Hanson
HEIDELBERGCEMENTGroup

EAST GUYONG QUARRY

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1. INTRODUCTION

1.1 Background

Hanson Construction Materials Pty Ltd operates over 50 quarries in Australia, directly employs over 3,000 people and generates total sales of over 20 million tonnes per annum. With international backing and high level local expertise, Hanson runs twelve quarry operations in NSW, ranging from sand to hard rock quarries.

The approved East Guyong quarry is located on a ridge on the north-west section of the site, which is 22 km southeast of Orange and 36 km west of Bathurst on lots 110 and 111 of DP 852503, lots 3, 4 and 5 of DP 854608, Lewis Ponds Creek (Shire of Cabonne, Parish of Colville, County of Bathurst), off the Mitchell Highway, Guyong, see **Figure 1**.

This Environmental Assessment has been prepared to accompany an application to the Minister for Planning and Infrastructure under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to modify Major Project Approval 06_0193 to extract up to 400,000 tonnes of basalt per year.

Location of the approved Project areas is shown on **Figure 2**. Details of the original proposal including the extractive operations are contained within the Environmental Assessment (Hanson, September 2009) and subsequent approval.

Consultation has been undertaken with officers from the Department of Planning and Infrastructure who have confirmed that the proposed modification can be determined under Section 75W of the EP&A Act.

Part of the modification sought is to construct and utilise an alternate route to access the approved Infrastructure Area (IA) shown by the orange outline of **Figure 2**.

The approved access to the IA is via an intersection which is approved to be built at the Mitchell Highway. This route leave the Mitchell Highway and traverses north over a low rise hill and then down a sweeping left hand bend on the other side of the hill which opens up into an open valley where the IA is situated on the western side.

The approved access route currently exposes the neighbouring property known as Hartley Cottage to the sight of quarry vehicles entering and leaving the site. A screen mound was proposed to be placed beside the approved route; however the topography falls steeply away from the road making it too difficult to construct a suitable screen mound that would sufficiently block the view of quarry vehicles.

The modification sought is to construct and utilise an alternate route to access the IA. If adopted the preferred route would follow the alignment of the approved road from the intersection with the Mitchell Highway along the first 140 metres of the approved route, then deviate in a northwest direction and traverse around the western side of the low rise hill. The approved access road is shown by the red dashed line in **Figure 2**. The proposed modified access road is shown by the yellow dashed line in **Figure 2**.

In total the preferred alternate haul route would disturb an area of approximately

3 hectares of cleared grazing land. The preferred route would ensure there is sufficient height of screen mound along the northern side of the road. This is far more easily accomplished than the approved route as the hill side will be cut into and used as screening instead of attempting to construct a large mound as would be the case with the approved route. The screen mound/hill along the preferred route would then be planted out with local indigenous pieces of trees to stabilise the ground and provide further screening.

1.2 Approval Process

The original proposal satisfied the definition of a Major Project under the then State Environmental Planning Policy (Major Development) 2005 and was approved by the Minister for Planning (by delegation) under Part 3A of the EP&A Act on 6 January 2011, Project Approval (PA) 06_0193 (Approved Project). However an objector to the project appealed to the Land and Environment Court to have the determination overruled. On 21 May 2012 the NSW Land and Environment Court allowed the development to proceed and issued revised conditions of consent.

Consultation with Department of Planning & Infrastructure (DPI) has been undertaken to determine what matters of particular interest would need to be addressed in this submission. The DPI has advised the following need to be addressed:

- Detailed description of the proposal
- Noise impacts;
- Air quality (dust emissions);
- Implications of the Naturally Occurring Asbestos (NOA)
- Aboriginal Heritage
- For flora and Fauna
- Traffic
- Visual
- Erosion and Sediment controls

This submission has been prepared to support an application to modify PA 06_0193 under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Access to the property is currently via a driveway located the northern side of the Mitchell highway. The proposed modification would realign 700m of the approved 1km of sealed entry road from the Mitchell Highway to the Infrastructure Area (IA) by shifting the road alignment approximately 200m to the south-west.

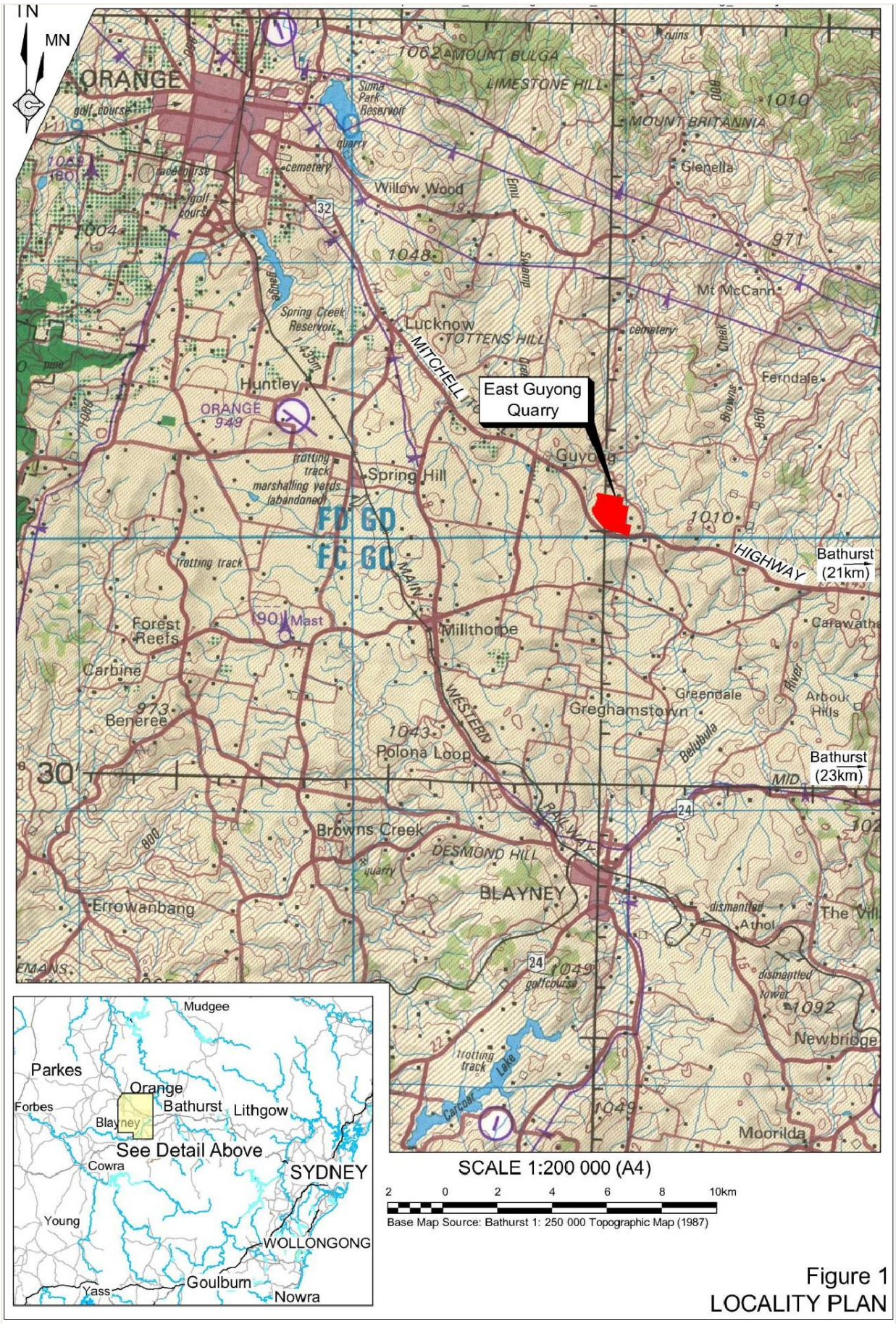

Figure 1
LOCALITY PLAN

1.3 Project Setting

The proposed quarry site is located in a rural area at East Guyong, 22 km west of Bathurst and 20 km southeast of Orange (see **Figure 1**). The site is bordered by agricultural (grazing) properties to its north, east and west, and by the Mitchell Highway to the south. Nine residences surround the site with the closest residence located approximately 150 m from the site's northern boundary (Hartley Cottage).

2 PROPOSED MODIFICATION

2.1 Existing Approved Development

The approved project involves quarrying a 30 metre (m) high ridge of fine-grained basalt in the western half of the site. Up to 400,000 tonnes of basalt a year would be extracted and processed at the site, which has an estimated total resource of 15 million tonnes.

The proposed quarry would be developed in seven stages; with Stage 1 involving site establishment works and development of the quarry pit (see **Figure 2**). Stages 2-7 would extend the quarry pit in both northerly and southerly directions. All extracted material would be processed and stockpiled on site. All quarry products would be transported by truck to markets via the Mitchell Highway.

The key components of the project are summarised in **Table 1** and depicted in **Figure 2**. The proposal is fully described in the Environmental Assessment (EA) (Hanson, September 2009).

