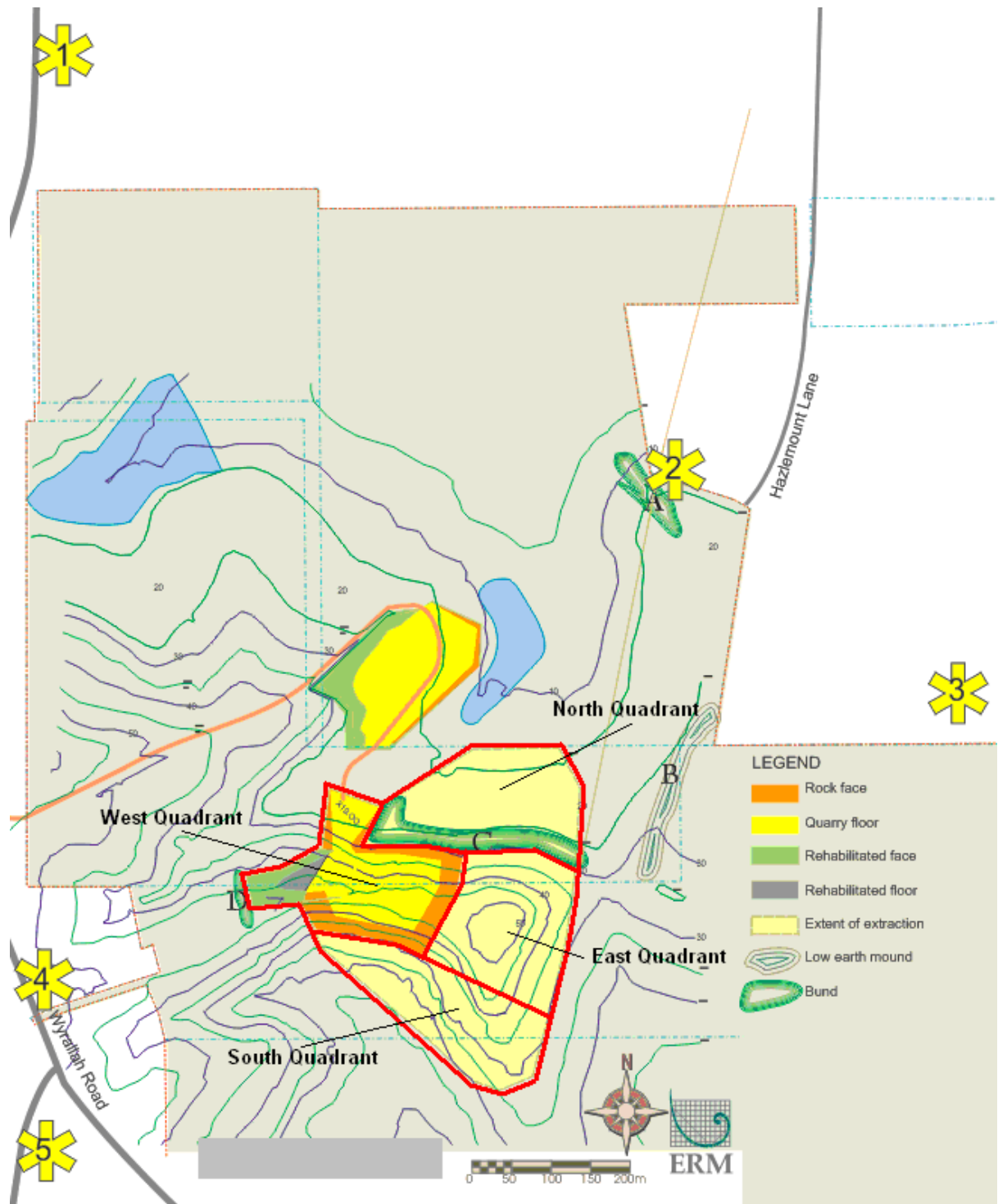
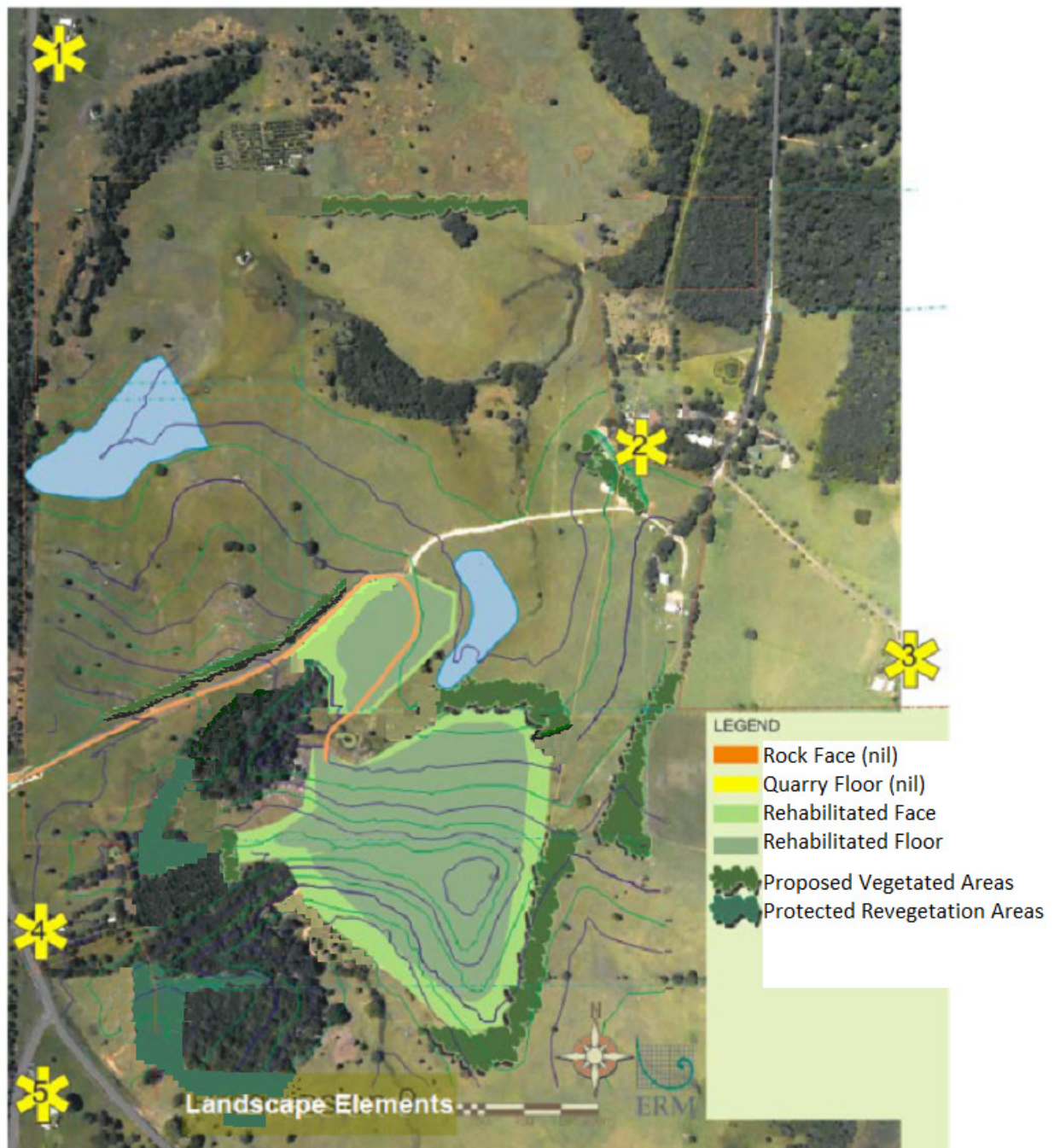


