

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

(Consolidated version)

I, the Deputy Director-General under the instrument of delegation dated 25 January 2010, approve the project referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:

- prevent and/or minimise adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

(Modification 1) 2012 – 06_0034 MOD1 shown in blue

(Modification 2) 2014 – 06_0034 MOD2 shown in taupe

Marcus Ray
A/Deputy Director-General

Sydney

2010

SCHEDULE 1

Application No:	06_0334
Proponent:	Griffith City Council
Approval Authority:	Minister for Planning
Land:	Lot 202 and Lot 201 DP 756035
Project:	Tharbogang Quarry and Landfill

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DEFINITIONS

AEMR	Annual Environmental Management Report
BCA	Building Code of Australia
BOA	Biodiversity Offset Area
CCC	Community Consultative Committee
Council	Griffith City Council
Day	The period between 7am and 6pm on Monday to Saturday and between 8am and 6pm on Sunday and Public Holidays
Department	Department of Planning & Environment
DPI	Department of Primary Industries
EA	Environmental Assessment prepared for Griffith City Council entitled <i>Tharbogang Quarry and Landfill Expansion (July 2009)</i> including the response to submissions
EEC	Endangered Ecological Community
EPA	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>
Evening	The period between 6pm and 10pm
General Solid Waste (Putrescible)	As defined in the <i>Waste Classification Guidelines</i> (DECCW)
General Solid Waste (Non-Putrescible)	As defined in the <i>Waste Classification Guidelines</i> (DECCW)
Land	In general, the definition of land is consistent with the definition in the EP&A Act.
Material harm to the environment	Material harm to the environment as defined in <i>Protection of the Environment Operations Act 1997</i>
Minister	Minister for Planning, or delegate
MOD 1	Modification Application (06_0034 MOD 1) and supporting documentation titled <i>Tharbogang Landfill and Quarry, Revised Biodiversity Offset Strategy</i>, prepared by Ecological Australia for Griffith City Council and dated 1 December 2011
MOD 2	Modification Application (06_0034 MOD 2) and supporting documentation titled <i>Tharbogang Landfill and Quarry Expansion Project: Preliminary Environmental Assessment – Modification</i>, prepared by CPE Associates Pty Ltd for Griffith City Council and dated June 2014
Night	The period between 10pm and 7am, Monday to Saturday and between 10pm and 8am on Sunday and Public Holidays
NOW	NSW Office of Water of the Department of Primary Industries
OEH	Office of Environment and Heritage
Privately-owned land	Land that is not owned by a public agency, or a quarry company (or its subsidiary)
Proponent	Griffith City Council or any other person or persons who rely on this approval to carry out the project
Quarrying operations	Extraction of gravel and associated materials, processing of quarry products and transport of quarry products from the site
Quarry products	Gravel material extracted from the site
Reasonable and feasible	<i>Reasonable</i> relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements. <i>Feasible</i> relates to engineering considerations and what is practical to build
Response to submissions	The Proponent's response to issues raised in submissions, dated February 2010
RMS	Roads and Maritime Services
Secretary	Secretary of the Department, or nominee
Site	Land to which the project application applies (see Schedule 1 and Appendix 1)
Statement of Commitments	The Proponent's Final Statement of Commitments for Site Operations and Management, as set out in Appendix 2
WTS	Waste Transfer Station

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all reasonable and feasible measures to prevent and/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 generally in accordance with the:
 - (a) EA;
 - (b) site layout plan as shown in Appendix 1 as amended by the drawings in Appendix 1A;
 - (c) Statement of Commitments;
 - (d) MOD 1;
 - (e) MOD 2; and
 - (f) the conditions of this consent.
3. If there is any inconsistency between the above documents, the conditions of approval shall prevail to the extent of the inconsistency.
4. The Proponent shall comply with any reasonable requirements of the Secretary arising from the Department's assessment of:
 - (g) any reports, plans, programs, strategies or correspondence that are submitted in accordance with the conditions of this approval; and
 - (h) the implementation of any actions or measures contained in these reports, plans, programs, strategies or correspondence.
5. The Proponent shall prepare revisions of any strategies, plans or programs required under this approval if directed to do so by the Secretary. Such revisions shall be prepared to the satisfaction of, and within a timeframe approved by, the Secretary.
- 5(a). Within 3 months of any modification approval, the Proponent must prepare and implement a revised version of any relevant management plan or monitoring program to the satisfaction of the Secretary.
6. Within 12 months after the date of this approval, the Proponent shall surrender all existing development consents for the site, to the satisfaction of the Secretary.

Limits on Approval

7. The Proponent may undertake quarrying and landfilling operations on the site until 31 December 2035.

Note: Under this approval, the Proponent is required to rehabilitate the site to the satisfaction of the Secretary. Consequently, this approval will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been rehabilitated to a satisfactory standard, in accordance with the approved rehabilitation strategy.
8. The Proponent shall not:
 - (a) extract more than 315,000 tonnes per year of gravel materials from the site; or
 - (b) receive more than 35,000 tonnes per year of general solid waste (putrescible and non-putrescible) to the site.
- 8(a). The landfill shall not exceed the maximum volume for each landfill cell specified in Table A. Calculation of the cell volume shall include the intermediate non-waste layers but shall not include the final cell cap, leachate barrier or leachate drainage layer.

Table A – Maximum volume for each landfill cell

Cell 1	Cell 2	Cell 3	Cell 4	Cell 5
131,634m ³	124,781m ³	119,121m ³	142,096m ³	142,497m ³

Management Plans / Monitoring Programs

9. With the approval of the **Secretary**, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.

Structural Adequacy

10. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:

- *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

Demolition

11. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

Operation of Plant and Equipment

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

SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS

WASTE

Restrictions on Receipt, Storage & Handling of Waste

1. The Proponent shall only receive waste on site that is authorised for receipt by an EPL.

Limits on Outputs

2. The Proponent shall dispose of all outputs produced on site to suitably licensed facility, including all recyclables extracted and delivered off-site for resource recovery purposes.

Construction Waste

3. The Proponent shall ensure that all waste generated on the site during construction of the project is classified in accordance with the DECCW's *Waste Classification Guidelines, Part 1: Classifying Waste* and disposed of at a facility that may lawfully accept the waste.

Screening

4. The Proponent shall:
 - (a) implement suitable procedures to:
 - ensure that the site does not accept wastes that are prohibited; and
 - screen incoming waste loads;
 - (b) ensure that:
 - all waste sludges and wastes that are controlled under a tracking system have the appropriate documentation prior to acceptance at the site; and
 - staff receive adequate training in order to be able to recognise and handle any hazardous or other unapproved waste.

Waste Transfer Station

5. Prior to the construction of the Waste Transfer Station, the Proponent shall submit detailed plans of the facility for approval by the **Secretary**.

Note: The WTS should be sited to avoid any remnant vegetation onsite.

Waste Monitoring

6. The Proponent shall prepare and implement a Waste Monitoring Program for the project to the satisfaction of the **Secretary**, prior to the commencement of operation. This program must:
 - (a) be prepared in consultation with **EPA** by a suitably qualified and experienced expert; and
 - (b) include a suitable program to monitor the:
 - quantity, type and source of waste received on site;
 - quantity, type and quality of the outputs produced on site.

Landfill Operations

7. Unless the **Secretary** agrees otherwise, the Proponent shall:
 - (a) minimise the exposed and active tip face at the landfill;
 - (b) progressively revegetate all completed areas of the landfill and stabilise any exposed areas that are not required for operational purposes for a period greater than 90 days;
 - (c) minimise the tracking of mud and waste from the site on public roads;
 - (d) fill the landfill cells in a systematic manner;
 - (e) maximise landfill compaction rates;
 - (f) cover the active landfill area with at least 0.15 metres of soil (or a suitable alternative material, as approved by **EPA**) at the end of daily waste disposal and compaction activities;
 - (g) stockpile green waste on an impermeable pad with bunding to contain leachate; and
 - (h) progressively cap the landfill cells using an EPA endorsed method.

Security

8. The Proponent shall:
- (a) install and maintain a perimeter stock fence and security gates on the site surrounding the landfill; and
 - (b) ensure that the security gates on site are locked whenever the site is unattended.

Litter Control

9. Within 6 months of the date of this approval, the Proponent shall:
- (a) remove existing litter that has accumulated across the site, to the satisfaction of the **Secretary**
 - (b) implement suitable measures to prevent the unnecessary proliferation of litter both on and off site, including the installation and maintenance of a mesh fence of not less than 1.8 metres high around the proposed landfill area; and
 - (c) inspect daily and clear the site (and if necessary, surrounding area) of litter on at least a weekly basis.

Pest, Vermin & Noxious Weed Management

10. The Proponent shall:
- (a) implement suitable measures to manage pests, vermin and declared noxious weeds on site; and
 - (b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in surrounding area.

Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.

Greenhouse Gas

11. The Proponent must ensure that all composting is undertaken in accordance with Australian Standard AS 4454-2003: Composts, Soil Conditioners and Mulches, Appendix N, best practice guidelines for Composting Systems, or other practices approved by the [EPA](#).
12. The Proponent is required to prepare a feasibility report for the **Secretary's** approval within 5 years of this approval, outlining options to capture and use greenhouse gas in the generation of electricity. The report must identify which options could be reasonably and feasibly implemented.

Landfill Environmental Management Plan

13. Within 6 months of the date of this approval, the Proponent shall update the existing Landfill Environmental Management Plan for the site to the satisfaction of the **Secretary**. Following approval, the Proponent shall implement this plan to the satisfaction of the **Secretary**. This plan must:
- (a) describe in detail the management measures that would be implemented to address:
 - the relevant matters referred to in the *Environmental Guidelines for Solid Waste Landfills*; and
 - the conditions of this approval;
 - (b) include a copy of:
 - the relevant plans and programs required under this approval;
 - a quality assurance plan for the design and installation of the leachate management system and any capping of the landfill cells that covers the relevant issues outlined in sections 1 – 2 of Appendix A of the *Environmental Guidelines for Solid Waste Landfills*;
 - (c) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the project; and
 - respond to emergencies; and
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project.