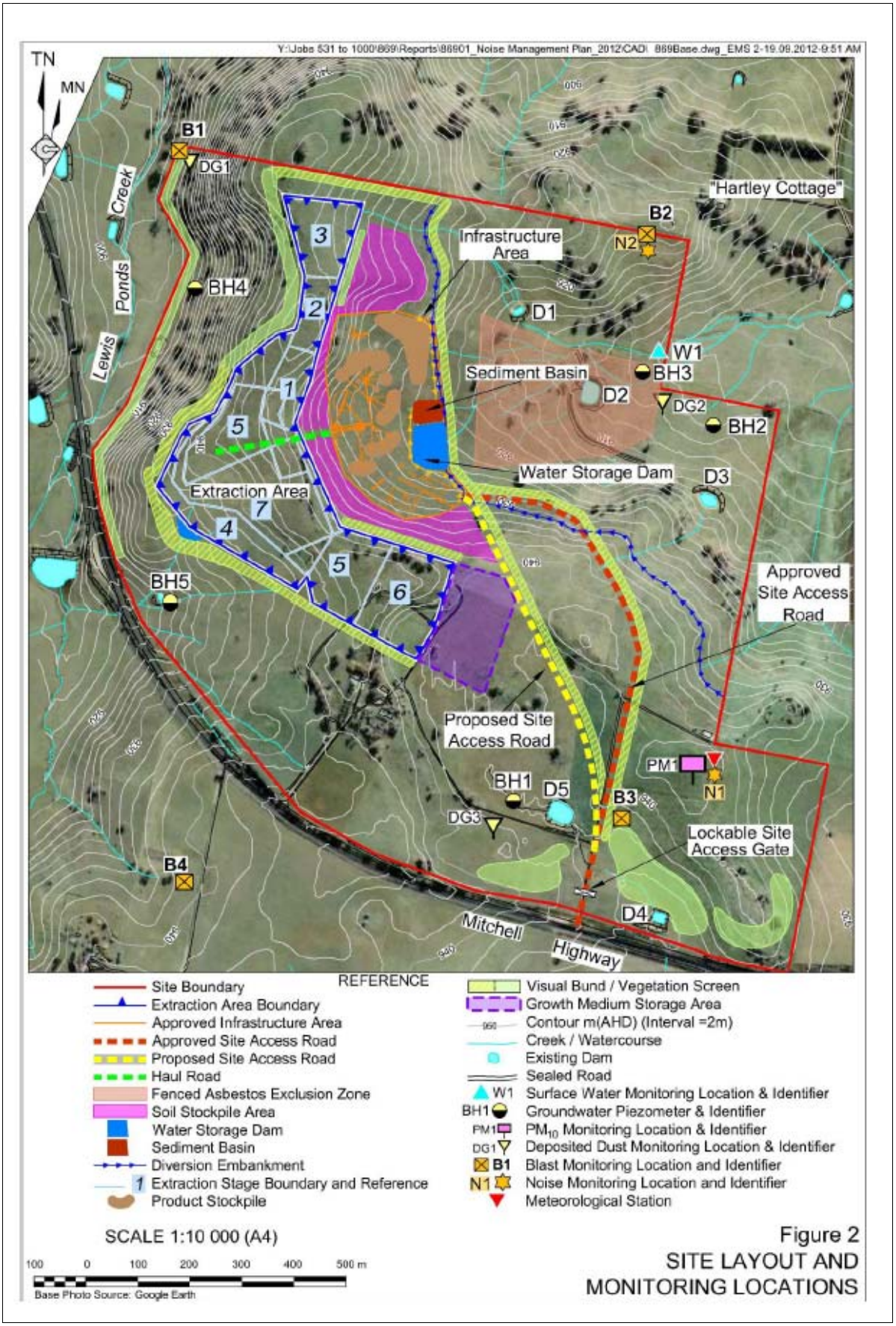

Figure 2: Project Map (source: RW Corkery Pty Ltd).

Aspect	Description
Project Summary	**Establishment and operation of a hard rock quarry, to extract, process and transport up to 400,000 tonnes per annum of basalt quarry products; and Rehabilitating the site.**
Project Life	An expected project life of up to 30 years.
Material Processing	All extracted material would be processed on site using "dry" processing methods and stockpiled on site.
Water Management	Water for on-site operations would be supplied from a new 12 megalitre (ML) capacity dam. Run-off captured in the quarry pit would be pumped to the dam for re-use. Run-off from the infrastructure area would be diverted to a 3 ML capacity sediment dam.
Transport	All quarry products would be transported by road to local and regional markets, using the Mitchell Highway.
Employment	The project would employ up to 20 workers at the quarry, and up to 15 contracted truck drivers.
Hours of Operation	Operations would take place generally during daylight hours Monday to Friday and from 7 am to 1 pm on Saturdays. No operations would occur on Sundays or Public Holidays.
Rehabilitation and Final Landform	Rehabilitation would be undertaken progressively. Hanson would rehabilitate the site to its pre-quarrying land capability, to create a stable, self-draining landscape with a mix of pasture and treed areas suitable as general habitat and for grazing.
CIV	The capital investment value of the project is $5 million.

Table 1- Key components of the East Guyong Quarry Project

The approved hours of operation for the quarry project are shown in **Table 2** below.

Activity	Day	Time
All quarrying operations.	Monday – Friday during AEST (except Public Holidays)	6.00 am to 6.00 pm
Transportation off-site	Monday – Friday during AEDT (except Public Holidays)	6.00 am to 8.00 pm
	Saturdays	7.00 am to 1.00 pm
	Sundays and Public Holidays	No activities

Table 2- Project operating hours.

2.2 Modification to Project Access Road

It is proposed to modify the alignment of approximately 700m of the sealed entry road to the quarry from the Mitchell Highway at East Guyong. The approved entry road alignment under PA 06_0193 is shown in **Figure 2** and is labelled as "Site Access Road". Approval is sought to deviate the alignment of the approved entry road to avoid the route travelling over a hill and passing along the eastern side of this hill to the quarry weighbridge. **Figure 2** shows the approved access road and the proposed site access road. It can be seen by the white contour lines in **Figure 2** that a hill separates the two road alignments, and therefore it is preferential for vehicles that will be entering and exiting the quarry to travelling along the proposed alignment because this alignment passes around the western side of the hill and therefore hidden from view at Hartley Cottage.

The proposed modification is generally consistent with the approved access road in terms purpose and impacts. The road from the Mitchell Highway will have access and passing lanes, allowing for trucks and other vehicles to turn safely into the quarry.

The access road will be sealed and extended to internally installed shaker grids at the boundary of the stockpile area. The sealed entry road will have grades of less than 15% and will be constructed with adequate erosion and drainage control measures. A minimal amount of vegetation will be cleared during the road construction and will be used as mulch or seed beds in any re-vegetation works.

The proposed modification will not change the approved intersection design at the Mitchell Highway. The proposed modification also will not change the approved road design of the first 140 metres of access road from the Mitchell Highway. The proposed modification to the access road will not result in any negative environmental impacts of the Approve Project. **Table 3** summarises the resulting predicted environmental changes associated with the proposed modification in comparison to the approved access route.

Characteristic	Approved Access Route	Modified Access Route
Intersection with Mitchell Hwy	As per approved design in the project EA	As per approved design in the project EA
Road construction materials	Road base and sealed asphalt	Road base and sealed asphalt
Traffic- Volume of aggregates transported per year	400,000 tonnes (maximum)	400,000 tonnes (maximum)
Hours of Operation	As per Table 2	As per Table 2
Noise Impacts	Limits set as per PA 06_0193	Limits set as per PA 06_0193
Air Impacts	Limits set as per PA 06_0193	Limits set as per PA 06_0193
Aboriginal Heritage	No predicted impacts	No predicted impacts
Flora	No predicted impacts	No predicted impacts
Visual	Visual impacts minimised	Impacts reduced further
Erosion and sediment	No predicted impacts	No predicted impacts

Table 3- Comparison of predicted environmental impacts of the proposed access road.

2.3 Road Haulage

All processed material will be hauled from the site via the access road connecting to the Mitchell Highway. Trucks will typically be truck and dog, carrying 33 tonne payloads and, possibly in the future, B-double payloads (40 tonne) or some other form of transport. These will be loaded by a front-end loader from stockpiles located near the plant site.

The haul routes will be either east or west along the Mitchell Highway. According to the McLaren Traffic Engineering report, based on 400,000 tonnes of production per year, the estimated daily truck movement (in/out) is 96 movements per day. The estimated peak hourly movements (in/out) is 10 movements per hour.

2.4 Erosion and Sediment

A Soil and Water Management Plan (SWMP) has been prepared by R W Corkery & Co Pty Limited on behalf of Hanson Construction Materials Pty Ltd for the East Guyong Quarry. This Plan has been prepared in satisfaction of PA Conditions 3(25) to 3(29) of Project Approval (PA) 06_01931. The requirements under the SWMP are detailed in **Table 4.**

Requirement		Section in SWMP
(a)	be consistent with the requirements of *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries,* (DECCW), or most recent version of the relevant guidelines;	Appendix 1 Sheet 1
(b)	identify activities that could cause soil erosion and generate sediment;	Appendix 1 Sheet 1
(c)	describe measures to minimise soil erosion and the potential for the transport of sediment off site;	Appendix 1 Sheet1 1 to 3
(d)	describe the location, function, and capacity of erosion and sediment control structures; and	Appendix 1
(e)	describe what measures would be implemented to maintain the structures over time.	Appendix 1 Sheet 3

Table 4- Soil and Erosion requirements for the proposed modified road.

The soil cover on the access road site will be retained and used for rehabilitation works. The soils will be placed in distinct mounds or placed slightly thicker on acoustic and visual mounds to retain the integrity of the vegetative matter in the topsoil.

The access road will be constructed to a suitable standard using road base materials and drainage controls, which will prevent erosion. Cut and fill areas will be quickly stabilised and, together with the drainage works, will ensure the long-term stability of the road.

It is expected that disturbed areas may be subject to some erosion before plantings become established. These areas will be repaired quickly as part of site management procedures.

Detailed erosion and sediment controls have been incorporated into the proposed alternate road design drawing in Attachment 1A, and shown on drawing sheet numbers: 09B_E15 and 09B_E16. The conceptual erosion and sediment control plan include in the SWMP is shown in **Figure 3**.

2.5 Hours of Operation

The proposed access road modification will not alter the Project's approved hours of operation. The hours of operation shown in **Table 2** above will still apply.

2.6 Proposed Road Alignment

Geolyse Pty Ltd consulting engineers have been commissioned to design the proposed modified quarry entry road. Plans showing the horizontal and vertical alignment are shown in **Attachment 1A**.

2.7 Justification and Benefits

Aggregate products are required to produce building materials for residential development, the construction industry and the development of roads. One hard rock quarry is currently in operation in the region, at Molong. The proposed East

Guyong Quarry would replace the existing Hanson quarry at Bathurst, ensuring that a competitive market would be available for the supply of aggregate products in the Bathurst and Orange regions.