Figure 3.5 Southern Extraction Area Quadrants

Figure 6.4 – Indicative Rehabilitated Extraction Areas and Final Landform

(Previously known as Figure 3.14 – Rehabilitated Extraction Areas and Final Landform extracted from the Champions Quarry Expansion Quarry Management Plan dated September 2010 being Annexure E in the RTS dated September 2010 – Amended)



Note – Final Landform of rehabilitated quarry may contain some benched slopes with vertical faces.

7 BIODIVERSITY OFFSET STRATEGY

7.1 IMPLEMENTATION OF THE BIODIVERSITY OFFSET STRATEGY

The Quarry expansion will clear less than 1.5 ha of vegetation. The loss of this relatively small amount of vegetation over a 25 year period will be offset by permanent lock up of biodiversity offsets and through the management and protection of existing areas, and revegetation areas of the same communities and habitat attributes within the Project Site to provide a very significant net improvement in habitat values.

The details of the Biodiversity Offset Strategy are set out in Table 7.1 below.

Table 7.1 – Biodiversity Offset Strategy Areas

Area	Offset Type	Minimum Size (ha)
Area 1	Existing vegetation to be enhanced	1.72 ha
Area 2	Existing vegetation to be enhanced	2.65 ha
Area 3	Existing vegetation to be enhanced	2.16 ha
Protected Revegetation Area	Vegetation to be established with the planting of native endemic flora species	1.65 ha
TOTAL		8.18 ha

Figure 7.1 sets out the areas of the Biodiversity Offset Strategy including Protection Areas and Protected Revegetation Areas.