SOIL, WATER AND LEACHATE MANAGEMENT

Discharge Limits

14. Except as may be expressly provided for by an EPL, the Proponent shall comply with section 120 of the *Protection of the Environment Operations Act 1997* during the carrying out of the project.
15. Stormwater from all areas of the premises which has the potential to mobilise sediments and other material must be controlled and diverted through appropriate erosion and sediment control/pollution control measures or structures.
16. The Proponent shall manage on-site sewage. The facility must comply with the requirements of the *Environment and Health Protection Guidelines – On-site Sewage Management for Single Households* (1998).
17. The Proponent shall ensure that water that has come in contact with waste is not discharged from the site.

Leachate

18. The Proponent shall:
 - (a) install a leachate barrier system on any surface to be used for the direct impoundment of leachate;
 - (b) ensure that this leachate barrier system complies with specifications in the most current version of the EPL;
 - (c) collect all leachate in the leachate dams to prevent it from escaping from the site to surface water, groundwater or subsoil;
 - (d) treat all water from waste storage or handling areas, including any organic waste storage area, or that has been contaminated by leachate, as leachate;
 - (e) ensure that the leachate storage dams:
 - are capable of accepting leachate generated in a 1 in 100 year, 72 hour duration storm event without overflowing;
 - have a re-compacted clay or modified soil layer that is at least 900 mm thick and an in situ coefficient of permeability of less than 1×10^{-9} m/s, or some other suitable liner approved by EPA;to the satisfaction of the Secretary.

Bunding

19. The Proponent shall ensure that all above ground tanks and vats, including those used for treating or processing wastewater, leachate and diesel storage, and that all dangerous goods, as defined by the Australian Dangerous Goods Code, are stored and handled strictly in accordance with:
 - (a) all relevant Australian Standards;
 - (b) a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and
 - (c) the DECCW's *Storing and Handling of Liquids: Environmental Protection – Participant Manual*.

Soil, Water and Leachate Management Plan

20. The Proponent shall prepare and implement a Soil, Water and Leachate Management Plan for the project to the satisfaction of the Secretary. This plan must:
 - (a) be submitted to the Secretary for approval within 6 months of the date of this approval;
 - (b) be prepared by a suitably qualified and experienced expert;
 - (c) be prepared in consultation with the EPA and NOW; and
 - (d) include:
 - a site water balance;
 - an erosion and sediment control plan;
 - a stormwater management scheme;
 - a surface water monitoring program;
 - a groundwater and leachate monitoring program; and
 - a surface water, groundwater and leachate response plan.
21. The site water balance must:
 - (a) identify the source of all water collected or stored on the site, including rainfall and stormwater; and
 - (b) include details of all water use on site and any discharges.

22. The erosion and sediment control plan must:
- be consistent with the requirements in the latest version of *Managing Urban Stormwater: Soils and Construction* (Landcom);
 - identify the activities on site that could cause soil erosion and generate sediment; and
 - describe what measures would be implemented to:
 - minimise soil erosion and the transport of sediment to downstream waters, including the location, function and capacity of any erosion and sediment control structures; and
 - maintain these structures over time.
23. The stormwater management scheme must:
- be consistent with the guidance in the latest version of *Managing Urban Stormwater: Council Handbook* (DECCW);
 - provide detailed plans of stormwater management systems onsite;
 - demonstrate separation of stormwater and leachate collection and management systems; and
 - have sufficient capacity to cater for a 1 in 100 year, 72 hour storm event.
24. The surface water monitoring program must include:
- detailed baseline data on surface water flows and quality in any waterbodies that could potentially be affected by the project;
 - surface water and stream health impact assessment criteria;
 - a program to monitor the impact of the project on surface water flows, water quality and stream health; and
 - the parameters for testing and respective trigger levels for action under the surface water, groundwater and leachate response plan (see below).
25. Groundwater and leachate monitoring program must include:
- detailed baseline data on groundwater levels and quality, based on statistical analysis;
 - groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse ground water impacts;
 - a program to monitor groundwater levels and quality;
 - a protocol for further groundwater modelling to confirm the limits to excavation depth across the site would not adversely affect ground water availability for the environment or local users;
 - a protocol for the investigation, notification and mitigation of identified exceedances of the groundwater impact assessment criteria; and
 - the parameters for testing and respective trigger levels for action under the surface water, groundwater and leachate response plan (see below).
26. The surface water, groundwater and leachate response plan must:
- include a protocol for the investigation, notification and mitigation of any exceedances of the respective trigger levels; and
 - describe the array of measures that could be implemented to respond to any surface or groundwater contamination that may be caused by the development.

METEOROLOGICAL MONITORING

27. Prior to carrying out any development, the Applicant shall establish and subsequently maintain a meteorological station in the vicinity of the development, which performs 'ambient air monitoring' of rainfall, wind speed and wind direction, in accordance the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.

NOISE AND VIBRATION

Noise Impact Assessment Criteria

28. The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 1:

Table 1: Operational noise impact assessment criteria dB(A)

Location and Locality	Day <i>L_{Aeq}(15 min)</i>	Evening <i>L_{Aeq}(15 min)</i>	Night <i>L_{Aeq}(15 min)</i>
All Surrounding Sensitive Receivers	35	35	35

Notes:

- Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.
- The noise limits do not apply if the Proponent has an agreement with the landowner to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Operating Hours

29. The Proponent shall comply with the operating hours in Table 2.

Table 2: Operating hours

Activity	Day	Time
Quarrying Operations	Monday – Friday	7.00am to 5.00pm
	Saturday	8.00am to 1.00pm
	Sunday and Public Holidays	None
Landfilling Operations	Daily	8.00am to 5.00pm

Notes:

- Maintenance activities may be conducted outside weekday hours in Table 3 provided that the activities are not audible at any privately-owned residence, or until 6pm on Saturdays.
- This condition does not apply to delivery of material if that delivery is required by police or other authorities for safety reasons, and/or the operation or personnel or equipment are endangered. In such circumstances, notification is to be provided to [EPA](#) and the affected residents as soon as possible, or within a reasonable period in the case of emergency.

Airblast Overpressure Limits

30. The Proponent shall ensure that the airblast overpressure level from blasting at the project does not exceed the criteria in Table 3.

Table 3: Airblast overpressure impact assessment criteria

Receiver	Airblast overpressure level (dB(Lin Peak))	Allowable exceedance
All Surrounding Sensitive Receivers	115	5% of the total number of blasts in any 12 month period
	120	0%

Ground Vibration Impact Assessment Criteria

31. The Proponent shall ensure that the ground vibration level from blasting at the project does not exceed the levels in Table 4.

Table 4: Ground vibration impact assessment criteria

Receiver	Peak particle velocity (mm/s)	Allowable exceedance
All Surrounding Sensitive Receivers	5	5% of the total number of blasts in any 12 month period
	10	0%

Blasting Hours and Frequency

32. The Proponent shall carry out blasting on site only between 9 am and 3 pm Monday to Friday. No blasting is allowed on weekends and Public Holidays.
33. The Proponent shall not carry out more than one blast per week on site.

Note: In the case of a documented misfire, the Proponent may carry out a second blast in the relevant week.

Operating Conditions

34. The Proponent shall not undertake blasting within 200 metres of any privately-owned land, unless suitable arrangements have been made with the landowner and any tenants to minimise the risk of flyrock-related impact to the property and to human safety to the satisfaction of the **Secretary**.

Property Inspections

35. Prior to 30 November 2010, the Proponent shall advise all landowners within 500 m of proposed blasting activities, and any other landowner nominated by the **Secretary**, that they are entitled to a property inspection to establish the baseline condition of the property.
36. If the Proponent receives a written request for a property inspection from any such landowner, the Proponent shall:
- (a) commission a suitably qualified person, whose appointment has been approved by the **Secretary**, to inspect and report on the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and
 - (b) give the landowner a copy of this property inspection report.

Note: It is preferable for the property inspection to be carried out prior to the commencement of blasting activities on the site, and the Proponent should facilitate this occurring wherever possible.

Property Investigations

37. If any landowner within 500 m of proposed blasting activities, or any other landowner nominated by the **Secretary**, claims that his/her property, including vibration-sensitive infrastructure such as water supply or underground irrigation mains, has been damaged as a result of blasting at the project, the Proponent shall within 3 months of receiving this request:
- (a) commission a suitably qualified person whose appointment has been approved by the **Secretary** to investigate the claim and prepare a property investigation report; and
 - (b) give the landowner a copy of the report.

If this independent investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damage to the satisfaction of the **Secretary**.

If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the **Secretary** for resolution.

Management of Blasts

38. Prior to 30 November 2010, the Proponent shall prepare and implement a detailed Blast Management Plan for the project to the satisfaction of the **Secretary**. The Plan must
- (a) be prepared in consultation with **EPA**;
 - (b) substantiate blast design to ensure compliance with blast criteria;
 - (c) include protocols for communicating with all neighbouring landholders regarding scheduled blasts;
 - (d) include details of how and at what locations blasting performance would be monitored; and
 - (e) include a blast monitoring protocol for evaluating compliance with the blast criteria in this approval.

Continuous Improvement

39. The Proponent shall:
- (a) implement all reasonable and feasible noise mitigation measures;
 - (b) investigate ways to reduce the noise generated by the project; and
 - (c) report on these investigations and the implementation and effectiveness of these measures in the AEMR,
- to the satisfaction of the **Secretary**.

Monitoring

40. The Proponent shall prepare and implement a Noise and Vibration Monitoring Program for the project to the satisfaction of the **Secretary**. The Program must:
- (a) be prepared in consultation with **EPA** and be submitted to the **Secretary** for approval within 6 months of the date of this approval;
 - (b) include annual attended noise monitoring;

- (c) include traffic noise monitoring at the private resident along Hillside Drive. The Program shall also provide details on how the resident would be provided with the opportunity to have amelioration works done on their property should the monitoring demonstrate that the relevant traffic noise criteria is being exceeded, to the satisfaction of the **Secretary**;
- (d) include details of how the noise performance of the project would be monitored; and
- (e) include a noise monitoring protocol for evaluating compliance with the noise criteria in this approval.