The product from East Guyong would be suitable for a variety of uses, such as construction fill or road base materials. The regional demand for these quarry products is expected to increase as the population expands and as associated infrastructure upgrades are implemented. This project would contribute to resource security for the regional construction industry at low transport cost.

The project would generate social and economic benefits for NSW, including employment of up to 20 permanent operational staff and up to 15 contracted truck drivers. Other benefits of the project would include the long-term social and economic benefits which would result from use of the resource in construction projects.

The benefit of the proposed realignment of the access road will ensure that the Hartley Cottage is well screened from the sight of quarry vehicles on the access road and a significant reduction in the amount of civil work require to construct the original road alignment and screen mounds. None of the project's other environmental impacts, including noise, flora, fauna, traffic, heritage and air quality are predicted to be significant. Hanson's proposed road works would ensure quarry traffic would not affect the safety or performance of the Mitchell Highway. The site would be appropriately rehabilitated as per the Approve Project and ongoing Environmental Management Plans.

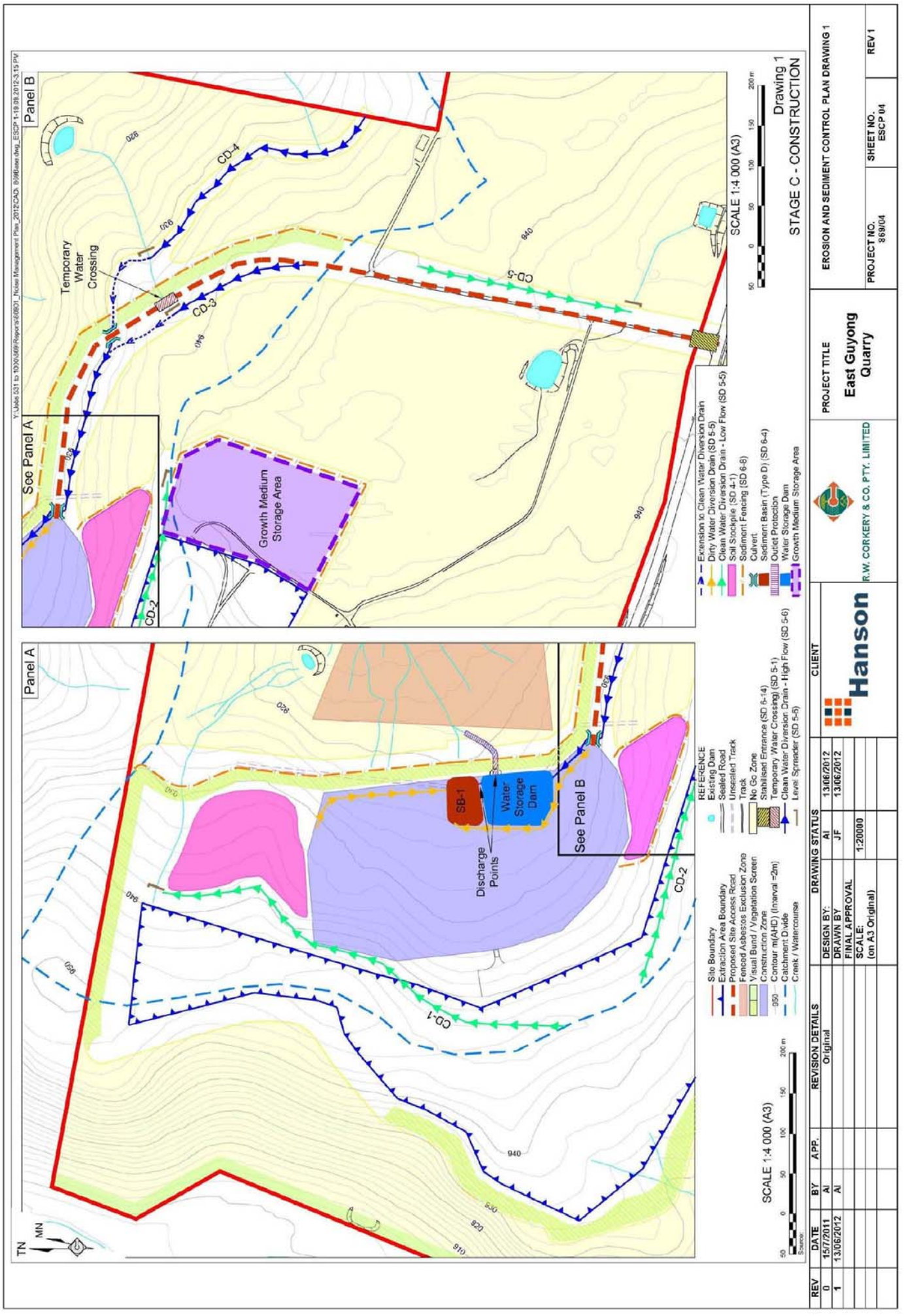

Figure 3- Soil and Erosion Control Plan (source: RW Corkery Pty Ltd)

3 POTENTIAL ENVIRONMENTAL IMPACTS

3.1 Relevant Previous Work and Conditions

Potential environmental impacts of proposed quarry project were addressed as part of the EA (Hanson, September 2009) that accompanied the Major Project Approval application 06_0193 to the Minister for Planning. Through the review and submission process, appropriate environmental controls were refined with these controls set out in approval conditions granted on 6 January 2011, licence conditions and Statement of Commitments from the proponent.

For each of the issues considered in the Environmental Assessment, a review of the potential environmental impacts associated with the proposed modification has been addressed in this document in consultation with NSW Department of Planning and Infrastructure.

3.2 Naturally Occurring Asbestos (NOA)

Rangott Mineral Exploration Pty Ltd (RME) has been conducting ongoing sub-ground investigations across the project area since January 2010 in accordance with the PA consent conditions. In July-August 2012 RME conducted a series of auger and reverse circulation (RC) percussion drilling inspections including the corridor identified as the proposed quarry entry road alignment. A copy of the RME July-August 2012 report is included in **Attachment 2**.

Along the proposed modified entry road RC holes GUY031, GUY030, GUY004, GUY029, GUY028 and auger holes BH07, BH06 were drilled.

The four percussion holes (GUY-028 to 031) were drilled along the north-western part of the revised proposed site access road, to investigate sub-surface materials and quantify materials to be extracted. All of the four holes intersected weathered to fresh basalt at relatively shallow depths.

The locations of the RME exploration holes are shown on **Figure 4**, and the drill logs are presented in Appendix II of the RME report. The drilling was supervised, and the samples logged, by RME senior geologist Anne Eastwood and exploration geologist Kate Heynes. Samples were collected over one metre intervals from top-of-hole to end-of-hole (EOH) in to 750 x 450mm plastic bags (which are now stored in the shearing shed on the site), and sieved and washed reference chips were taken from these and collected in a 20- compartment chip tray for each hole (see photographs in Appendix IV of the RME report, **Attachment 2**).

Figures 5 and 6 provide an enlargement of areas of **Figure 3**, to enable enhancement of the detail.

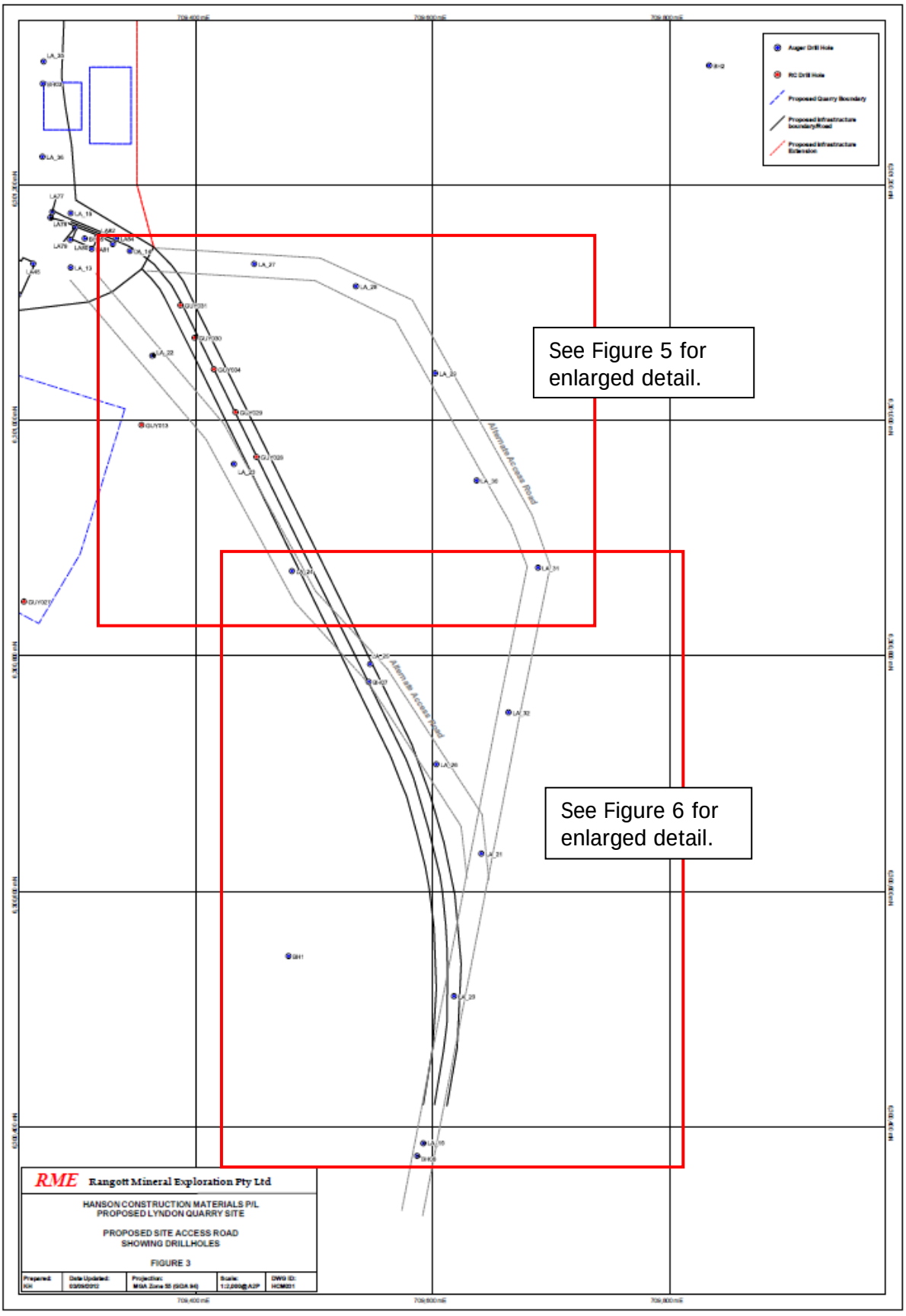

Figure 4- RME, proposed site access road showing exploratory drill holes for NOA identification.