Areas 1, 2 and 3

The existing vegetation in Areas 1, 2 and 3 are to be enhanced. It is proposed that the proponent enhance the existing vegetation by adopting the following procedures:

- Weed Management – the Proponent will carry out a weed management program to reduce competition and encourage growth of native species in the understorey. The primary weed invasion is by Lantana and Camphor Laurel and management practices include:
 - eradication of existing Lantana and management of new growth Lantana;
 - eradication of new growth Camphor Laurel; and
 - removal of targeted established Camphor Laurel.
- Fallen Timber – the Proponent will where practicable relocate fallen timber and branches from within the disturbed area to Areas 1, 2 and 3 to provide additional nesting and foraging habitat; and
- Feral animals – the proponent will initiate measures where required to control feral animals where possible.

Protected Revegetation Area

Vegetation is to be established in the Protected Revegetation Area via the planting of native endemic flora species and by adopting the following procedures:

- Planting – the Proponent will foster incorporate locally occurring species into the revegetation program/conduct planting of native endemic flora species as appropriate in the Protected Revegetated Area by cultivation and seed plantings.
- Tree species – Tree species may include Brush Box, Pink Bloodwood, Casuarina, Melaleuca, Lilly Pilly and Hoop Pine.

- Weed Management – the Proponent will carry out a weed management program to reduce competition and encourage growth of native species in the understorey. The primary weed invasion is by Lantana and Camphor Laurel and management practices include:
 - eradication of existing Lantana and management of new growth Lantana;
 - eradication of new growth Camphor Laurel; and
 - removal of targeted established Camphor Laurel.
- Fallen Timber – the Proponent will where practicable relocate fallen timber and branches from within the disturbed area to the Protected Revegetation Area to provide additional nesting and foraging habitat;
- Fencing – initially the Protected Revegetation Area will be fenced to exclude cattle and remove grazing pressures; and
- Feral animals – the proponent will initiate measures where required to control feral animals where possible.

7.2 PERFORMANCE OF THE BIODIVERSITY OFFSET STRATEGY

The Proponent notes that the rehabilitated indicative final land form that is proposed will not place any significant pressures on the Biodiversity Offset Area identified in Table 7 above and in Figure 7.1. Rather the rehabilitated landform should continue to complement the Biodiversity Offset Area.

Figure 7.1 – Biodiversity Offset Strategy

(Known as Appendix 6: Biodiversity Offset Strategy extracted the Project Approval issued by Planning and Assessment Commission of New South Wales containing the Project Approval dated 30 August 2012 – As amended by Modification 2)



8 MEASURES TO BE IMPLEMENTED DURING FIRST 3 YEARS OF OPERATIONS

8.1 REHABILITATION OBJECTIVES AND PROGRESSIVE REHABILITATION OBLIGATIONS

In the first 3 years of operations it is not anticipated that the Proponent will have commenced any rehabilitation works. Rehabilitation will be initiated during stage 2 as referred to in paragraph 6.6.

Following commencement of rehabilitation program, the Proponent's rehabilitation objectives will be initially monitored monthly by the Proponent to assess establishment of vegetation and progress.

8.2 ENHANCING THE QUALITY OF REMNANT VEGETATION AND FAUNA HABITAT

Remnant vegetation and fauna habitat is limited to biodiversity offset areas. The strategies to be adopted in the first 3 years of operations to enhance the quality of remnant vegetation and fauna habitat includes control of feral animals, weed management, fallen timber management, cultivation and planting of native endemic species and maintaining fire breaks (as set out in section 7).

8.3 ENHANCING NATIVE ENDEMIC VEGETATION AND FAUNA HABITAT WITHIN THE BIODIVERSITY OFFSET AREAS AND REHABILITATION AREA

In the first 3 years, the Proponent proposes to work towards restoring the native endemic vegetation and fauna habitat within the biodiversity offset areas by adopting the following procedures:

- Maintaining fire breaks;
- Feral animals – the proponent will initiate measures where required to control feral animals where possible;
- Weed Management – the Proponent will carry out a weed management program to reduce competition and encourage growth of native species in the understorey of the biodiversity offset areas;
- Fallen Timber – The Proponent will where practicable relocate fallen timber and branches from within the disturbed area to the biodiversity offset areas to provide additional nesting and foraging habitat; and
- Planting – The Proponent will incorporate locally occurring species into the revegetation program/conduct planting of native endemic flora species as appropriate in the Protected Revegetated Area.

The Proponent notes that the rehabilitated area outside the biodiversity offset areas will be regenerated primarily to pasture (grasses) and not native endemic vegetation and fauna habitat. Some areas will be regenerated utilising species of tree/shrubs (non-Koala habitat plantings). All areas will be managed for feral animals and weeds.

8.4 MAXIMISING THE SALVAGE OF ENVIRONMENTAL RESOURCES WITHIN THE APPROVED DISTURBANCE AREA

As only approximately 1.5 ha is expected to be cleared and the balance of the Operational Area is grazing pasture, the only environmental resource that is salvageable within the disturbance area is topsoil and overburden. Topsoil and overburden will be used in the creation of bunds and low earth mounds. Upon rehabilitation the topsoil and overburden will again be utilised in the rehabilitation of the quarry.