AIR QUALITY

Impact Assessment Criteria

41. The Proponent shall ensure that dust emissions generated by the project do not cause additional exceedances of the criteria listed in Tables 5 to 7 at any residence on privately owned land, or on more than 25 percent of any privately-owned land.

Table 5: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³

Table 6: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³

Table 7: Long term impact assessment criterion for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

Odour

42. Except as otherwise expressly provided in any Environment Protection Licence condition for the project, the Proponent must comply with section 129 of the POEO Act.

Note:

- Section 129 of the POEO Act, provides that the Proponent must not cause or permit the emission of any offensive odour from the site, but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

Air Quality Monitoring

43. The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the **Secretary**. This program must:
- (a) be prepared in consultation with **EPA**, and be submitted to the **Secretary** for approval within 3 months of the date of this approval; and
 - (b) include details of how the air quality performance of the project will be monitored, and include a protocol for evaluating compliance with the relevant air quality criteria in this approval.

Continuous Improvement

44. The Proponent shall:
- (a) implement all reasonable and feasible dust mitigation measures;

- (b) investigate ways to reduce the dust generated by the project; and
- (c) report on these investigations and the implementation and effectiveness of these measures in the AEMR, to the satisfaction of the **Secretary**.

REHABILITATION AND LANDSCAPE MANAGEMENT

Biodiversity Offset Strategy

- 45. The Proponent shall implement the Biodiversity Offset Area (BOA) on Lots 181 and 182, DP 756035 including 95.31 ha of 'Inland Grey Box – Poplar Box – White Cypress Pine Tall Woodland', as described in MOD 1 to the satisfaction of the **Secretary** and in consultation with the EPA, within 1 year of the approval of MOD 1.
- 46. Within one year of the approval of MOD 1, unless the **Secretary** agrees otherwise, Council must provide appropriate long term security for the BOA defined in Condition 45 through one of the following mechanisms:
 - (a) a Conservation Agreement under the National Parks and Wildlife Act 1974; or
 - (b) a Biobanking Agreement under the Threatened Species Conservation Act 1995.
 The agreement must remain in force in perpetuity.
- 47. The Proponent shall ensure the long term security of the BOA referred to in Conditions 45 and 46, prior to any clearing onsite.

Landscape and Biodiversity Management Plan

- 48. The Proponent shall prepare and implement a Landscape and Biodiversity Management Plan for the project in accordance with Condition 49 to the satisfaction of the **Secretary**. This plan must:
 - (a) be prepared by suitably qualified person(s), approved by the **Secretary**;
 - (b) be submitted to the **Secretary** for approval within 12 months of the date of MOD 1; and
 - (c) include a:
 - i. Rehabilitation and Biodiversity Offset Strategy Management Plan; and
 - ii. Long Term Management Strategy.

Note: The Department accepts that the initial Landscape and Biodiversity Management Plan may not include the detailed Long Term Management Strategy. However, a conceptual strategy must be included in the initial plan, along with a timetable for augmentation of the strategy with each subsequent review of the plan.

- 49. The Rehabilitation and Biodiversity Offset Strategy Management Plan must include:
 - (a) the rehabilitation objectives for the site and offset areas;
 - (b) a description of the measures that would be implemented to:
 - rehabilitate and stabilise the site;
 - minimise the removal of mature trees;
 - implement the Biodiversity Offset Strategy; and
 - manage the remnant vegetation and habitat on the site and in the offset areas;
 - (c) detailed performance and completion criteria for the rehabilitation and stabilisation of the site;
 - (d) a detailed description of how the performance of the rehabilitation of the quarry areas would be monitored over time to achieve the stated objectives;
 - (e) a detailed description of what measures would be implemented to rehabilitate and manage the landscape of the site including the procedures to be implemented for:
 - progressively rehabilitating and stabilising areas disturbed by quarrying;
 - implementing revegetation and regeneration within the disturbance areas;
 - protecting areas outside the disturbance areas, including the Biodiversity Offset Strategy areas;
 - vegetation clearing protocols, including a protocol for clearing any trees containing hollows and the relocation of hollows from felled trees;
 - managing impacts on fauna, in particular threatened species;
 - controlling weeds and pests;
 - controlling access;
 - bushfire management; and
 - reducing the visual impacts of the project;
 - (f) a description of the potential risks to successful rehabilitation and a description of the contingency measures that would be implemented to mitigate these risks; and
 - (g) details of who is responsible for monitoring, reviewing, and implementing the plan.

49(a) To ensure that the BOA is implemented in accordance with the performance and completion criteria in the Rehabilitation and Biodiversity Offset Strategy Management Plan, Council must secure implementation funds via one of the following mechanisms to the satisfaction of the **Secretary**:

- a) a Biobanking Agreement under the *Threatened Species Conservation Act 1995*;
- b) lodgement of a conservation bond with the Department;
- c) a Voluntary Planning Agreement under Section 93F of the EP&A Act;

The sum of the funds shall be determined by:

- i. calculating the full cost of implementing the Rehabilitation and Biodiversity Offset Strategy Management Plan, and
- ii. employing a suitably qualified quantity surveyor to verify the calculated costs.

The funding must be secured within six months of the approval of the Rehabilitation and Biodiversity Offset Strategy Management Plan required by condition 48, unless otherwise agreed to by the **Secretary**.

49(b) The Department notes that if a Biobanking Agreement is implemented for the BOA defined by Condition 45, the requirements of Conditions 45, 46, 48 and 48 (a) are likely to be satisfied. The Department requests that on approval of any Biobanking Agreement, a copy of the agreement is submitted to the Department which includes management and monitoring plans and funding arrangements.

50. The Long Term Management Strategy must:

- (a) define the objectives and criteria for quarry closure and post-extraction management;
- (b) be prepared in consultation with EPA, NOW and DPI;
- (c) investigate and/or describe options for the future use of the site;
- (d) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and
- (e) describe how the performance of these measures would be monitored over time.

Rehabilitation Bond

51. Prior to commencing the projects quarrying operations, the Proponent shall lodge a rehabilitation bond for the project with the **Secretary**. The sum of the bond shall be calculated at \$1/m² for the area to be disturbed, which has not been previously disturbed by quarrying, to the satisfaction of the **Secretary**.

Notes:

- If the rehabilitation works are completed to the satisfaction of the **Secretary**, the **Secretary** will release the rehabilitation bond.
- If the rehabilitation works are not completed to the satisfaction of the **Secretary**, the **Secretary** will call in all or part of the rehabilitation bond, and arrange for the satisfactory completion of the relevant works.

52. Within 3 months of each Independent Environmental Audit (see condition 5 of schedule 5), the Proponent shall review, and if necessary revise, the sum of the rehabilitation bond to the satisfaction of the **Secretary**. This review must consider:

- (a) the effects of inflation;
- (b) any changes to the total area of disturbance; and
- (c) the performance of the rehabilitation and revegetation to date.

HERITAGE

Cultural Heritage Management Plan

53. The Proponent shall prepare and implement an Cultural Heritage Management Plan to the satisfaction of the **Secretary**. This plan must:

- (a) be prepared in consultation with EPA, **OEH** and local Aboriginal communities;
- (b) draw on any relevant recommendations for the management of items of cultural heritage significance as outlined in the Aboriginal and Historical Heritage Assessment report dated February 2010,
- (c) be submitted to the **Secretary** for approval, within 6 months of the date of this approval; and
- (d) include a description of the measures that would be implemented if any new Aboriginal objects or skeletal remains are discovered during the project.

TRAFFIC AND TRANSPORT

54. The Proponent shall prepare and implement an a Transport Management Plan to the satisfaction of the [Secretary](#). This plan must:
- (a) be prepared in consultation with the [RMS](#);
 - (b) outline measures to manage traffic related issues arising from the landfill and quarry operations;
 - (c) review the standard of the access roads to the site, including Kidman Way;
 - (d) outline ways of managing dust generated from heavy vehicles accessing the site;
 - (e) outlined ways of managing rubbish from vehicles accessing the landfill site; and
 - (f) be submitted to the [Secretary](#) for approval, within 6 months of the date of this approval.
55. The Proponent shall upgrade the Auxiliary Right Turn (AUR) treatment at the intersection of Access Road and Kidman Way, within 12 months of operations commencing onsite, in accordance with RTA's Road Design Guide for the prevailing speed limit and the to satisfaction of the [RMS](#).
56. The Proponent shall be responsible for all public utility adjustment/relocation works, necessitated by the above work and as required by the various public utility authorities and/or their agents.

Note: The relocation of any underground service within the road reserve will require [RMS](#)'s concurrence under Section 138 of the Roads Act 1993 prior to the commencement of any works.

Road Haulage

57. 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.
- to the satisfaction of the [Secretary](#)
58. The quarry operator is to record and maintain a log book of the extraction quantities and traffic movements in and out of the site. This log is to be kept on site and be available for inspection at the request of the Department or the [RMS](#).

EMERGENCY AND HAZARDS MANAGEMENT

Dangerous Goods

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

Safety

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

Fire Management

60. The Proponent shall:
- (a) implement suitable measures to minimise the risk of fire on site, including in the landfill area;
 - (b) extinguish any fires on site promptly;
 - (c) maintain adequate fire-fighting capacity on site, in consultation with the rural fire service, including a tanker or water cart with fire fighting capabilities; and
 - (d) assist the rural fire service and emergency services, if safe to do so, if there is a fire on-site.

PRODUCTION DATA

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

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 **Secretary** and affected landowners and tenants, 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 project is exceeding any of the impact assessment criteria in schedule 3, then he/she may ask the **Secretary** in writing for an independent review of the impacts of the project on his/her land.

If the **Secretary** is satisfied that an independent review is warranted, the Proponent shall within 3 months of the **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 **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 **Secretary** and landowner a copy of the independent review.
3. If the independent review determines that the project is complying with the relevant criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the **Secretary**.
 4. If the independent review determines that the project is not complying with the relevant criteria in schedule 3, and that the project 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 that the project complies with the relevant criteria; and
 - (b) conduct further monitoring to determine whether these measures ensure compliance; or
 - (c) secure a written agreement with the landowner to allow exceedances of the relevant criteria in schedule 3,to the satisfaction of the **Secretary**.