Figure 5- Enlarged detail of Figure 4.

All of the holes bottomed in either fresh or partly-weathered Tertiary basalt. No Byng Volcanics were intersected to the (3 metres below grade) final depths of the holes.

BH 6 and 7 were drilled along the southern part of the proposed access road, to 2 metres depth. Macquarie Geotech carried out penetrometer testing in these holes.

Reference chip samples were collected at 0.5 metre intervals in 20-compartment chip trays and photographs of these are provided in Appendix IV of the RME report (**Attachment 2**).

BH 6 passed through soil and brown plastic clays with no recognisable rock chips, to EOH at 2.0 metres depth, and MG BH 7 passed through soil and brown and bright red plastic clays, with no recognisable rock chips, to EOH at 2.0 metres depth.

Geolyse Pty Ltd has been commissioned by Hanson to design the civil works of the Project including works for:

- Mitchell Highway Intersection
- The proposed access road
- The IA, and ancillary site drainage

The RME exploration holes GUY031, GUY030, GUY004, GUY029, GUY028, BH07, BH06 have been superimposed onto the Geolyse Pty Ltd road design sketches (see **Attachment 1**) to show the hole depths logged in relation to the existing natural surface and the proposed design surface.

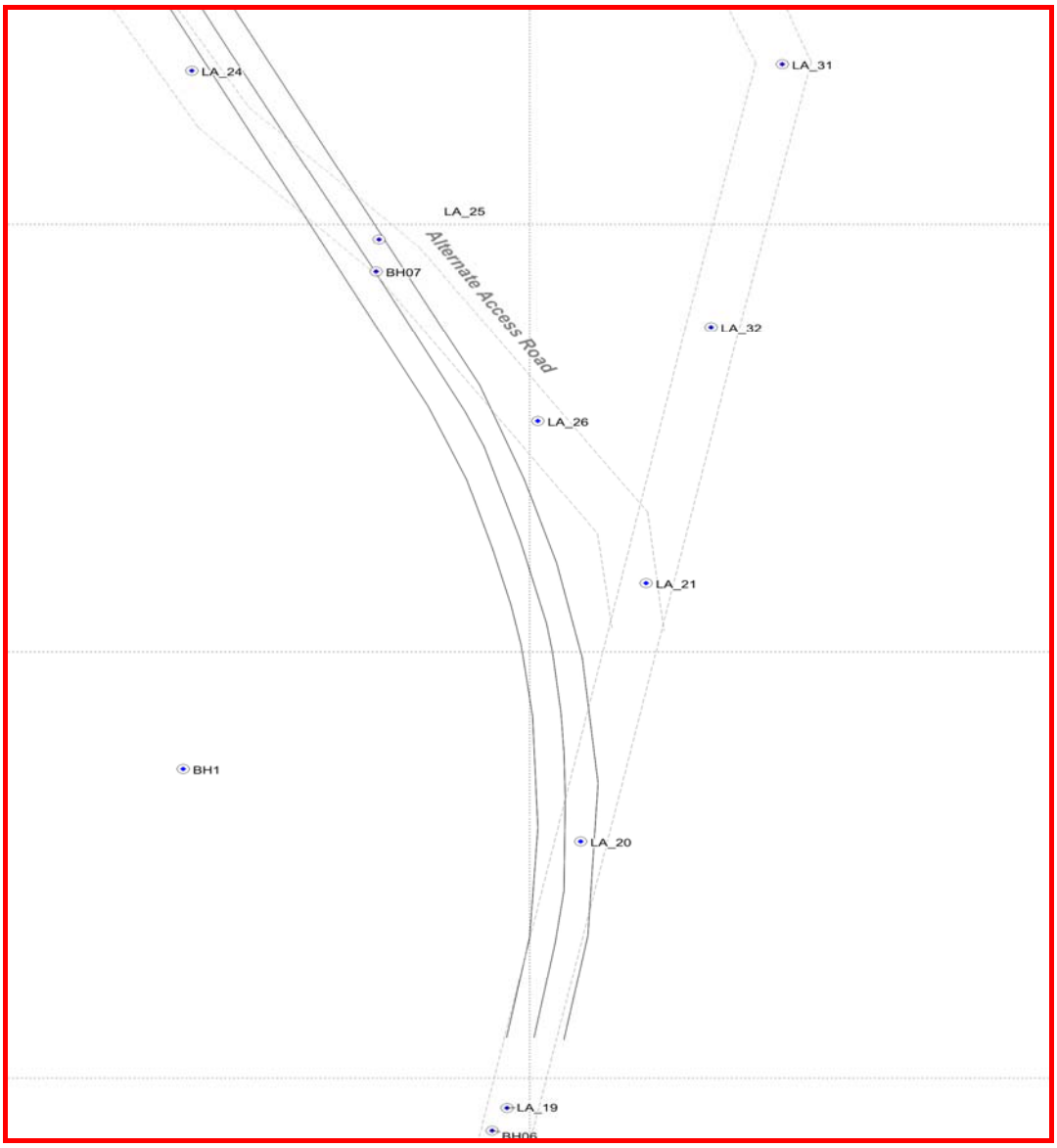

Figure 6- Enlarged detail of Figure 4.

Draft design drawings of the IA and proposed access road design drawings are included in Attachment 1A. The longitudinal section of the proposed road is shown on Geolyse drawing sheets: 09B_E06, 09B_E07, and 09B_E08. The drawing sheets demonstrate that from chainage 0m at the Mitchell Highway to chainage 560m the proposed access road design level is above the natural surface level. Therefore the likelihood of any excavation work encountering the Byng Volcanics and potentially NOA is not significant. Excavation for the proposed access road in this area from chainage 0m to approximately 560m is limited to the removal of the topsoil only. The construction note (3) on Geolyse drawing sheet 09B_E05 states:

- *Strip all fill and topsoil to exposed naturally occurring surface (approximately 200mm) and stockpile onsite for reuse in landscaping and future rehabilitation of site.*
- *The exposed subgrade shall be proof rolled in the presence of the Superintendent.*

The only section of proposed access road that requires cutting into the natural ground surface is from chainage 560m to approximately chainage 825m. In this area RME exploratory holes GUY028, GUY029, GUY030 and GUY031 were drilled. The details of the RME findings for these four holes are contained in the RME Report (**Attachment 2**) and summarised in **Table 5**.

Percussion Hole	Depth (mbgl)	Description of Returns	NOA Identified
GUY028	12M	Dk grey to black olivine-rich basalt, moderately oxidised.	Nil
GUY029	11M	Reddish brown clay, rich weathered basalt.	Nil
GUY030	9M	Brown red clay, olivine-rich basalt, moderately oxidised.	Nil
GUY031	6M	Reddish brown clay, olivine-rich basalt, moderately oxidised	Nil

Table 5- Summary of RME findings for percussion holes along proposed access road.

The maximum cutting required between chainages 560m to 825m (approximately) is approximately 5.5m. This maximum cutting depth occurs nearest to GUY029 which was drilled to a depth of 11m, and is substantially well below the proposed depth of excavation. No Byng Volcanics or NOA was encountered to the depth of the proposed excavation.

It is evident that the amount of excavation required to construct the proposed access road has been minimised by adopting and alternate route. The length of access road which required excavation below topsoil is limited to a 265m section of ground which has been confirmed to be underlain by basalt not Byng Volcanics. The depth of excavation required in the area is also significantly less than the depth of the four (4) RME exploratory holes which yielded no presence of Byng Volcanics or NOA.

It is concluded that the proposed modified access route presents a safe alternative to the approved route. The proposed alignment has been thoroughly examined by RME as to the presence of NOA. The findings of the RME investigation have incorporated by Geolyse into the design of the road to ensure that excavation is minimised and areas of Byng Volcanics are avoided.

3.3 Aboriginal and European Heritage

A study undertaken by John Appleton of Consultant Archaeologist of Archaeological Surveys and Reports Pty Ltd (ASR) was included the approved Project's EA. ASR surveyed approximately 150 hectares of the quarry project area included the area of the proposed entry road realignment.

According to the ASR report:

> *"No sites or material evidence of Aboriginal cultural significance were identified in the survey area"*

Furthermore the ASR report recommended the following:

> *"In the absence of any defined artefactual context or places of Indigenous cultural significance within the survey area it is recommended that there are no constraints to the proposed quarry development."*

Notwithstanding the above the ASR report makes recommendations that the following provisions be observed:

- A representative from the Orange Local Aboriginal Land Council will be invited to be present on the first day of turf removal at the quarry site.
- The proponent should give the Orange LALC seven days notice of their intention to commence turf removal to allow the land council sufficient time to arrange for a Sites Officer to be present.
- In addition all developers, contractors and their employees are bound by the National Parks and Wildlife Act 1974 as amended, which was in part designed to mitigate impact to Indigenous archaeological record.