8.5 COLLECTING AND PROPAGATING SEED

Local provenance species should be used in revegetation works. Where possible, seedlings should be grown from seed stock collected from native species growing on site or under similar conditions elsewhere within the catchment.

Where native seed is not immediately available (due to seasonal constraints), native seedlings should be sourced from a local nursery.

8.6 LOCAL KOALA POPULATION

All studies undertaken by the Proponent clearly show that the quarry operations are unlikely to disrupt the life cycle of the Koala species. Rather, the inclusion of the following measures are expected to not only ensure that there are negligible environmental consequences for the local Koala population but that the development will enhance the lifecycle of the species:

- All trees that are to be felled (if any), will be inspected prior to felling and that any trees are felled inwards (towards the cleared areas) to prevent damage to nearby vegetation;
- Select shrub species and/or tree species that do not provide a foraging resource for Koalas in visual screening proposed along the haul road;
- Targeted planting of koala feed and habitat trees along the northern boundary of the Project Site as set out below.
- The “Koala Habitat and Visual Screen Plantings (Permanent)” featured in Figure 6.1 will be planted in accordance with section 6.2 of this Management Plan.

8.7 MINIMISING THE IMPACTS ON NATIVE FAUNA ON SITE

Measures to minimise the impacts on native fauna on site include the following:

- pre-clearance inspection of each work cell prior to the commencement of any clearing works to identify potential fauna habitat (eg rocky outcrops, fallen hollow logs, and hollow bearing trees) and identify appropriate measures to deal with fauna. Measure to minimise impacts on fauna during clearing operations include clearance of hollow bearing trees by nudging the tree then leaving the tree to be cleared at a later period to allow any resident fauna to relocate;
- where potential fauna habitat has been identified, a suitably qualified wildlife handler/expert will be present during clearing operations of the subject area to supervise clearance and rescue any individuals where required;
- pre-clearance inspection of trees to be felled for Koalas be carried out prior to felling;
- relocation of any fallen logs to adjoining areas and/or rehabilitation areas; and
- providing a break in the screening planting to the western end of the haul road and Wyrallah Road to discourage directing terrestrial fauna on the road.

Measures to minimise impact of traffic movement on fauna includes:

- limiting traffic movements to daylight hours (wherever possible);
- limit the speed of haul trucks on site to 30km/h;

- training for quarry staff (eg by way of tool-box meetings) to promote awareness of local fauna, including Koalas and the steps to follow if injured wildlife is encountered;
- provide a break in the screening planting near the junction of the quarry access road and Wyrallah Road to discourage directing terrestrial fauna from the road.

8.8 CONTROLLING WEEDS AND FERAL PESTS

Weed Control

The principal weeds include Lantana and Camphor Laurel which will be treated as follows:

- Lantana – Lantana has been declared a Class 4 Noxious Weed (Notifiable Weed) under the NSW Noxious Weeds Act 1993. In accordance with the Noxious Weeds Act measures will be taken to control the growth and spread of lantana infestations on site including:
 - site inspections on a routine basis by quarrying staff; and
 - targeted weed spraying.
- Camphor Laurel – Camphor Laurel has been declared a Class 4 Noxious Weed within the Far North Coast Council control area (2008) however it is also recognised as an important foraging resource for frugivores. Accordingly, the removal of Camphor Laurel will be carried out on a selective basis.

Pest Control

No feral pests have been identified as requiring control on the Project Site. Notwithstanding this, quarry staff will routinely monitor the quarry and its surrounds for the existence of feral pests. Upon identification of a feral pest the Proponent will implement appropriate management measures.

Possible feral pests may include Rabbits, Dogs and Foxes. The management of feral pests is governed by the Rural Lands Protection Act 1989 and the National Parks and Wildlife Act 1974. The Livestock Health and Pest Authority and LCC are the control authorities for feral and domestic animals. Depending upon the type of feral pest, targeted baiting may be undertaken to reduce the prevalence of targeted feral pest species.

8.9 CONTROLLING EROSION

Extensive erosion controls are set out in the Water Management Plan. It is intended that erosion be controlled and minimised by utilising:

- Contour drains will be installed where required on the rehabilitated slopes to minimise the potential for scouring.
- Quarry runoff will be directed to sediment traps (for example the Rock Gabion Sediment Trap and Filter) and sediment traps before flowing to the on-site tributaries and the recycling dam.
- Where necessary scour protection (such as riprap packed with soil and planted with sedges, rushes and grasses) and dissipaters (for examples utilising gabions, concrete splash pads, drop structures, riprap, and/or boulders) will be installed and rehabilitated slopes will be vegetated to reduce surface erosion.
- Rock batters will be benched where necessary to reduce erosion potential.
- Flows collected on each bench will be directed to contour drains or natural waterways.