If the additional monitoring referred to above subsequently determines that the project is complying with the relevant criteria in schedule 3, or the Proponent and landowner enter into a negotiated agreement to allow these exceedances, then the Proponent may discontinue the independent review with the approval of the **Secretary**.

5. If the landowner disputes the results of the independent review, either the Proponent or the landowner may refer the matter to the **Secretary** for resolution.

If the matter cannot be resolved within 21 days, the **Secretary** shall refer the matter to an Independent Dispute Resolution Process (see Appendix 3).

SCHEDULE 5

ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

ENVIRONMENTAL MANAGEMENT STRATEGY

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the **Secretary**. This strategy must:
 - (a) be submitted to the **Secretary** for approval prior to operations commencing;
 - (b) provide the strategic framework for environmental management of the project;
 - (c) identify the statutory approvals that apply to the project;
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
 - (e) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the project;
 - respond to any non-compliance; and
 - respond to emergencies; and
 - (f) include:
 - copies of the various strategies, plans and programs that are required under the conditions of this approval once they have been approved; and
 - a clear plan depicting all the monitoring currently being carried out within the project area.

INCIDENT REPORTING

2. Within 24 hours of detecting an exceedance of the limits/performance criteria in this approval or the occurrence of an incident that causes (or may cause) material harm to the environment, the Proponent shall notify the Department and other relevant agencies of the exceedance/incident.
3. Within 6 days of notifying the Department and other relevant agencies of an exceedance/incident, the Proponent shall provide the Department and these agencies with a written report that must:
 - (a) describe the date, time, and nature of the exceedance/incident;
 - (b) identify the cause (or likely cause) of the exceedance/incident;
 - (c) describe what action has been taken to date; and
 - (d) describe the proposed measures to address the exceedance/incident.

ANNUAL REPORTING

4. Within 12 months of the date of this approval, and annually thereafter, the Proponent shall submit an AEMR to the **Secretary** and relevant agencies. This report must:
 - (a) identify the standards and performance measures that apply to the project;
 - (b) describe the works carried out in the last 12 months, and the works that will be carried out in the next 12 months;
 - (c) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
 - (d) include a summary of the monitoring results for the project during the past year;
 - (e) include an analysis of these monitoring results against the relevant:
 - impact assessment criteria/limits;
 - monitoring results from previous years; and
 - predictions in the EA;
 - (f) identify any trends in the monitoring results over the life of the project;
 - (g) identify any non-compliance during the previous year; and
 - (h) describe what actions were, or are being, taken to ensure compliance.

INDEPENDENT ENVIRONMENTAL AUDIT

5. Within 1 year of the date of this approval, and every 3 years thereafter, unless the **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 team of experts whose appointment has been approved by the **Secretary**;

- (b) assess the environmental performance of the project, and its effects on the surrounding environment;
 - (c) assess whether the project is complying with the relevant standards, performance measures and statutory requirements;
 - (d) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
 - (e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.
6. Within 1 month of completion of each Independent Environmental Audit, the Proponent shall submit a copy of the audit report to the **Secretary** and relevant agencies, 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 **Secretary**, the Proponent shall review and if necessary revise the:
- (a) strategies/plans/programs required under this approval; and
 - (b) rehabilitation bond, to consider the:
 - effects of inflation;
 - changes to the total area of disturbance; and
 - performance of the rehabilitation against the completion criteria of the Landscape and Biodiversity Management Plan,
 to the satisfaction of the **Secretary**.

ACCESS TO INFORMATION

8. Within 1 month of the approval of any strategies/plans/programs required under this approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or AEMR required under this approval, the Proponent shall:
- (a) provide a copy of the relevant document/s to the relevant agencies and to members of the general public upon request; and
 - (b) ensure that a copy of the relevant document/s is made publicly available on its website and at the site.
9. During the project, the Proponent shall:
- (a) make a summary of monitoring results required under this approval publicly available on its website; and
 - (b) update these results on a regular basis (at least every 6 months).

COMMUNITY EDUCATION PROGRAM

10. The Proponent shall prepare and implement a Community Education Program for the project to the satisfaction of the **Secretary**. This program must be submitted to the **Secretary** for approval prior to the commencement of landfill operations in the existing quarry void, and shall at a minimum focus on promoting the:
- resource recovery activities provided at the site;
 - community benefits of composting food and garden waste; and
 - importance of food waste recovery from all waste streams, but particularly the commercial and industrial waste stream; and