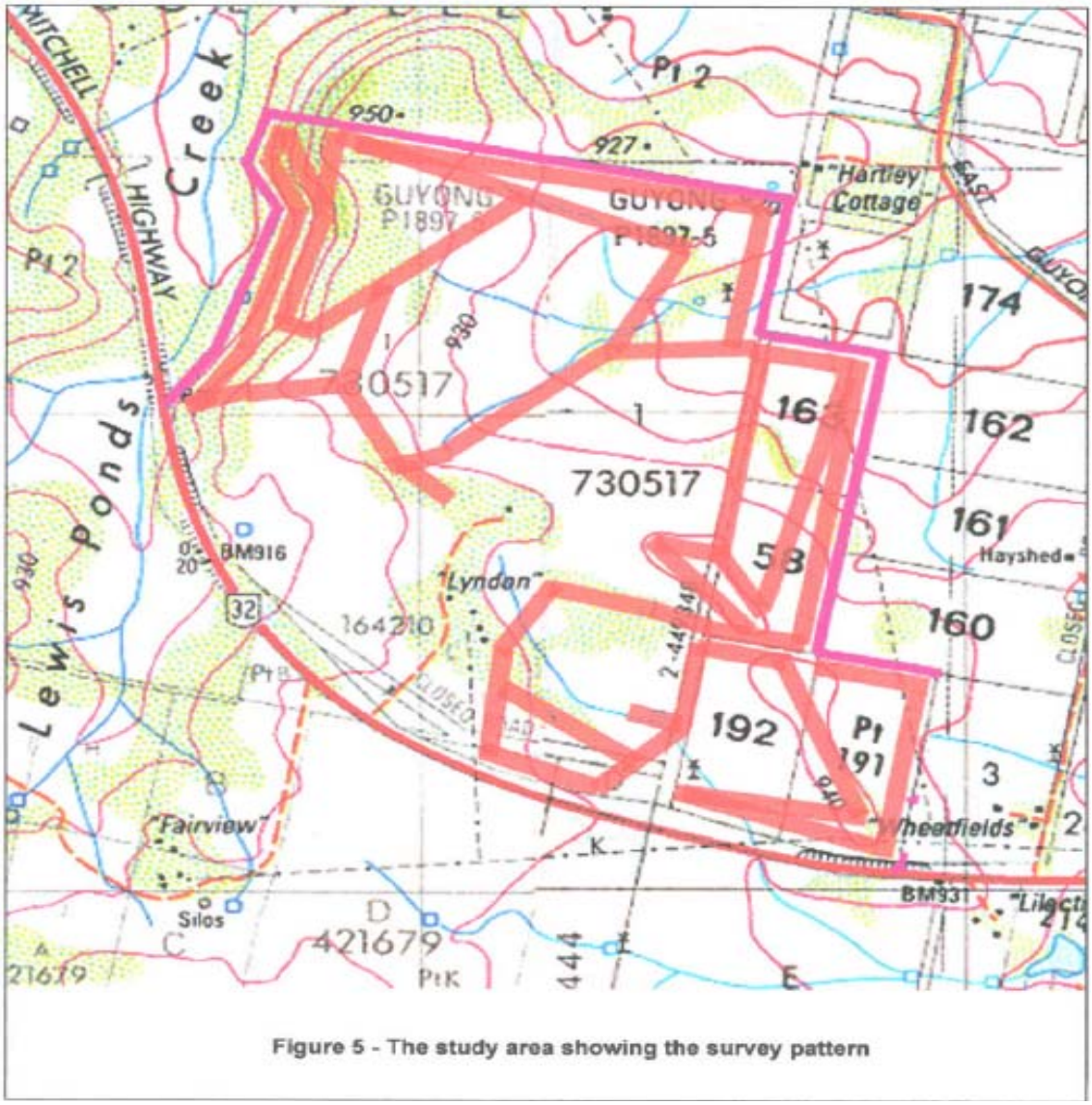

Figure 7- Figure 5 from the ASR report which shows the survey pattern area including the proposed entry road realignment.

Given that the ASR in conjunction with the Orange LALC have concluded that the project site (including the proposed entry road realignment area) does not contain anything of Indigenous cultural significance and taking into consideration the provisions adopted during construction and operation, it is therefore considered that the modification proposal will not have any Indigenous cultural impacts.

Aboriginal Cultural Heritage Management Plan (ACHMP) has been prepared by R W Corkery & Co Pty Limited. This Plan has been prepared in accordance with *Conditions 3(36)* and *5(2)* of Project Approval (PA) 06_0193 and follows the NSW Office of Environment and Heritage (OEH) guideline document "*Preparation and Implementation of an Aboriginal Cultural Heritage Management Plan, Version 7*" ("ACHMP Guidelines v7").

On 20 July 2012, letters were sent to the following public authorities or Aboriginal representative organisations requesting details of Aboriginal stakeholders within the local area who may be interested in registering an interest.

- Orange City Council.
- Cabonne Shire Council[1].
- NSW Office of Environment and Heritage.
- Central West Catchment Management Authority,
- Orange LALC.
- National Native Title Tribunal.
- NTS Corp Pty Ltd.

Only Mr Trevor Robinson of the Wiradjuri Interim Working Party responded. Mr Robinson contacted Mr Alex Irwin by telephone on 24 September 2012 and noted no objection to the Plan as presented in draft form. Mr Robinson queried whether the occurrence of cultural resources, i.e. food trees, was considered for the site. Mr Robinson was referred to the original Aboriginal Heritage Assessment completed by Archaeological Surveys & Reports Pty Ltd who did not identify any such resources. Mr Robinson was satisfied with this response.

Hanson's commitments in accordance the ACHMP are summarised in **Table 6**.

Proponent's Commitment	Section in ACHMP where addressed
The proponent will give the Orange LALC seven days notice their intention to commence stripping of overburden or any disturbance of the existing ground to allow the land council sufficient time to arrange for a Sites Officer to be present.	8.3
All Hanson employees, contractors and the employees will be bound by the provisions of the *National Parks and Wildlife Act 1974* as amended, which was in part designed to mitigate impacts to the indigenous archaeological record.	4.2, 7 and 8.2
All Hanson employees, contractors and the employees will be instructed that in the event of any bone or stone artefacts, or discrete distributions of shell are unearthed during quarry activities, work should cease immediately in the area of the find, and the Orange of any bone or stone artefacts, or discrete distributions of shell are unearthed during LALC, and officers of the National Parks and Wildlife Service informed.	7 and 8.5

Table 6- Aboriginal Cultural Heritage Management-related Commitments.

3.4 Fauna

Potential flora environmental impacts of proposed quarry project were addressed as part of the EA (Hanson, September 2009) conducted by Western Research Institute (WRI). The field survey occurred across the 150 hectare project site including the area of the proposed entry road realignment.

The fauna assessment prepared to support the *Environmental Assessment* (WRI, 2006) identified 66 vertebrate species, of which 13 species were non-native. No species listed under the NSW *Threatened Species Conservation Act 1995* or the

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* at the time were identified.

In light of the above, WRI (2006) concluded that taking into consideration the proposed rehabilitation/revegetation program, that there would be no significant impacts on threatened fauna species. It is significant that WRI (2006) identify an impact footprint that includes sections of the footprint of Stage 7+.

The WRI report summarised the habitat types, locations and commented on the connectivity and sustainability of the various (6) habitat types on the Project site. The proposed access road alignment is predominantly habitat type 4 as described in the WRI report. This habitat type is detailed in **Table 7**.

Habitat Type	Location	Habitat Quality	Habitat Connectivity	Habitat Sustainability
Cleared, pasture improved agricultural land (includes drainage lines)	No major creek line on the property. Minor drainage lines more-or-less indistinguishable from other transformed open grazing land. Central area of property.	Predominantly cleared pasture land with some scattered trees. Semi to improved pasture land replacing the pre-European native grass land-herb-land understorey. Significant weed invasion throughout.	Part of a transformed landscape managed for grazing outcomes with relatively minor conservation values that favour macropods and relatively few native animals. The few remaining trees are sub optimal in contributing to conservation outcomes.	The scattered native landscape is non-sustainable under current management practices. The dynamics are towards the development of a treeless landscape.

Table 7- Proposed access road area habitat types and quality.

The area of the proposed modified entry road is considered to have little contribution value to any habitat potential either directly or via connectivity. The conclusions of the sustainability of the proposed access road route is that is of little value for native fauna.

3.5 Flora

Potential flora environmental impacts of proposed quarry project were addressed as part of the EA (Hanson, September 2009). The study was conducted by Geoff Cunningham Natural Resource Consultants Pty Ltd (GCNRC). The field survey occurred across the 150 hectare project site including the area of the proposed entry road realignment. The field study identified two separate vegetation communities within the study area, namely:

- **Community 1-** Cleared lands- Used for Grazing and/or Cultivation, and
- **Community 2-** *Eucalyptus viminalis* [Ribbon Gum] - *Eucalyptus bridgesiana* [Apple Box]

Figure 8 is an extract from the GCNRC report and shows the type and location of the vegetation communities present on the quarry Project site,