The principles above will be implemented after having due regard of the Blue Book (titled Managing Urban Stormwater – Soils and Construction 'Blue Book' (Landcom, NSW 2004)) and adopting the

relevant principles. It is noted that the Proponent has significant experience dealing with similar environmental conditions and appropriate control mechanisms.

8.10 MANAGING GRAZING AND AGRICULTURE ON SITE

Currently the Proponent utilises part of the Project Site outside the Operational Area for agricultural purposes including grazing. Further, the Proponent is closely related to the company that operates grazing in the area in the immediate vicinity of the quarry. It is proposed that the Proponent will work closely with the related company to ensure grazing does not adversely affect the operations of the quarry or its surrounds.

8.11 CONTROLLING ACCESS

Quarry access to the site is via the main access road from Wyrallah Road. The main access road is fenced and gated. Access to the general public will be limited to the Operating Hours.

8.12 BUSHFIRE MANAGEMENT

Bushfire management on site will involve the following management actions:

- maintenance of access points to the property;
- maintenance of a defendable space around all site sheds and buildings associated with the quarrying activities that pose a risk of fire ignition; and
- seeking to provide a water supply suitable for fire fighting purposes.

9 PROGRESSIVE REHABILITATION ON SITE

9.1 PROGRESSIVE REHABILITATION APPROACH

The ongoing rehabilitation strategy for the quarry is to be an opportunistic progressive approach. Rehabilitation activities will commence in areas no longer required by the quarry, such as where excavation activities are complete and the area is not required for processing purposes. This approach will allow for rehabilitation to occur alongside excavation activities, resulting in vegetation being established in different areas (cells) of the site as areas become available following completion of excavation. It is anticipated that at any one time up to 2 x 3 hectare extraction cells will be operational plus the Central Extraction Area processing area.

The overall objective of the rehabilitation plan is to develop a relatively weed free, functional ecosystem that provides ecological services to maintain and enhance fauna populations. A functional ecosystem includes the following characteristics:

- stability with no significant areas of erosion;
- water and nutrient retaining efficiency; and
- self-sustaining.

The rehabilitation objectives have been established in Condition 43 (Table 8) of the Project Approval and are reproduced below.

Table 8: Rehabilitation Objectives

Feature	Objective
<i>Site (as a whole)</i>	<i>Safe, stable and non-polluting</i>
<i>Surface Infrastructure</i>	<i>To be decommissioned and removed, unless the Secretary agrees otherwise</i>
<i>Benched Quarry Walls</i>	<i>Landscaped with native endemic flora species</i>
<i>Quarry Pit Floors</i>	<i>Suitable for grazing</i>
<i>Other land affected by the Project</i>	<i>Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of:</i> <ul style="list-style-type: none"> <i>• native endemic species; and</i> <i>• a landform consistent with the surrounding environment.</i>

9.2 CONCEPTUAL QUARRY REHABILITATION PLAN

The objective of the final landform conceptual design is to cost effectively develop a sustainable, self-sustaining post quarry land use that effectively manages any potential adverse environmental impacts.

The final landform of the proposed quarry areas as set out in Figure 6.4 can only be considered conceptual as local variation in material may vary the final benching and batter design.

The floor of the Central Extraction Area and parts of the Southern Extraction Area will be required for ongoing processing and stockpiling and as such will not be available for rehabilitation until the conclusion of excavation activities.

It is anticipated that rehabilitation of the final landform in which:

- the quarry floors and terminal faces will be rehabilitated and revegetated;
- a grass cover on the final slope of the quarry rock faces will be established thereby covering visually exposed sandstone (excluding vertical faces as the benches will be planted with native endemic flora species);

- all quarry face batters are anticipated to be between grades of 1:1 or 1:2 or with vertical face heights of approximately 10-15 metres and benches that are up to approximately 5 metres wide;
- the extraction and operational floor and sloping wall areas will be returned to pasture as the terminal faces are all rehabilitated.

9.3 PERFORMANCE AND COMPLETION CRITERIA OF THE REHABILITATION AND BIODIVERSITY OFFSET STRATEGY

The key completion criteria of the rehabilitation and biodiversity offset strategy are set out in Table 9.1.

Table 9.1 – Rehabilitation and Biodiversity Offset Strategy Key Completion Criteria

Quarry Requirement	Key Completion Criteria
Rehabilitate Quarry Pit Floors	Rehabilitate area suitable for grazing.
Bench Quarry Walls	Landscaped with native endemic flora species which is safe and stable.
Protected Revegetation Area	Vegetation to be established with the planting of native endemic flora species. Rehabilitation to restore eco-system function (in conjunction with the Biodiversity Offset Areas), including establishing a self-sustaining eco-system comprised of native endemic species and a landform consistent with the surrounding environment.
Biodiversity Offset Areas 1, 2 and 3	Existing Vegetation to be enhanced. Rehabilitation to maintain a self-sustaining eco-system comprised of native endemic species and a landform consistent with the surrounding environment.