APPENDIX 1 PROJECT MAP

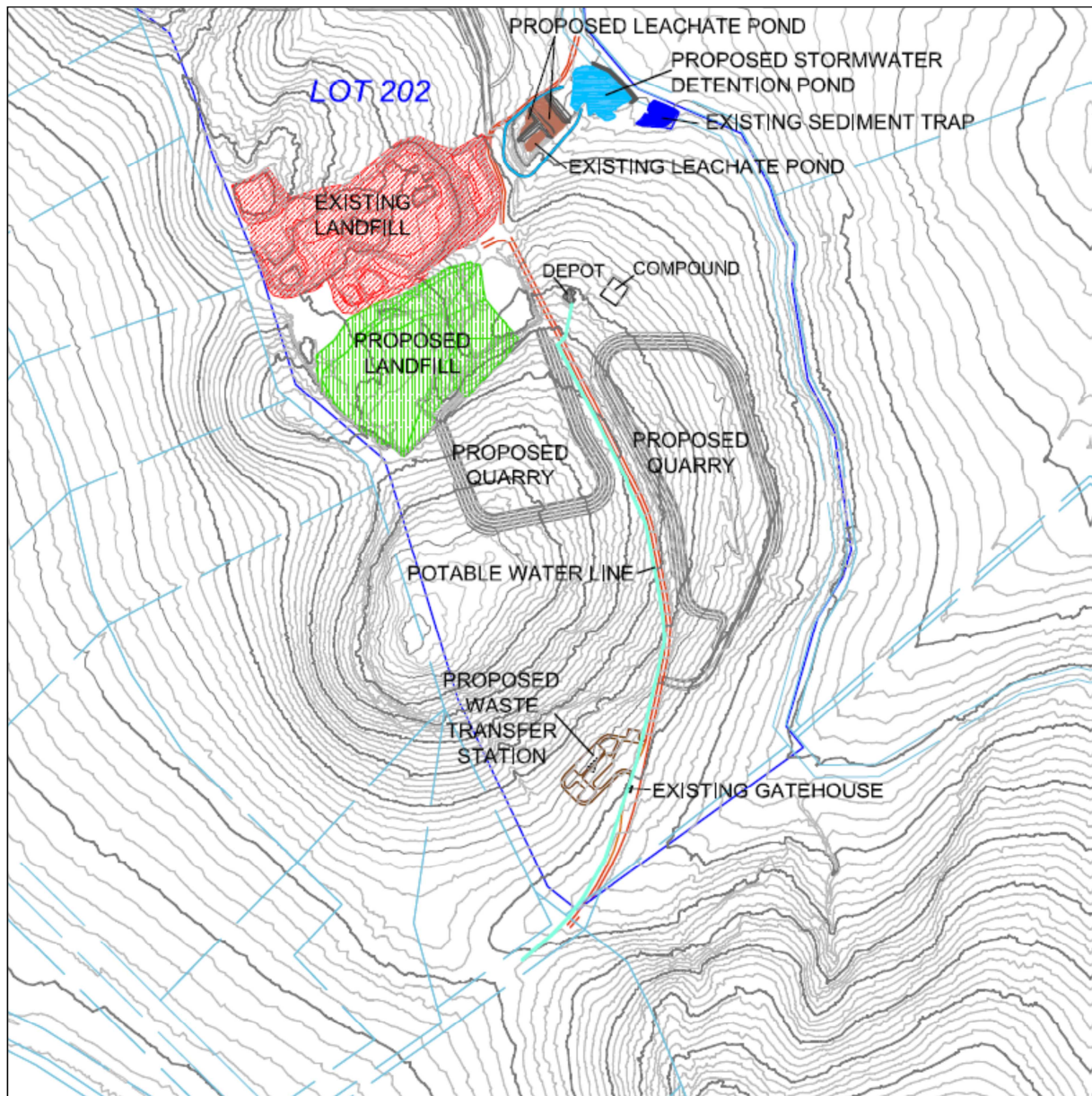


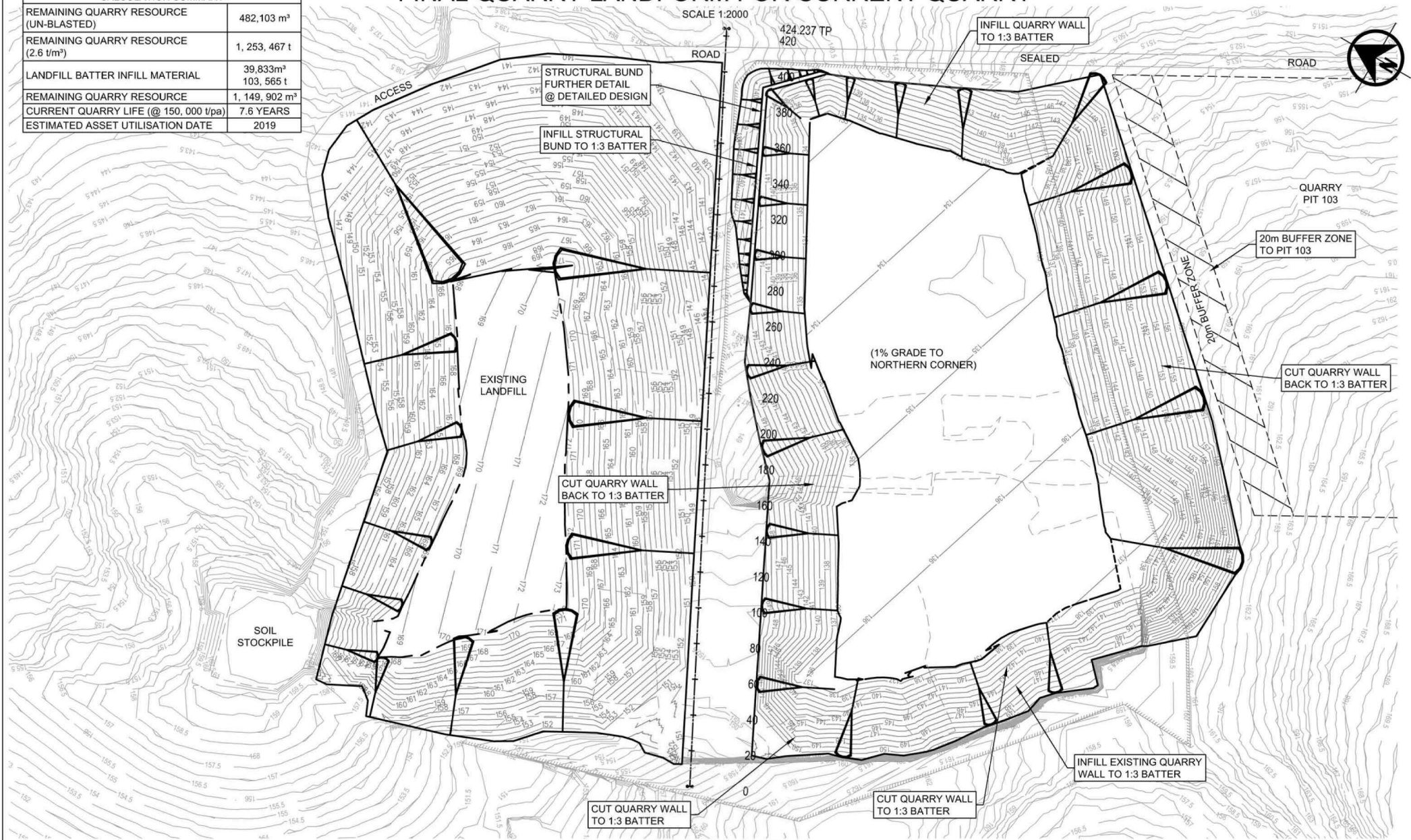
Figure 1: Project Layout

APPENDIX 1A
MODIFICATION 2 – DRAWINGS



FINAL QUARRY LANDFORM FOR CURRENT QUARRY

CALCULATION SUMMARY	
REMAINING QUARRY RESOURCE (UN-BLASTED)	482,103 m³
REMAINING QUARRY RESOURCE (2.6 t/m³)	1,253,467 t
LANDFILL BATTER INFILL MATERIAL	39,833m³ 103,565 t
REMAINING QUARRY RESOURCE	1,149,902 m³
CURRENT QUARRY LIFE (@ 150,000 t/pa)	7.6 YEARS
ESTIMATED ASSET UTILISATION DATE	2019



D	ISSUE FOR REVIEW	04.03.2013	SGY	CH	 PO Box 3009 Phone 02 4402 9392 Nowra North NSW 2541 Fax. 02 4446 0511	DRAWN: S.G.Y	SHEET C	SCALE AS NOTED
C	ISSUE FOR REVIEW	21.02.2013	SGY	CH		CHECK: C.H	THARBOGANG LANDFILL PROJECT FINAL QUARRY LANDFORM FOR CURRENT QUARRY	
B	ISSUE FOR REVIEW	18.12.2012	SGY	CH		APPR. P.H		
A	ISSUE FOR REVIEW	11.12.2012	SGY	CH		REV: D		
RevNo	Revision note	Date	Signature	Checked				

NEW LANDFILL CELL FLOOR AND WALL CONCEPT DESIGN

SCALE 1:2000

SUMMARY CALCULATIONS				
	BUND MATERIAL QUANTITY m ³	LINER AREA m ²	LEACHATE PIPE m	SUBSURFACE DRAINAGE PIPE m
C1	3,683.8	18,523	834.8	309.2
C2	3,757.5	19,361	789.9	300.8
C3	2,228.8	20,103	873.4	418.6
C4	1,138.8	22,252	417.9	171.7
C5	—	19,491	287.2	139.1
TOTAL	10,808.9	99,730	3,203.2	1,339.4



D	ISSUE FOR REVIEW	04.03.2013	SGY	CH
C	ISSUE FOR REVIEW	21.02.2013	SGY	CH
B	ISSUE FOR REVIEW	18.12.2012	SGY	CH
A	ISSUE FOR REVIEW	11.12.2012	SGY	CH
RevNo	Revision note	Date	Signature	Checked

cpe associates
PO Box 3009 Phone 02 4402 9392
Nowra North NSW 2541 Fax. 02 4446 0511

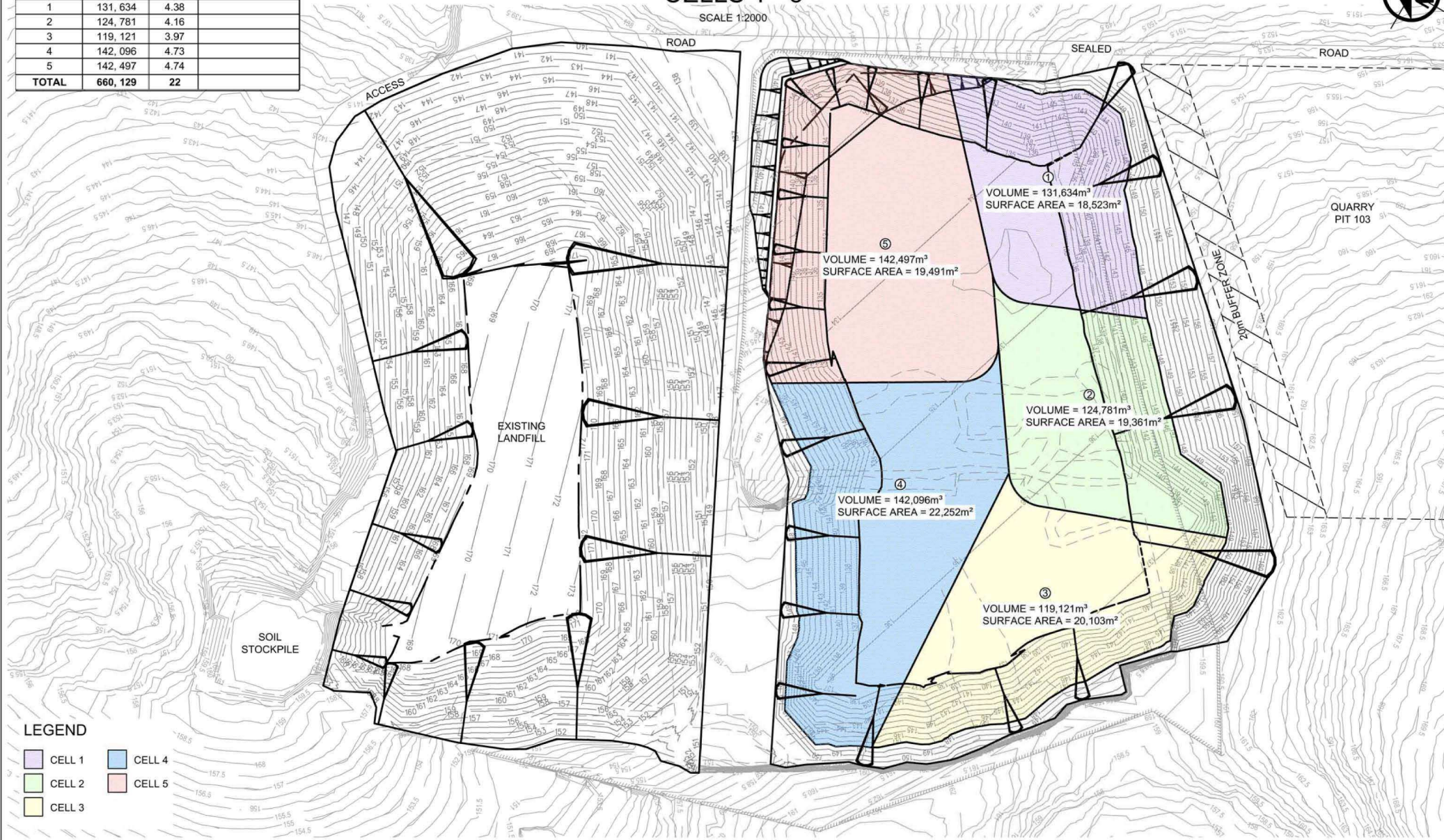
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CHECK: C.H.
APPR. P.H.
REV: D

SHEET D1 SCALE AS NOTED
THARBOGANG LANDFILL PROJECT
NEW LANDFILL CELL FLOOR
AND WALL CONCEPT DESIGN

CALCULATION SUMMARY			
CELL	CAPACITY	LIFE YEARS	CAPITAL ESTABLISHMENT COST
1	131,634	4.38	
2	124,781	4.16	
3	119,121	3.97	
4	142,096	4.73	
5	142,497	4.74	
TOTAL	660,129	22	

NEW LANDFILL STAGING PLAN CELLS 1 - 5

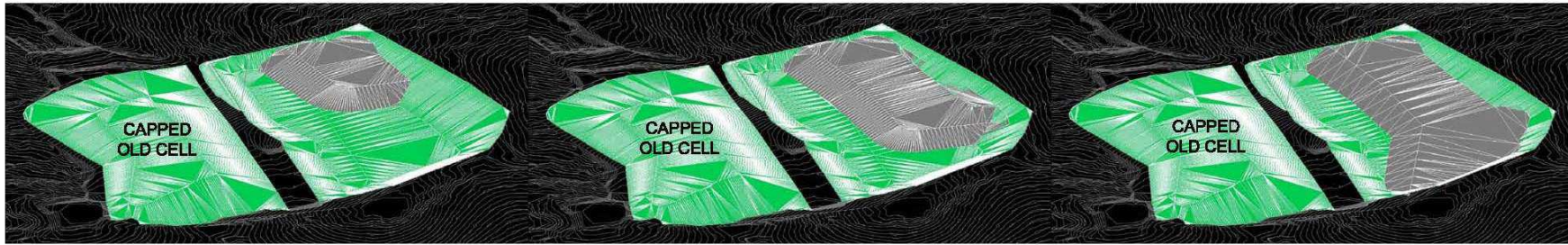
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C	ISSUE FOR REVIEW	21.02.2013	SGY	CH		CHECK: C.H	THARBOGANG LANDFILL PROJECT NEW LANDFILL STAGING PLAN CELLS 1 - 5	
B	ISSUE FOR REVIEW	18.12.2012	SGY	CH		APPR. P.H		
A	ISSUE FOR REVIEW	11.12.2012	SGY	CH		REV: D		
RevNo	Revision note	Date	Signature	Checked				