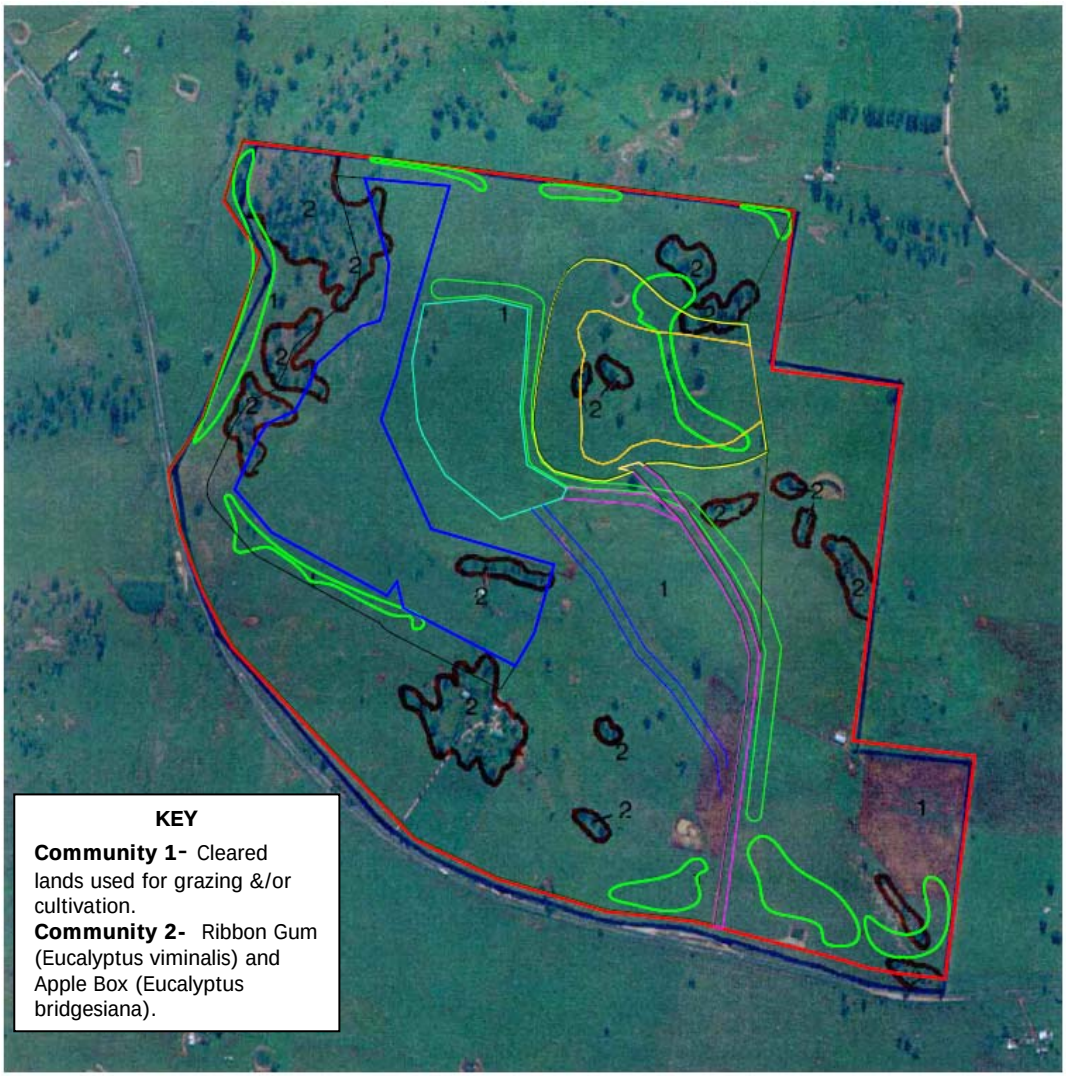

Figure 8- Figure 1 of the GCNRC report showing the extent of the study area and the vegetation community locations with the key Project area envelopes overlaid.

Figure 8 above shows the proposed realignment of the quarry entry road will pass through an area indicated by the GCNR study as being Community 1- Cleared Lands. As can be seen in the figure the proposed entry road realignment (shown in blue lines) does not impact on remnant native timber stands. The main groundcover in the area of the proposed entry road is predominantly Prairie Grass.

Further to the GCNRC assessment an *Landscape Management Plan* (LMP) has been prepared by R W Corkery & Co Pty Limited to assist in the ongoing management of the quarry including the construction work. Under the LMP the Proponent has made a number of commitments (see **Table 8**) to ensure the impacts of vegetation clearing are minimised and controlled.

Proponent's Commitment	Section in LMP where addressed
In order to minimise the impact of vegetation clearing the proponent will commission and commence a Vegetation Clearance Management Plan, Revegetation Plan, Feral Animal Control Management Plan, and Weed Management Plan prior to commencement of quarrying activities. These plans will be developed by a suitable qualified and experienced person and take into consideration the following: • Implications of meta-population dynamics; • Implications of transitional zone dynamics; • Episodic high disturbance events; • Loss of functional role of species; • Clearing of native vegetation; and removal of dead wood and • dead trees; • Bush rock removal; • Invasion of exotic perennial grasses; and • Predation by European Red Fox, Feral Cats and Rabbits.	10.3, 10.4 and 11.3

Table 8- Landscape Management Plan-related Commitments.

3.5.1 Site Preparation Activities

The following activities will be undertaken during site preparation, namely during vegetation removal, soil stripping and stockpiling and initial overburden removal.

- Clearly mark on the ground all areas to be cleared and ensure that all equipment operators are aware of the areas to be prepared.
- Inspect areas to be prepared and identify and mark any trees with hollows.
- Inspect all hollows, if present, and relocate any nesting or roosting fauna using a suitably experienced and qualified wildlife handler.
- Remove large vegetation, if present, using a bulldozer with its blade positioned just above the surface so as not to disturb the groundcover and topsoil.
- Place large vegetation within the areas of vegetation establishment as habitat for native fauna.
- Remove surface rocks and stockpile for subsequent use during rehabilitation to re-establish habitat for reptiles and small mammals.

- Strip groundcover vegetation, and topsoil in all areas of disturbance, where practicable, using a bulldozer or scraper. Topsoil, where it exists, should typically be stripped to a depth of approximately 0.15m.

- Strip subsoil, where it exists, in all areas of disturbance, using a bulldozer or scraper. Subsoil, where it exists, should typically be stripped to a depth of approximately 0.6m below the base of the topsoil.

- Strip soil materials only when they are moderately moist to preserve soil structure.

- Stockpile topsoil and subsoil materials separately.

- Construct soil stockpiles as low, flat mounds as indicated on **Figure 2.** Topsoil stockpiles will be less than 2m high and subsoil stockpiles will be less than 3m high.

- Remove all overburden and rock material that is not suitable for processing operations and use as follows (in priority order).

- For fill within the Infrastructure Area.

- To construct the visual bunds**.** The visual bunds will be between 3m and 4m high, with side slopes of 1:3 (V:H) or less and will be revegetated as soon as practicable following construction.

- To create the Growth Medium Storage Area for later use during rehabilitation operations on the benches and floor of the Extraction Area.

3.6 Surface Water

There are no proposed changes to the quarry Project's site water balance.

The entrance to the quarry site off the Mitchell Highway is situated on a ridge that slopes towards the operations area. The road will be bitumen sealed and road runoff will be directed to the storage dam. Near the entrance to the work pad a grate will be installed to remove loose sediment from trucks leaving the site.

The original quarry entry road is highlighted in the area shaded in yellow and labelled "access Road" in **Figure 9**. The proposed entry road realignment is shown by the blue lines in the same figure. Both entry road alignments are contained within the Catchment Area 2. By shifting the road within the same catchment would not significantly alter the catchment properties or parameters given that the modification is minor in nature and still lies within the same surface water catchment areas.

Monitoring of the potential impacts of the quarry on water resources has been considered an operational safeguard and the proposed modification would not require any change to the program of monitoring currently proposed.

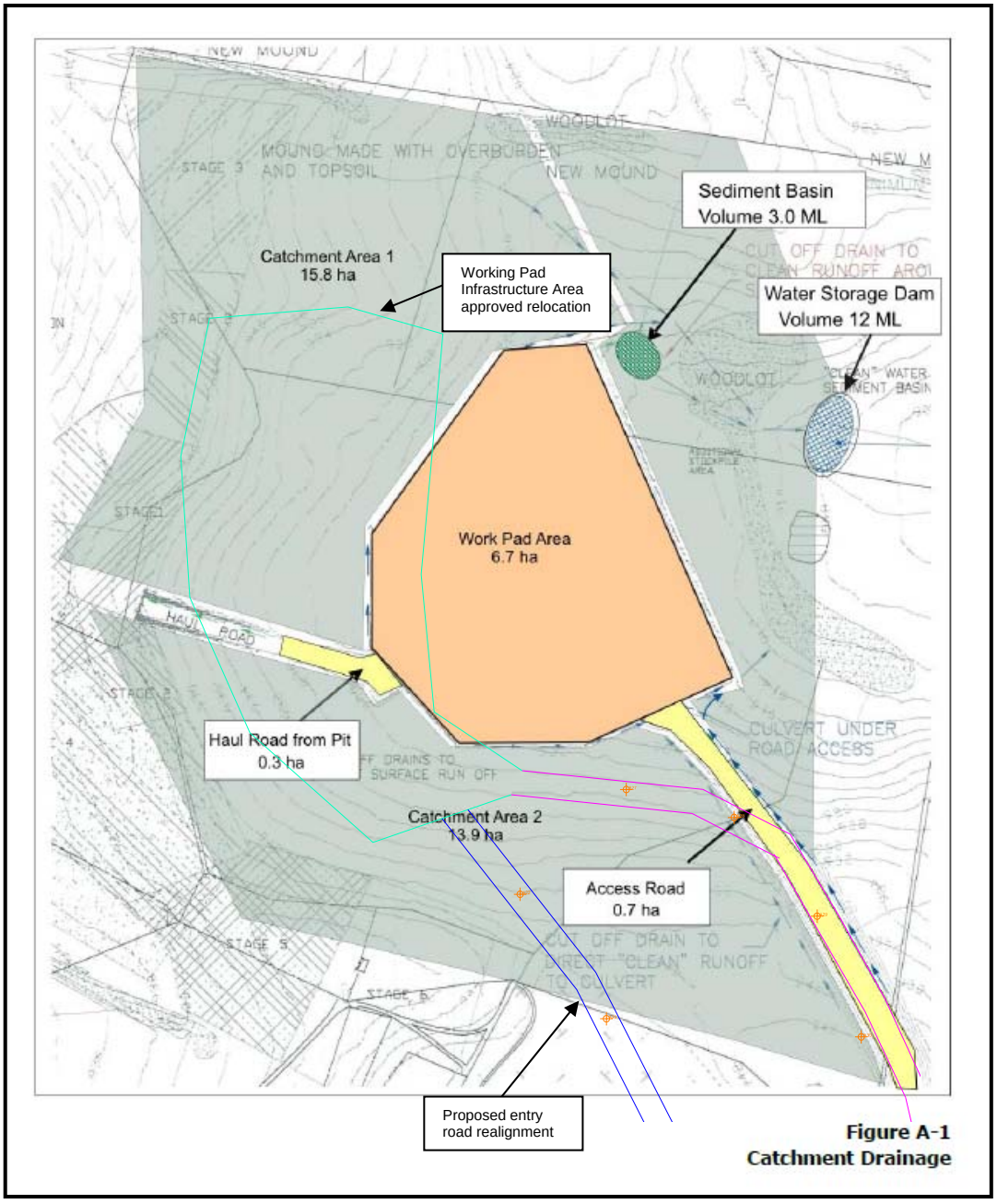

Figure 9- Site catchment areas.