The performance indicators of the rehabilitation and biodiversity offset strategy are set out in Table 9.2.

Table 9.2 – Rehabilitation Objectives and Performance Indicators

Quarry Requirement/Objectives	Anticipated Commencement	Performance Indicators		
		Year 1 following Commencement	Year 5 following Commencement	Year 15 following Commencement
Rehabilitate Quarry Pit Floors	Upon completion of extraction and processing in the relevant area	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3 	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3 	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3
Rehabilitate Quarry Bench where Vertical Face	Upon decommissioning of the relevant area of the site	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3 Non-Koala habitat trees – single row appropriate width 	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3 Non-Koala habitat trees – single row appropriate width 	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3 Non-Koala habitat trees – single row appropriate width
Rehabilitate Quarry Face (Batters between grades of 1:1 or 1:2)	Upon decommissioning of the relevant area of the site	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3 	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3 	<ul style="list-style-type: none"> Groundcover > 60% Groundcover species ≥ 3
Establish and Enhance the Protected Revegetation Area	Upon approval of Version 3.1 of the Landscape Management Plan by DP & E.	<ul style="list-style-type: none"> Groundcover > 60%¹ Groundcover species > 3 Stem density of native endemic flora species > 400 stems/hectare Native endemic flora species plant diversity > 5 Commencing eradication of existing Lantana and management of new growth Lantana Commencing eradication of new growth Camphor Laurel Commencing removal of targeted established Camphor Laurel 	<ul style="list-style-type: none"> Groundcover > 40%¹ Groundcover species > 2 Stem density of native endemic flora species > 300 stems/hectare Native endemic flora species plant diversity > 5 Eradication of Lantana Eradication of new growth Camphor Laurel Removal of targeted established Camphor Laurel 	<ul style="list-style-type: none"> Groundcover > 10%¹ Groundcover species > 2 Stem density of native endemic flora species > 300 stems/hectare Native endemic flora species plant diversity > 5 Eradication of Lantana Eradication of new growth Camphor Laurel Similar species occurrence to adjacent Areas
Enhance the Biodiversity Offset Areas 1, 2 and 3	Upon approval of Version 3.1 of the Landscape Management Plan by DP & E.	<ul style="list-style-type: none"> Commencing eradication of existing Lantana and management of new growth Lantana Commencing eradication of new growth Camphor Laurel Commencing removal of targeted established Camphor Laurel 	<ul style="list-style-type: none"> Eradication of Lantana Eradication of new growth Camphor Laurel Removal of targeted established Camphor Laurel 	<ul style="list-style-type: none"> Eradication of Lantana Eradication of new growth Camphor Laurel
Notes: 1. It is noted that in the Biodiversity Offset Areas 1, 2 and 3 groundcover vegetation is sparse with leaf litter covering the forest floor. Hence groundcover is expected to decrease over time as the canopy thickens.				

9.4 RISKS TO IMPLEMENTATION OF THE REHABILITATION OBJECTIVES AND BIODIVERSITY OFFSET STRATEGY

Principal risks to the implementation of the biodiversity offset strategy and measures to overcome those risks include:

- Threat of fire – maintaining fire breaks;
- Threat of invasion of weeds – the Proponent will implement weed management programs;
- Feral pests – the Proponent will monitor the invasion of feral pests and where appropriate and practicable implement targeted feral pest management programs; and
- Human interference – the Proponent will educate quarry staff of the importance of the biodiversity offset strategy.

9.5 REMOVAL OF BUND AS PART OF THE REHABILITATION

Bund A is located adjacent to Receiver 2 (as indicated in Figure 6.1). The Proponent recognises the importance of consulting the affected Receiver(s) (in particular Receiver 2) when considering the best strategy to rehabilitate the area where Bund A is located. It is proposed that the following will occur at the appropriate time:

1. The Proponent will establish options for dealing with Bund A including either leaving Bund A in situ or the removal of all or part of Bund A;
2. The Proponent will advise Receivers 2 and 3 of the options for dealing with Bund A and request Receivers 2 and 3 provide their feedback on each of the proposals;
3. The Proponent will consider the feedback from Receivers 2 and 3 (if any), the Proponent will then consider whether any additional proposals are feasible and cost effective in dealing with Bund A;
4. Any further proposals developed by the Proponent will be put to Receivers 2 and 3 for further feedback; and
5. The Proponent will consider any further feedback by Receivers 2 and 3 and implement any action required in the appropriate strategy for the removal or otherwise of Bund A.

10 SHORT, MEDIUM AND LONG TERM MEASURES

Table 10.1 below provides an overview of the short, medium and long-term measures that would be implemented to:

- manage remnant vegetation and habitat on-site;
- implement the Biodiversity Offset Strategy; and
- ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations under the Approval.