3D NEW LANDFILL STAGING PLAN

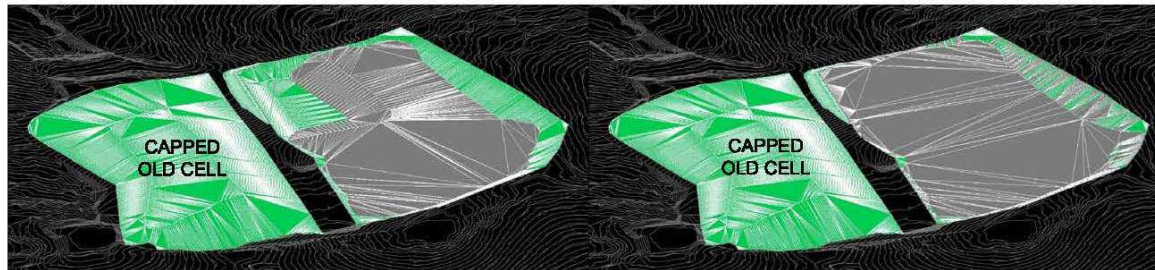
SCALE 1:2000



CELL 1
CAPACITY = 131,634m³
LIFE = 4.38 YEARS
COST =

CELL 2
CAPACITY = 124,781m³
LIFE = 4.16 YEARS
COST =

CELL 3
CAPACITY = 119,121m³
LIFE = 3.97 YEARS
COST =



CELL 4
CAPACITY = 142,096m³
LIFE = 4.73 YEARS
COST =

CELL 5
CAPACITY = 142,497m³
LIFE = 4.74 YEARS
COST =

D	ISSUE FOR REVIEW	04.03.2013	SGY	CH	 PO Box 3009 Nowra North NSW 2541 Fax. 02 4446 0511	DRAWN: S.G.Y	SHEET	SCALE
C	ISSUE FOR REVIEW	21.02.2013	SGY	CH		CHECK: C.H	G1	AS NOTED
B	ISSUE FOR REVIEW	18.12.2012	SGY	CH		APPR. P.H	THARBOGANG LANDFILL PROJECT 3D LANDFILL STAGED DEVELOPMENT SEQUENCE PLANS - SHEET 1	
A	ISSUE FOR REVIEW	11.12.2012	SGY	CH		REV: D		
RevNo	Revision note	Date	Signature	Checked				

APPENDIX 2
STATEMENT OF COMMITMENTS
Final Statement of Commitments for the Tharbogang Quarry and Landfill

Page 1 of 13

1 STATEMENT OF COMMITMENTS

The Statement of Commitments contained in Section 9 of the EA has been updated and amended to reflect the revised project description and to take into account the submissions received during exhibition of the EA. This Appendix SUPERCEDES AND REPLACES it.

The following Statement of Commitments has been prepared in accordance with the Director General's Requirements and Part 3A of the *EP&A Act 1979*. These commitments outline the mitigation, management and monitoring measures to be implemented by Council throughout the construction and operation of the proposed extension to the Tharbogang Quarry and Landfill to manage potential environmental impacts arising from the proposal.

1.1 Environmental Management

Thus far, the following design and operational plans have been developed:

- Coffey Mining (2008) Staged Operational and Development Plan for Tharbogang Quarry and Landfill
- Alf Griggs and Associates (2008) Tharbogang Quarry and Waste Management Centre, Site Operations Plan
- Balance Consulting (2007) Tharbogang Quarry and Landfill Expansion Offset Strategy

These documents will provide the framework on which to build two all encompassing site specific plans for the construction, operation and closure of the quarry and the landfill:

- Tharbogang Waste Management and Disposal Centre: Operational and Environmental Management Plan
- Tharbogang Quarry: Operational and Environmental Management Plan

Environmental management objectives and commitments, as outlined in this report, and the requirements outlined in the DG's Requirements, relevant SEPPs and relevant National and State Government technical and policy guidelines, will be embedded into the body of the two site specific plans.

Council will ensure that the successful tender for the construction of the WTS prepares a Construction Environmental Management Plan prior to the commencement of works, detailing:

- Project details and construction methodologies
- Site management and environmental management measures and procedures
- Responsibility and authority of organisations involved in the construction of the WTS

Council will develop the Griffith Biodiversity Management Strategy to provide strategic direction to land planning in the shire and the provision of offsets for the proposed development.

Tharbogang Waste Management and Disposal Centre: Operational and Environmental Management Plan

Council will develop and implement the operational and environmental management plan prior to the commencement of works to meet the operational requirements of the facility and environmental objectives and commitments, including the environmental goals listed in *Environmental Guidelines: Solid Waste Landfills* (EPA, 1996).

The Plan will be divided into the following chapters and sections:

- Site overview
- Environmental objectives
- Cell construction, including:
 - Cell design
 - Batter stabilisation
 - Leachate drainage and storage
 - Bund construction
 - Landfill base layers and HDPE membrane
 - Commissioning sequence for landfill cells
 - Transition between cells
- Waste transfer station procedures
 - Accepted wastes
 - Waste reception procedures
 - Waste storage procedures
 - Prohibited waste management and protocols
 - Hazardous waste management and protocols
 - Routine operational and monitoring procedures
 - Removal of recyclables
 - Traffic management
 - Scavenger rights and responsibilities
 - Complaints procedures
 - Incident reporting management system
- Landfill operation procedures, including:
 - Transition procedures from the existing landfill to the proposed landfill
 - Maintenance of active tip face
 - Cover requirements
 - Flaring of gas emissions
 - Leachate collection system
 - Maintenance
 - Response procedures high level alarm
 - Discharging leachate
 - Traffic management
 - Pest and weed control
 - Cell rehabilitation
 - Ongoing monitoring requirements

- Landfill closure and rehabilitation plan, including:
 - Final landform and use
 - Final landfill contouring
 - Detailed site investigation procedures to determine the extent and degree of contamination from landfill
 - Maintenance and monitoring of leachate collection, gas collection and stormwater controls
 - Revegetation procedures
 - Revegetation maintenance and monitoring procedures
- Quality assurance and quality control, including:
 - Requirements for DECC reporting
 - Procedures for collecting waste stream data
 - Requirements for auditing waste transfer station and landfill facility procedures
 - Requirements for auditing environmental performance

Council will ensure that all site personnel, management and contractors are familiar with the above document, in particular the environmental objectives, and management and monitoring requirements. This document is to be the primary reference for all landfill activities and used for site inductions.

Tharbogang Quarry: Operational and Environmental Plan

Council will develop and implement the operational and environmental management plan for the quarry prior to the commencement of works, outlining the operational procedures and environmental management measures to be adhered to by the successful quarry contractor and Council. The plan will cover the following:

- Site overview
- Environmental objectives
- Pit construction and operation
 - Pit design
 - Commissioning sequence
 - Operating schedule
 - Flora and fauna exclusion zones
 - Onsite flora and fauna measures to be undertaken by the Contractor
 - Hazard controls and personnel safety
 - Stormwater management controls and storage
 - Stripping of overburden and stockpiling procedures
 - Drilling, blasting and crushing procedures
 - Noise and vibration controls to be employed during the blasting and operation of mobile quarry equipment
 - Stockpiling of resource

- Traffic management
- Dust suppression measures
- Ongoing monitoring requirements
- Transition procedures between quarry pits
- Public complaint procedures
- Incident reporting management system
- Quarry rehabilitation plan, including:
 - Final landform and use
 - Quarry wall contouring
 - Revegetation procedures
 - Maintenance and monitoring procedures
- Quality Assurance and Quality Control, including:
 - Requirements for DECC reporting
 - Requirements for auditing quarry facility and operations
 - Requirements for auditing environmental performance

Council will ensure that the contractor and management are familiar with this document, in particular the environmental objectives, and management and monitoring requirements. This document is to be the primary reference for all quarry activities and used for site inductions.

1.2 Mitigation Measures

Table E1 outlines the mitigation and management measures Council has committed to in order to manage potential environmental impacts and issues arising from the proposal. Key responsibilities and a schedule have been identified to ensure effective implementation of commitments at the appropriate project stage. Council is ultimately responsible for ensuring contractual agreements with contractors address agreed environmental commitments and that these commitments are implemented.