Near the entrance to the site a grate will be installed to remove loose sediment from trucks. Runoff from this area will be collected in a small sediment sump, which may overflow into the road drains and drain through check dams and onto grassed areas.

3.7 Air Quality

The proposed modification will not result in any changes to the dust emissions and overall air quality. The proposed access road will be asphalt sealed and therefore vehicles travelling on the sealed road will not generate any dust emissions. The proposed access road is also slightly shorter in length than the approved route and a lesser design grade. These two factors will result in trucks having to travel a lesser distance and a shallower grade of hill. The benefits of

this are lower consumption of diesel fuel and wear and tear on road trucks and other vehicles.

Heggies Pty Ltd conducted the Air Quality Impact Assessment (AQIA) as part of the project EAR. Heggies now known as SLR Consulting Australia Pty Ltd, were consulted on the proposed changes to the quarry entry road and they advised the following:

> *"In the original AQIA, the emissions to air from traffic using the sealed road was not considered due to the low emission rate of particulate from sealed roads. This assumption was incorporated within the AQIA which was subsequently accepted by the relevant regulatory bodies, and this is the basis upon which Development Approval was granted.*
>
> *The proposed realignment of the sealed road does not represent a change to that assessment that would have a material effect upon the conclusions of the AQIA upon which Development Approval was granted. "*

A copy of the advice from SLR is shown in **Attachment 3**.

3.8 Noise

The proposed modification to use the alternate haul road alignment will not result in any additional noise impacts from those set out in the EA (Hanson, September 2009).

The proposed realignment would result in the reduction of exposure to truck noise at Hartley Cottage by allowing quarry trucks to pass on the south western side of the hill shown in **Figure 2**, as opposed to travelling directly north over the hill and down along the line of sight of Hartley Cottage. See figures 8 to13 under Section 3.9 Visual for further clarification. The access road will be maintained in good condition and generally constructed with grades of less than 15% to minimise engine noise.

SLR Consulting Australia Pty Ltd (SLR Consulting) was commissioned by Hanson to undertake re-assessment of the noise impacts associated with the revised quarry design incorporating the proposed quarry entry road (as well as the revised processing plant location, as outlined in the Guyong Quarry - Preferred Project Report prepared by Hanson). A copy of the re-assessment report from SLR is shown in **Attachment 4**.

Under the Project Approval 06_0193 the noise limits generated by the project are shown in **Table 9** below.

Location	Impact Assessment Criteria dB(A)$L_{Aeq(15min)}$		
	Day	Evening	Night
"Hartley Cottage"	35	35	35
"Cadira Vale"	35	35	35
"Lilactime"	35	35	35
"Fairview"	36	35	35

Table 9- Project Approval 06_0193 the noise limits generated by the project.

Having identified the new entry road route, SLR Consulting Australia Pty Ltd (SLR Consulting) was commissioned by Hanson to undertake re-assessment of the noise impacts associated with the revised quarry design incorporating the proposed quarry entry road (as well as the revised processing plant location, as outlined in the Guyong Quarry – Preferred Project Report prepared by Hanson).

The SLR noise impact reassessment concluded that the predicted day, evening and night-time noise levels comply with the Development Consent noise criteria at all nearby receivers, assuming the noise management recommendations described in Section 12 of the Heggies Report in the EAR are adopted.

Based on the sleep disturbance criteria nominated in Section 1.1 of the Heggies Report (EAR) there is no potential for sleep disturbance at any nearby noise sensitive receiver from the proposed Guyong Quarry.

Table 10 presents the predicted $L_{Aeq(15minute)}$ noise level contributions from the proposed quarry operations together with the respective Development Consent criteria. As can be seen in **Table 10** in all cases the Predicted Noise Levels are below the Approved Intrusive Criteria.

Receiver	Daytime (0700-1800 hours) Calm		Evening (1800-2200 hours) Calm		Night-time (2200-0700 hours) Calm		Night-time (2200-0700 hours) 3°C/100m Inversion	
	Predicted LAeq (15minute) Noise Level	Approved LAeq (15minute) Intrusive Criterion	Predicted LAeq (15minute) Noise Level	Approved LAeq (15minute) Intrusive Criterion	Predicted LAeq (15minute) Noise Level	Approved LAeq (15minute) Intrusive Criterion	Predicted LAeq (15minute) Noise Level	Approved LAeq (15minute) Intrusive Criterion
Stage 1 Scenario								
"Carina Vale"	23	35	21	35	21	35	26	35
"Fairview"	26	36	24	35	25	35	30	35
"Lilactime"	24	35	23	35	23	35	27	35
"Hartley Cottage"	30	35	31	35	31	35	34	35
Stage 4 Scenario								
"Carina Vale"	29	35	22	35	22	35	25	35
"Fairview"	36	36	23	35	24	35	29	35
"Lilactime"	21	35	21	35	21	35	24	35
"Hartley Cottage"	29	35	28	35	29	35	33	35
Stage 7 Scenario								
"Carina Vale"	28	35	24	35	24	35	27	35
"Fairview"	31	36	26	35	26	35	31	35
"Lilactime"	23	35	22	35	22	35	25	35
"Hartley Cottage"	30	35	29	35	29	35	33	35
Stage 7+ Scenario								
"Carina Vale"	33	35	32	35	32	35	35	35
"Fairview"	24	36	25	35	25	35	32	35
"Lilactime"	21	35	21	35	21	35	24	35
"Hartley Cottage"	29	35	29	35	29	35	33	35

Table 10- Noise Level Impact Assessment – dBA re 20 µPa.

3.9 Traffic

A detailed traffic assessment was undertaken by McLaren Traffic Engineering (MTE) as part of the EA for the approved development (Hanson, September 2009). There are no proposed changes to the use of the public road network from that addressed in the EA (Hanson, 2009) other than in regard to the use of the realigned section the quarry access road.
The alternate haul route will be constructed within the same design parameters as the original approved road alignment.

The main road network surrounding comprises Mitchell Highway only, which links Bathurst and Orange. The small township of Lucknow is located some 12 kilometres to the west of the subject site.

Geolyse Pty Ltd has been commissioned by Hanson to design the proposed Mitchell Highway and access road intersection. The design has been approved by Roads and Maritime Services NSW and is include as **Attachment 1B.**

The intersection line marking details are shown on Geolyse drawing sheets 03A_E13 and 03A_E14 and are reproduced in **Figures 10 & 11**.

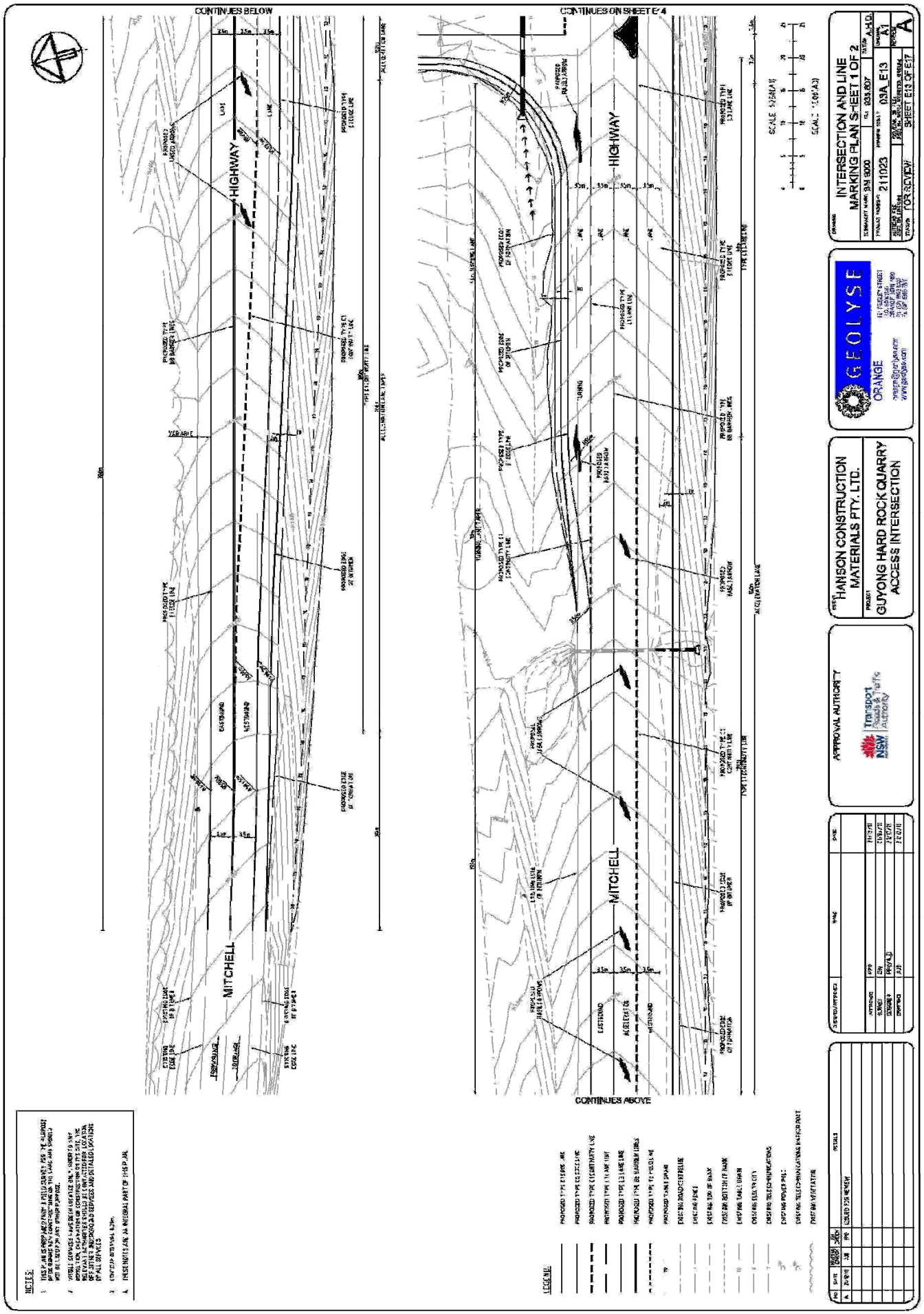

Figure 10- Intersection design of the quarry entry road and Mitchell Highway (west).