Table 10.1 – Short, Medium and Long Term Measures

Goal	Short Term	Medium Term	Long Term
Manage remnant vegetation and habitat on-site	<ul style="list-style-type: none"> • Weed Management – to reduce competition and encourage growth of native species in the understorey including: <ul style="list-style-type: none"> ○ eradication of existing Lantana and management of new growth Lantana; ○ eradication of new growth Camphor Laurel. ○ removal of targeted established Camphor Laurel. • Fallen Timber – relocate fallen timber and branches from within the disturbed area to Areas 1, 2 and 3 to provide additional nesting and foraging habitat. • Feral animals – initiate measures where required to control feral animals. • Maintain Fire Breaks. • Exclude grazing from remnant vegetation areas (where required). 		
Implement the Biodiversity Offset Strategy – Areas 1, 2 and 3	<ul style="list-style-type: none"> • Weed Management – to reduce competition and encourage growth of native species in the understorey including: <ul style="list-style-type: none"> ○ eradication of existing Lantana and management of new growth Lantana; ○ eradication of new growth Camphor Laurel; and ○ removal of targeted established Camphor Laurel. • Fallen Timber – relocate fallen timber and branches from within the disturbed area to Areas 1, 2 and 3 to provide additional nesting and foraging habitat. • Feral animals – initiate measures where required to control feral animals. • Maintain Fire Breaks. • Exclude grazing from Biodiversity Offset Strategy Areas (Areas 1, 2 and 3) where required. 		
Implement the Biodiversity Offset Strategy – Protected Revegetation Area	<ul style="list-style-type: none"> • Weed Management – to reduce competition and encourage growth of native species in the understorey including: <ul style="list-style-type: none"> ○ eradication of existing Lantana and management of new growth Lantana; ○ eradication of new growth Camphor Laurel; and ○ removal of targeted established Camphor Laurel. • Fallen Timber – relocate fallen timber and branches from within the disturbed area to the Protected Revegetation Area to provide additional nesting and foraging habitat. • Feral animals – initiate measures where required to control feral animals. • Maintain Fire Breaks. 		
	<ul style="list-style-type: none"> • Planting – groundcover and native endemic flora species by cultivation and seed plantings. • Fencing – Fencing Protected Revegetation Area to exclude cattle and remove grazing pressures. 	<ul style="list-style-type: none"> • Supplementary Planting – of native endemic flora to achieve the stem density of native endemic flora species. • Removal of fencing as plant species thrive and size increase. 	<ul style="list-style-type: none"> • Supplementary Planting – of native endemic flora to achieve the stem density of native endemic flora species.
	<ul style="list-style-type: none"> • Rehabilitation is progressive. However no rehabilitation will occur in the short term. • Pre-clearance inspection of each work cell prior to the commencement of any clearing works to identify potential fauna habitat (eg 	<ul style="list-style-type: none"> • SEA Quarry floor – to be progressively rehabilitated to pasture upon completion of extraction and processing in the relevant quadrant/area. • SEA Quarry faces – to be progressively rehabilitated upon completion of extraction and processing in the relevant quadrant/area. Quarry faces will either be battered to be between grades of 1:1 or 1:2 and returned to pasture or with vertical face heights of approximately 10- 	

<p>Ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations under the Approval</p>	<p>rocky outcrops, fallen hollow logs, and hollow bearing trees) and identify appropriate measures to deal with fauna.</p> <ul style="list-style-type: none"> Exclusion of grazing from the operational areas. 	<p>15 metres and benches that are up to approximately 5 metres wide with the benches planted with native endemic flora species.</p> <ul style="list-style-type: none"> Pre-clearance inspection of each work cell prior to the commencement of any clearing works to identify potential fauna habitat (eg rocky outcrops, fallen hollow logs, and hollow bearing trees) and identify appropriate measures to deal with fauna. Exclude grazing from the operational areas. 	<ul style="list-style-type: none"> CEA floor – to be rehabilitated to pasture upon decommissioning of the site. CEA Quarry faces – faces will be rehabilitated upon decommissioning of the site. Quarry faces will either be battered to be between grades of 1:1 or 1:2 and returned to pasture or with vertical face heights of approximately 10-15 metres and benches that are up to approximately 5 metres wide with the benches planted. Rehabilitate Bund A – to be rehabilitated upon decommissioning of the site in consultation with Receiver 2.
<p>Construction of Visual Bunds and additional planting</p>	<ul style="list-style-type: none"> Construct Bunds A, B, C and D and vegetate with native endemic shrubs and trees. Plant the vegetative screening to the north of the main access road. Fence the Koala Habitat Tree area to exclude cattle and remove grazing pressures. Plant the Koala Habitat Tree area with Koala tree species. 	<ul style="list-style-type: none"> Construct Bunds E and F and vegetate with native endemic shrubs and trees. Remove Bund C. Removal of fencing from around the Koala Habitat Area as plant species thrive and size increase. 	<ul style="list-style-type: none"> Rehabilitate Bund A (if required).