Table E1: Mitigation and management commitments

MITIGATION AND MANAGEMENT MEASURE	RESPONSIBILITY	IMPLEMENTATION SCHEDULE	PERFORMANCE INDICATOR, STANDARD OR GUIDELINE	DOCUMENT REFERENCE
FLORA AND FAUNA				
<ul style="list-style-type: none"> Develop and implement Griffith Biodiversity Management Strategy 	Council	Project commencement	Strategy review of biodiversity outcomes	EA Section 7.2.2 'Onsite measures'
<ul style="list-style-type: none"> All retained areas of native vegetation on Lot 201 and Lot 202 (that is areas not subject to the proposed and envisaged future clearing for quarrying operations) will be protected in perpetuity as part of the offset package and rezoned to Environmental Conservation or Environmental Management Revegetate and enhance (where possible) to create a contiguous corridor with Lot 201 on the western boundary Maintain and enhance a 40m riparian zone on either side of the ephemeral drainage line 	Contractors	Prior to commencement of each quarry pit	Species survival counts Structural and floristic diversity Buffer dimensions	EA Section 7.2.2 'Onsite measures'
<ul style="list-style-type: none"> Collect, store and/or propagate seeds for rehabilitation purposes (to be stipulated in the detailed rehabilitation plan) 	Council	Prior to commencement of each quarry pit	Species diversity in seed collection	EA Sections 6.3.6 and 6.4.4 'Rehabilitation and final landform'
<ul style="list-style-type: none"> Relocate hollow trees and woody debris to corridors and areas not designated for clearing 	Council	Prior to commencement of each quarry pit		EA Section 7.2.2 'Onsite Measures'
<ul style="list-style-type: none"> Clearing of hollow-bearing trees will be undertaken outside of the main bird breeding periods and trees will be inspected for resident fauna by a suitably qualified ecologist. Appropriate action will be taken prior to removal should the presence of native fauna be confirmed 	Qualified NSW Parks Officer or equivalent	Prior to commencement of each quarry pit	Property Vegetation Plan (<i>Native Vegetation Act 2003</i>)	EA Section 7.2.2 'Onsite measures'
<ul style="list-style-type: none"> Undertake detailed flora and fauna assessments of proposed offsets 	Council	Prior to the commencement of each quarry pit	<i>Consultant Brief 2007</i> 'Objectives and Assessment Tasks', and in consultation with DECC	EA Section 10.2
<ul style="list-style-type: none"> Refine the offset package described in Appendix C to the satisfaction of the Department of Planning and implement it prior to the commencement of the new quarrying activities in order to compensate 	Council	Prior to the commencement of each quarry pit	Approval from the Department of Planning and verified number of hectares protected and reported as offsets	EA Section 7.2.2 'Offsets' EA Section 10.4

for the native vegetation to be cleared				
<ul style="list-style-type: none"> Enhance onsite vegetation in areas not designated for clearing through direct seeding, thinning, grazing exclusion, weed and fire management Develop and implement a weed and pest management strategy for the control and eradication of weed species and incorporate into the rehabilitation plan, and QOEMP and LOEMP Monitor success of revegetation and enhancement works onsite and in offset areas 	Council	Ongoing		EA Section 7.2.2 EA Section 10.5
<ul style="list-style-type: none"> Prepare a detailed rehabilitation plan for the quarry and landfill components to achieve the rehabilitation outcomes identified in the EA. The rehabilitation plan will describe short, medium and long-term measures what will be implemented to rehabilitate the site, manage the remnant vegetation and habitat on the site and landscaping of the site to mitigate any visual impacts of the project. Performance monitoring and completion criteria will be designed to demonstrate that the rehabilitation outcomes identified in the EA and rehabilitation plan are met. 	Council	Project commencement and ongoing	DECCW approval	EA Section 6.3.6 and 6.4.4
<ul style="list-style-type: none"> Progressively clear vegetation for each quarry pit Progressively rehabilitate each quarry pit 	Council/Contractors	Ongoing	Number of hectares successfully rehabilitated Species survival counts	EA Section 6.3.6
<ul style="list-style-type: none"> Cap and rehabilitate the landfill on completion 	Council/Contractors	Landfill closure	Species survival counts	EA Section 6.4.4

GROUNDWATER

<ul style="list-style-type: none"> Install 2 new licensed groundwater monitoring bores west of the site 	Landfill Operations Manager	Project commencement	<i>Minimum Construction Requirements for Water Bores in Australia 2003</i>	EA Section 7.3.2 & figure 7.3
<ul style="list-style-type: none"> Licence new groundwater monitoring bores 	Landfill Operations Manager	Prior to installation of new bores	<i>Water Act 1912 (NSW)</i>	EA Section 7.3.2
<ul style="list-style-type: none"> Establish and implement groundwater monitoring program in accordance with DECCW requirements 	Quarry and Landfill Operations Managers	Project commencement	<i>EPA Environmental Guidelines: Solid Waste Landfill 1996</i> <i>Guidelines for Water Quality Monitoring and Reporting ANZECC 2000</i> <i>Approved Methods for the Sampling and Analysis of Water Pollutants in NSW 2004</i>	EA Section 7.3.2
<ul style="list-style-type: none"> Construct appropriately engineered landfill cells lined with an impermeable liner (i.e. with a permeability less than 10^{-9}ms^{-1}) and a 	Council, project designers and	Construction	<i>EPA Guidelines for Aqueous Liquid Treatment Ponds</i>	EA Section 6.4.3 Monitoring and

drainage layer <ul style="list-style-type: none"> Construct a leachate collection system with appropriate holding pond and/or tanks to divert leachate back to landfill Construct surface water diversions around landfill Install high level alarm to the leachate pond interlocked with the drainage system to prevent overfilling Install monitoring and alarm system to detect possible failures in the leachate collection system and liner 	contractor		<i>EPA Leachate Barrier System Guidelines</i> <i>EPA Leachate Collection System Guidelines</i> <i>EPA Environmental Guidelines: Solid Waste Landfills 1996</i>	maintenance' & Section 7.3.2
<ul style="list-style-type: none"> Establish assessment procedures to determine extent of leachate system failure Establish and maintain a landfill incident response register and assessment of potential risks 	Landfill Operations Manager	Ongoing		EA Section 7.3.2
<ul style="list-style-type: none"> Visual inspections of engineering works on a daily basis 	Site Manager	Ongoing		EA Section 9.5
<ul style="list-style-type: none"> Install operational backflow device on potable water supply pipeline Identify, map and colour code all pipelines on site 	Landfill Operations Management	Project Commencement	<i>National and State plumbing regulations</i>	EA Section 6.5
<ul style="list-style-type: none"> Contour, cap and revegetate to top profile of the landfill form to maximum 5% gradient 	Landfill Operations Manager	Closure	<i>EPA Environmental Guidelines: Solid Waste Landfills 1996</i>	EA Section 6.4.4
<ul style="list-style-type: none"> Conduct ongoing groundwater monitoring post closure and action non-compliances 	Council	Closure	<i>EPA Environmental Guidelines: Solid Waste Landfills 1996</i>	EA Section 7.3.2
GROUNDWATER DEPENDANT ECOSYSTEMS				
<ul style="list-style-type: none"> Progressively rehabilitate quarry voids to limit area of disturbance potential for loss / gain of water accession to groundwater 	Quarry contractor	Completion of extraction in each pit		EA Section 6.3.6
<ul style="list-style-type: none"> Install leachate collection system for landfill cells. 	Council, project designers and contractor	Construction		EA Section 7.3.2
<ul style="list-style-type: none"> Construct / install stormwater and sedimentation controls 	Council, project designers and contractor	Construction		EA Sections 7.5.2
<ul style="list-style-type: none"> Assess the significance of the various ephemeral swamps and water bodies as part of the Griffith Biodiversity Strategy 	Council	Ongoing		EA Section 5.11

SURFACE WATER

<ul style="list-style-type: none"> Council will prepare a surface water management plan to the satisfaction of the NSW Office of Water. This should include measures to ensure that contaminated runoff will not leave the site. 	Council	Prior to project commencement	<i>Approval of plan by NSW Office of Water</i>	EA Sections 7.4.2 and 7.5.2
<ul style="list-style-type: none"> Construct diversion drains and bunds around perimeter of quarry pits Install pumps to divert surface water to settlement and stormwater detention ponds Install sediment trap at discharge point Incorporate energy dissipation and erosion protection measures in surface water diversions 	Council, project designers and contractor	Construction	<i>Managing Urban Stormwater: Soils and Construction (Landcom, 2004)</i>	EA Section 7.5.2
<ul style="list-style-type: none"> Install table drains, culvert pipes and silt traps on all access new roads, i.e. to pit 101 Undertake all engineering works to minimise erosion and soil contamination 	Council, project designers and contractor	Construction	<i>RTA Roadside Handbook - environmental guidelines for road construction and maintenance workers 1995</i> <i>RTA Road Design Guidelines (draft Chapter 7 – drainage)</i>	EA Section 6.2.2
<ul style="list-style-type: none"> Ensure all water storages are engineered for peak weather events (1 in 100 year 72 hour rainfall event) The stormwater detention pond will be lined with a flexible membrane and the water quality monitored on a quarterly basis 	Council, project designers and contractor	Construction and ongoing	<i>ANCOLD Guidelines on Design Floods for Dams 1994</i> <i>ANCOLD Guidelines Environmental Management for Dams 2001</i>	EA Section 6.5 Appendix J, Section 7.2
<ul style="list-style-type: none"> Install bunding and spill kits in the vicinity of any chemicals or fuels stored or used onsite 	Quarry and Landfill Operations Managers	Ongoing	<i>AS 1940 The storage and handling of flammable and combustible liquids 2004</i> <i>Dangerous Goods Regulations 2005</i>	EA Section 6.3.4
<ul style="list-style-type: none"> Install operational backflow device on potable water supply pipeline Identify, map and colour code all pipelines on site 	Landfill Operations Manager	Project Commencement	<i>National and State plumbing regulations</i>	EA Section 6.5
<ul style="list-style-type: none"> Visual inspection of engineering works 	Site Manager	Ongoing		EA Section 9.5