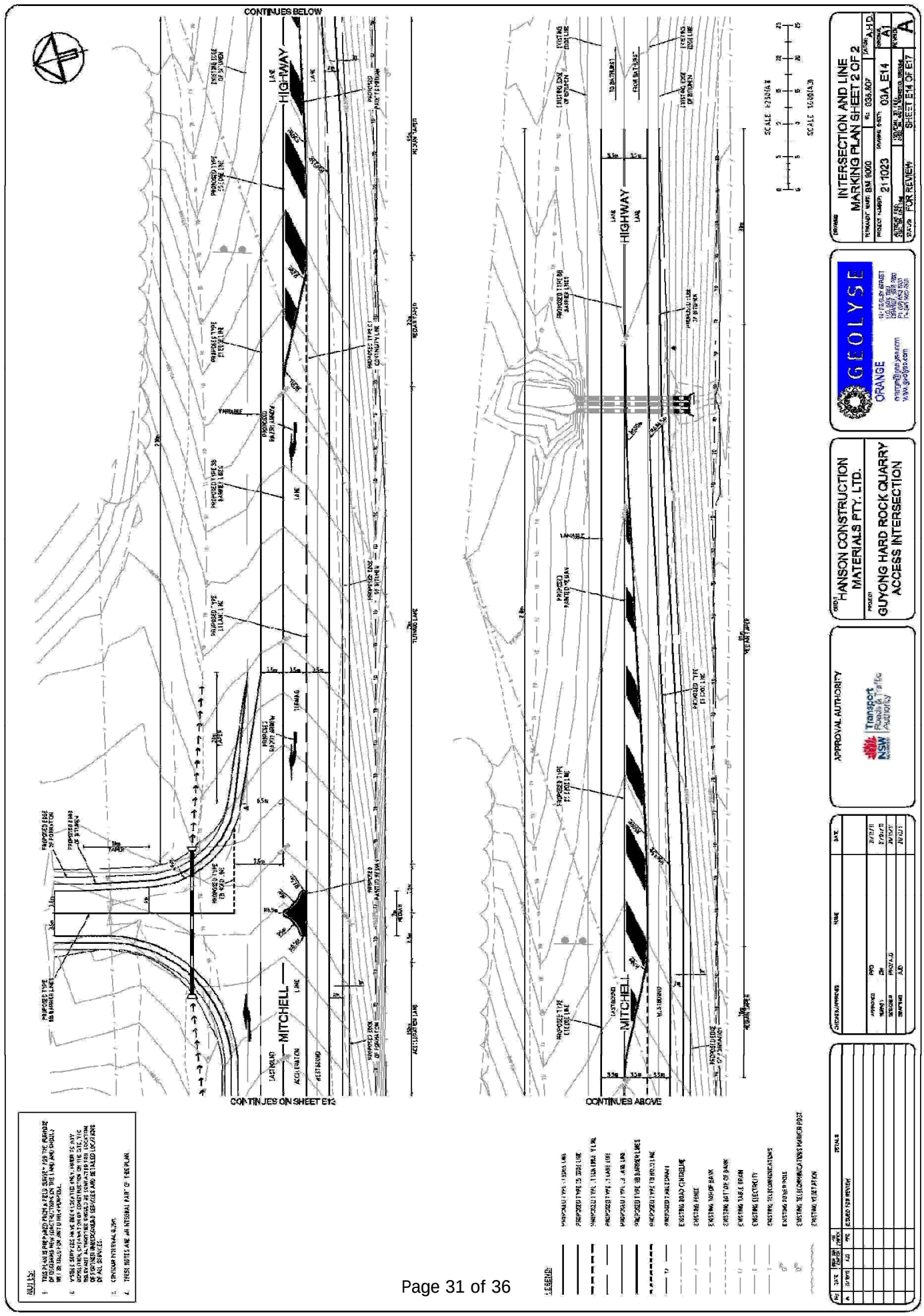

Figure 11- Intersection design of the quarry entry road and Mitchell Highway (east).

3.10 Visual

There will be significant positive impacts associated with the proposed realignment of the quarry entry road in terms of the visual impact on neighbouring properties. Diverting the section of the entry road around the south-western side of the hill will result in truck and other vehicles being shielded from direct view of properties to the north and north-west of the hill. In particular the property Hartley Cottage would benefit the most by removing trucks from the line of sight as shown in **Figures 12 to 17** below.

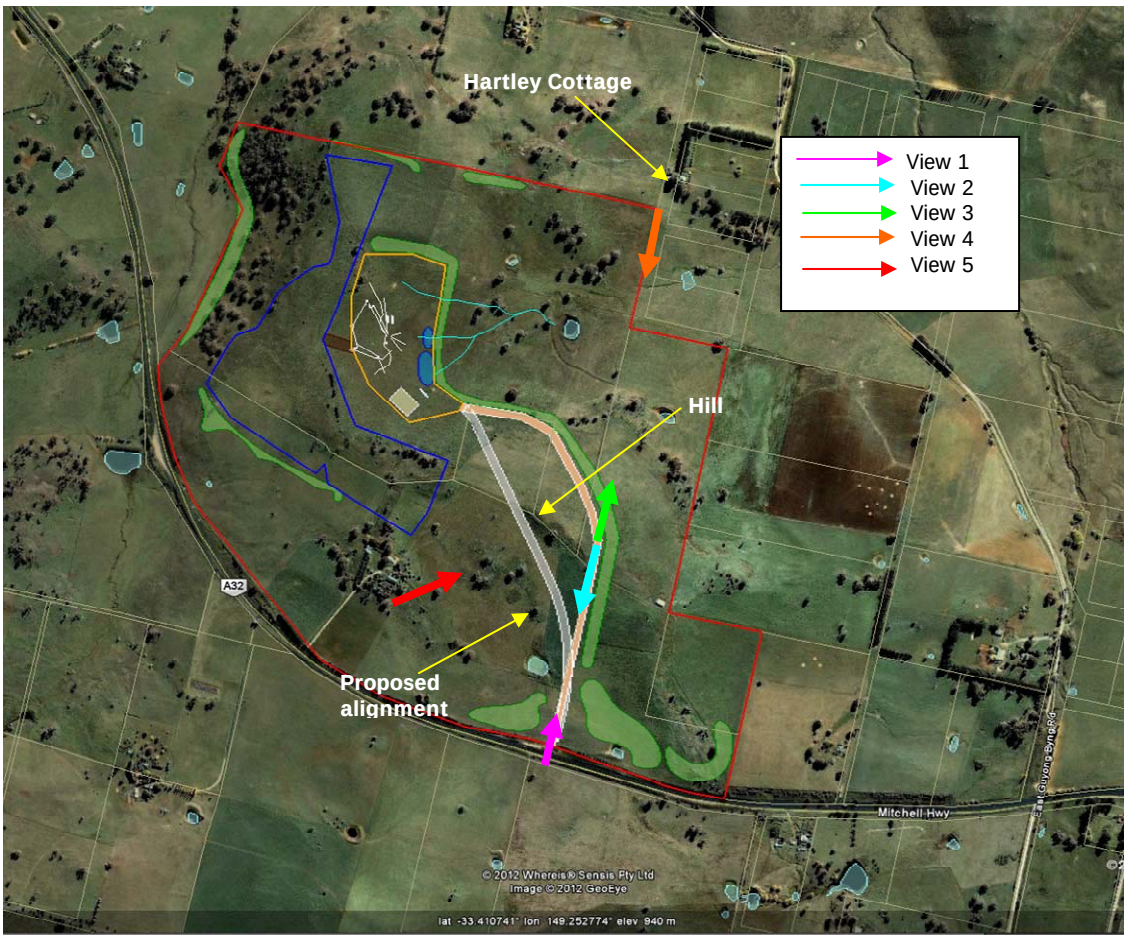

Figure 12- View points.

Figure 13- View 1, looking north from the entry at Mitchell Highway. Approved alignment shown in blue. Proposed modified alignment shown in yellow.

Figure 14- View 2, looking south from the top of the hill back to the Mitchell Highway. Approved alignment shown in blue. Proposed modified alignment shown in yellow.

Figure 15- View 3, looking north from the top of the hill to Hartley Cottage.

Figure 16- View 4, looking south towards the hill and the approved road alignment (shown in blue) from Hartley Cottage.

Figure 17- View 5, looking north-east from farm house to the hill. Approved alignment shown in blue. Proposed modified alignment shown in yellow.

4 STATUTORY PROCESS

This section of the report details the statutory process for the preparation and assessment of the application for modification.

4.1 Modification of Minister's Approval

This application to modify PA 06_0193 has been lodged under Section 75W of the Act with the Director General of the Department of Planning and Infrastructure. Under this section of the Act the Minister has the power to vary the terms of the approval. It is noted that Section 75W(2) states that the Minister's approval for a modification is not required if the project, as modified, would be consistent with the original approval.

4.2 Consultation

Section 75W does not contain provisions requiring applications for modification to be publicly exhibited. Under Section 75X(2)(f) of the Act and Clause 8G of the Regulations the Department must place a copy of the application on the Department's website.

5 CONCLUSION

The modification to realign 700m of the approved quarry entry road will result in the improvement of visual impacts on nearby dwellings in particular Hartley Cottage, without compromising any other environmental issues. Following consideration of the proposed modification, the Department should be satisfied that the conclusions of its original assessment do not change. On this basis it is considered that the Minister is in a position to support the modified quarry entry road realignment and approve the Section 75W modification application.