11 MONITORING AND REPORTING

11.1 MONITORING

Following commencement of rehabilitation program and biodiversity offset strategy, the Proponent's objectives and corresponding performance indicators will initially be monitored monthly, by the Proponent, to assess establishment of vegetation and progress. The monthly monitoring will assess the success of rehabilitation works and security of the biodiversity offset strategy including:

- assessment of plants for signs of poor health and disease;
- signs of weed invasion;
- indicators for the need to instigate feral pest controls;
- signs of seedling mortality rates; and
- any action taken by the Proponent to remedy the situation.

In the event that the performance indicators detailed in Table 9.2 are not being achieved, the following contingency plan will be implemented:

- the performance indicator that is not being achieved will be reported to the Production Manager;
- the Production Manager will assess the non-conformance and likely cause of non-conformance;
- the Production Manager will implement appropriate remedial action (if applicable) and performance measures to review the effectiveness of the remedial action; and
- the performance of the Proponents rehabilitation objectives in relation to the performance indicators in the Annual Review (as set out in section 11.3 below) including any performance criteria that have not been achieved and remedial action taken.

11.2 POTENTIAL REMEDIAL ACTION

Potential remedial action will be reviewed throughout the Project. Key potential remedial measures that may be implemented by the Proponent if the performance indicators detailed in Table 9.2 are not being achieved include the following:

- implementing additional rehabilitation/regeneration measures including: supplementary planting; erosion and sediment control measures; weed and animal pest control;
- consulting a specialist in the area to ensure rehabilitation/biodiversity offset strategy is progressing towards the specified performance indicators; and/or
- conducting rehabilitation/regeneration trials/studies of alternative management practices where rehabilitation/biodiversity offset strategy is continually not achieving the performance indicators.

11.3 ANNUAL REPORTING

The Proponent must submit a report to the Department by the end of March each year reviewing the environmental performance of the Project to the satisfaction of the Secretary in accordance with Schedule 5 Condition 4 of the Project Approval. The review will:

- (a) Describe the development (including rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;
- (b) Include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against:
 - The relevant statutory requirements, limits or performance measures/criteria;
 - The monitoring results of the previous year; and
 - The relevant predictions of the EA, EA (Mod 1) and EA (Mod 2);
- (c) Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- (d) Identify any trends in the monitoring data over the life of the Project;
- (e) Identify any discrepancies between the predicted and actual impacts of the Project and analyse the cause of any significant discrepancies; and
- (f) Describe what measures will be implemented over the current calendar year to improve the environmental performance of the Project.

Further in accordance with Schedule 5 Condition 5 of the Project Approval within 3 months of the submission of one of the following the Proponent must review and if necessary revise the strategies, plans and programs required under the Project Approval to the satisfaction of the Secretary:

- (a) Annual review under Schedule 5 Condition 4 of the Project Approval;
- (b) Incident report under Schedule 5 Condition 7 of the Project Approval;
- (c) Audit report Schedule 5 Condition 9 of the Project Approval; and
- (d) Any modifications to the Project Approval.

The Proponent in consultation with the Production Manager will implement any changes arising from reviews of the quarry strategies, plans and programs. Records of such reviews will be maintained. Details of any significant changes made to this Strategy and associated monitoring programs and monitoring plans will be forwarded to all relevant project personnel.

REFERENCES

- The Guideline for Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004);
- EA – Champions Quarry Expansion, Environmental Assessment Report prepared by ERM Pty Limited and dated February 2010;
- Champions Quarry Expansion Ecological Assessment performed by ERM Pty Limited forming part of the Environmental Assessment Report dated 25 February 2010 (Appendix C);
- Champions Quarry Expansion Landscape Visual Impact Assessment performed by ERM Pty Limited forming part of the Environmental Assessment Report dated 25 February 2010 (Appendix K);
- RTS – Champions Quarry EA Response to Submissions Report performed by ERM Pty Limited and dated September 2010;
- Champions Quarry Expansion Vegetation Management Plan performed by Idyll Spaces Environmental Consultants dated 13 May 2010 forming part of the RTS dated September 2010 (Annexure D);
- Champions Quarry Expansion Quarry Management Plan performed by ERM Pty Limited forming part of the RTS dated September 2010 (Annexure E);
- Champions Quarry Expansion Visual Analysis Report performed by ERM Pty Limited forming part of the RTS dated September 2010 (Annexure G);
- PPR – Champions Quarry Expansion, Preferred Project Report prepared by ERM Pty Limited and dated December 2011;
- Champions Quarry Expansion Visual Analysis prepared by ERM Pty Limited dated 20 September 2011 forming part of the PPR dated December 2011 (Annexure F);
- Planning and Assessment Commission of NSW Conditions of Approval dated August 30, 2012;
- Minister for Planning and Infrastructure - Notice of Modification dated October 29, 2013; and
- Minister for Planning - Notice of Modification dated September 16, 2016.