SOILS

<ul style="list-style-type: none"> Containment spill kit will be kept on site at all times Contaminated soils will be removed and placed in the active putrescible landfill cell Soils testing will be conducted down gradient of the landfill, leachate collection system, leachate pond, quarry pits and settlement pond to ensure soil quality remains intact 	Site Manager	Commencement of works and ongoing	Number of spills and remediation action	EA Sections 6.3.4 and 7.6.2
<ul style="list-style-type: none"> Construct cut-off drains and diversions with erosion control measures 	Council, project designers and	Construction	<i>Managing Urban Stormwater: Soils and</i>	EA Section 7.6.2

	contractor		Construction (Landcom, 2004)	
▪ Periodically check and empty sediment trap at settlement dam	Contractor	Ongoing		EA Section 7.6.2
▪ Wet down stockpiles as per the Dust Management Plan	Contractor	Ongoing		EA Section 7.6.2
▪ Enhance vegetation in edge areas (landfill, roads, quarry edges etc)	Council	Ongoing	Species survival counts Evidence of erosion	EA Section 7.2.2 'Onsite measures'
▪ Cover edges with mulch as a temporary measure				
▪ Progressively revegetate quarry stages	Contractor	On completion of each quarry stage	Number of hectares successfully rehabilitated Species survival counts	EA Section 6.3.6
SALINITY				
▪ Install closed leachate collection system and surface water controls around landfill	Council, project designers and contractor	Construction	Managing Urban Stormwater: Soils and Construction (Landcom, 2004)	EA Section 7.7.2
▪ Install sedimentation dam and drainage channels to direct water from quarries				
AIR QUALITY				
▪ Implement procedures for investigating complaints	Council	Ongoing	Number of complaints registered and finalised	EA Section 7.17
▪ Water cart for dust suppression on unsealed roads	Contractor	Ongoing	Compliance with Dust Management Plan	EA Section 7.8.2
▪ Water down uncovered stockpiles				
▪ Conduct odour modelling in the event of a complaint / incident	Council	Ongoing	Approved Methods for the Sampling and analysis of Air Pollutants NSW 2007	EA Section 7.8.2
▪ Water sprayers will be used on the crusher whenever it is operating	Council	Ongoing	Compliance with Dust Management Plan	
▪ When the 10 minute average wind speed measured at the quarry exceeds 30km/hr from the north-east quadrant (between 0 degrees and 90 degrees) operation of the quarry will cease or as specified in Dust Management Plan	Council	Ongoing	Compliance with Dust Management Plan	
▪ When the average wind speed measured at the quarry in any direction exceeds 35km/hr (10 minute average), then all construction and operation of the quarry will cease or as specified in Dust Management Plan.	Council	Ongoing	Compliance with Dust Management Plan	
▪ A Dust Management Plan incorporating dust monitoring to be developed and submitted to DECCW.	Council	Prior to Project Commencement	Approval from DECCW	

GREENHOUSE GAS EMISSIONS

<ul style="list-style-type: none"> Capture and flare landfill gases and monitor emissions Once data is available, a greenhouse gas target will be set and incorporated into the landfill operational environmental management plan 	Landfill Operations Manager	Ongoing	POEO (Clean Air) Regulations 2002 - schedule 2 EPA Environmental Guidelines: Solid Waste Landfills 1996	EA Section 7.9.2
<ul style="list-style-type: none"> Construct and operate waste transfer station to reduce waste to landfill 	Council	Within 2 years of project commencement	Handbook for the Design and Operation of Rural and Regional Transfer Stations 2006	EA Figure 6.11
<ul style="list-style-type: none"> Cover active tip face daily with green waste to improve bioreaction process 	Council	Ongoing	Environmental Guidelines: Solid Waste Landfills	EA Section 7.9.2

NOISE AND VIBRATION

<ul style="list-style-type: none"> Implement procedures for investigating complaints 	Council	Ongoing	Number of complaints registered and finalised	EA Section 7.17
<ul style="list-style-type: none"> Where quarry plant noise is found to exceed the intrusive goal of 35dB (L_{Aeq, 15 min}) at affected residences, the plant will be moved or modified to ensure the noise impact from plant is below 35dB (L_{Aeq, 15 min}). 	Contractor	Ongoing	Number of exceedences	EA Section 7.7.2
<ul style="list-style-type: none"> Blasting airblast overpressure (in dB Linear Peak) and ground vibration peak particle velocity (in millimetres per second) will be measured for the first three blasts at the nearest affected residence. If these are well within the limits and there are no complaints, then monitoring will be undertaken once a year. The results will be reported to DECCW. Blasting will only occur between 9.00am -3pm, Monday to Friday excluding public holidays. 	Contractor	Ongoing	Number of exceedences	
<ul style="list-style-type: none"> Restrict operating hours of the quarry to 8.30am - 5pm 	Contractor	Ongoing		EA Section 6.4.3
<ul style="list-style-type: none"> Notify residents within 2,000m of intention to blast at least 7 days in advance 	Council / Contractor	Ongoing		EA Section 7.8.2

HAZARDS

<ul style="list-style-type: none"> Erect fencing above quarry walls 	Contractor	Prior to commencement of quarry works	DPI Safety Bulletin: working near quarry benches 2008	EA Section 7.10.2
<ul style="list-style-type: none"> Implement procedures for refusing prohibited wastes Construct defined asbestos disposal zone 	Landfill Operational Manager	Construction	Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes 2004	EA Table 7.13
<ul style="list-style-type: none"> Construct bunded area for diesel containers 	Quarry Operational	Construction	AS 1940 The storage and handling of	EA Section 6.3.4

	Manager		<i>flammable and combustible liquids 2004</i> <i>Dangerous Goods Regulations 2005</i>	
<ul style="list-style-type: none"> Develop and implement fire management procedures in consultation with the Griffith Fire Control Centre, and submit to emergency services Develop emergency response and contingency procedures as part of the operational plans 	Landfill Operational Manager	Construction		EA Table 7.13
<ul style="list-style-type: none"> Store chemicals and explosives offsite 	Landfill Operational Manager	Ongoing	<i>Explosives Act 2003 and Regulations 2005</i>	EA Table 7.13
<ul style="list-style-type: none"> Public education and additional inspection for prohibited wastes and burning materials 	Landfill Operational Manager		<i>Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes 2004</i>	EA Table 7.13
<ul style="list-style-type: none"> Reduce tip face and cover daily to reduce risk of ignition from lightening strikes Spread green waste in thin layers to minimise risk of self-combustion Street sweeper waste to be stockpiled with green waste Manage and monitor waste prior to disposal in the landfill cell and implement other measures outlined in Table 7.13 of the EA Create vertical and horizontal layers in inert cell with clay to isolate volume of waste prone to a fire event 	Landfill operational manager	Ongoing		EA Table 7.13
<ul style="list-style-type: none"> Limit access to quarry face and exposed edges Conduct safe work methods statements for potentially hazardous tasks Ensure appropriate supervision for personnel for all tasks Conduct site inductions and periodic refresher training for all employees, contractors and transport contractors 	All personnel	Ongoing	<i>DPI Safety Bulletin: working near quarry benches 2008</i>	EA Section 7.10.2 & Table 7.13

WASTE MINIMISATION

<ul style="list-style-type: none"> Construct waste transfer station 	Project design and contractor	Construction	<i>Handbook for the Design and Operation of Rural and Regional Transfer Stations 2006</i>	EA Figure 6.4.3 'Infrastructure and equipment'
<ul style="list-style-type: none"> Re-direct recyclables for processing 	Landfill Operations Manager	Within 2 years of project commencement	<i>NSW Waste avoidance and Resource Recovery Strategy 2007</i>	EA Section 8.3
<ul style="list-style-type: none"> Record the waste stream and amount received, recovered and recycled, and disposed of in landfill 	Landfill Operations Manager	Ongoing	<i>NSW Waste avoidance and Resource Recovery Strategy 2007</i>	EA Section 8.3

			DECC Online Tracking Service Pack DECC Online Waste Reporting Service Pack and User Guide	
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TRAFFIC

▪ Implement procedures for investigating complaints	Council	Prior to commencement of works	Number of complaints registered and finalised	EA Section 7.17
▪ Undertake regular traffic and road inspections and any works required will be undertaken in accordance with road and rail design standard applicable at the time	Council	Every 5 years	In consultation with RTA and the rail authorities, and standards current to the time	EA Section 7.11.2
▪ Compile Transport Management Plan	Council	Prior to commencement of works	Approval of plan by RTA.	
▪ Upgrade auxiliary right turn treatment at the intersection with Kidman Way and ensure that there is no cost to the RTS associated with the development	Council	In accordance with the RTA approved Transport Management Plan	Approval of plan by RTA.	
▪ The operator to maintain a log book of extraction quantities, waste deliveries and traffic movements.	Council	Ongoing		

HERITAGE

▪ Implement procedures to investigate and protect culturally significant material if discovered during construction and operation	Site Manager	Prior to commencement of works	<i>Guidelines for Aboriginal Heritage Impact Assessment in the Exploration & Mining Industries</i>	EA Section 7.12.2 and Appendix D of this Response to Submissions
▪ The two surveyor scarred trees will be preserved and protected and a 20 m radius development exclusion zone will be maintained around each tree	Council	Prior to commencement of works		Appendix D of this Response to Submissions
▪ The two Bluedot Speedway signs will be carefully removed and handed over to the car racing club for safe-keeping, reuse or displayed at Griffith Pioneer Park Museum.	Council	Prior to commencement of works		Appendix D of this Response to Submissions

VISUAL AMENITY

<ul style="list-style-type: none"> Erect 2.5m perimeter fence to prevent windblown rubbish leaving the site Ensure rubbish pickup along the fence line and more generally is undertaken regularly 	Site Manager	Prior to commencement of works and ongoing	Number of complaints regarding rubbish	EA Section 7.13.2
<ul style="list-style-type: none"> The landfill will be rehabilitated and revegetated to replicate areas of open grassy woodland. 	Council	Ongoing		EA Section 6.4.4
<ul style="list-style-type: none"> Construct batters with fissures (offset at each bench) and benches to minimise extend of the cut face. These will mimic the natural scarps and reduce the formation of unnatural straight lines. The benches and floor of the quarries will be revegetated with suitable native species 	Quarry Operations Manager and Contractor	Ongoing	<i>NSW Minerals Council Rehabilitation by Design Practice Notes</i> <i>DITR Mine Rehabilitation</i> <i>Landform Design for Rehabilitation 1998</i>	EA Sections 6.3.4 and 7.13.2
<ul style="list-style-type: none"> Ensure strategic landscaping is incorporated into new residential developments within line of sight and in close proximity to the development 	Planning division Council	Ongoing	<i>Griffith Land and Environment Plan</i>	EA Section 7.13.2

SOCIOECONOMIC

<ul style="list-style-type: none"> Maintain ongoing and inclusive consultation with nearby landholders Respond to all community concerns and the complaints register 	Council	All project stages	Number of complaints registered and finalised	EA Sections 7.14 and 7.17
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**APPENDIX 3
INDEPENDENT DISPUTE RESOLUTION PROCESS**

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

