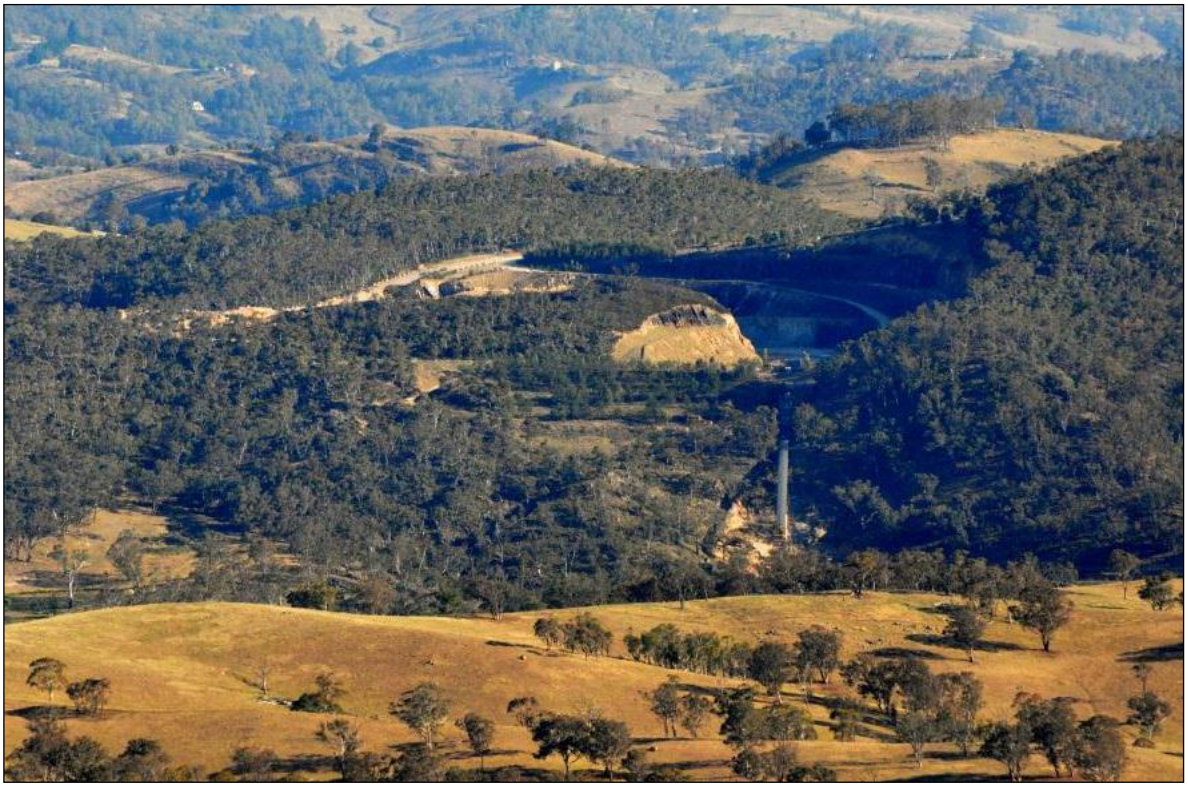
STATE SIGNIFICANT DEVELOPMENT ASSESSMENT:
Austen Quarry Extension (SSD-6084)



Secretary's
Environmental Assessment Report
Section 89E of the
Environmental Planning and Assessment Act 1979

July 2015

Cover Photograph: Austen Quarry, views from south

Published July 2015

NSW Department of Planning & Environment

www.planning.nsw.gov.au

EXECUTIVE SUMMARY

Hy-Tec Industries Pty Ltd (Hy-Tec) operates the Austen Quarry, located approximately 3.5 kilometres southwest of the village of Hartley in the Lithgow local government area. Current quarrying operations are undertaken in accordance with an existing development consent granted by the then Council of the City of Greater Lithgow on 22 March 1995 (DA 103/94). The consent allows Hy-Tec to extract, process on-site and transport up to 1.1 million tonnes (Mt) per annum of hard rock (rhyolite) products a year.

The current application seeks development consent for continuation and extension of the existing quarry operations. The existing extraction area of 12.1 hectares (ha) has an estimated remaining resource of 2.8 Mt of rhyolite, which is expected to be exhausted in 3-4 years. Hy-Tec proposes to extend the site by 24 ha. This would provide access to an additional 44 Mt of rhyolite resource, to be extracted over a total period of 30 years. Product would continue to be extracted via conventional drill and blast, load and haul methods. The product would then be crushed and separated on site for transport by road to local and Sydney markets. No changes to production methods, volume or haulage are proposed.

The proposal is classified as State significant development under section 89C of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as it meets the criteria in clause 7 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011.* Under existing Ministerial delegations the Executive Director, Resource Assessments and Compliance may determine the development application as there were less than 25 public objections to the application, Council has not objected, and a political disclosure statement in regard to donations has not been made.

The development application and accompanying Environmental Impact Statement (EIS) were exhibited from 6 November to 10 December 2014. A total of 11 submissions were received, comprising of 9 submissions from government agencies and 2 objections from the general public. The main concerns were traffic, water, noise, biodiversity and visual impacts. State authorities did not oppose the project and recommended conditions to be included in a development consent. The Department has carefully considered the issues raised by agencies and the community. Hy-Tec addressed many of these issues in its Response to Submissions, revised Statement of Commitments and other supplementary information.

The Department considers that the development would not result in significant environmental impacts. Any residual impacts can be effectively managed under conditions of consent that would include requiring Hy-Tec to:

- prepare and implement various environmental management plans to manage, monitor and report on the project's environmental impacts; and
- undertake a Surface Water Audit and Water Management Improvement Program to improve water management practices on the site.

The project would generate social and economic benefits for the local and regional economies, including ongoing employment for 16 operational staff. It would also continue to provide a reliable supply of affordable building and construction material for the building and construction industry in the region and in Sydney.

The Department considers that the development is in the public interest and should be approved, subject to the recommended conditions of consent.

1 BACKGROUND

1.1 Existing Operations

The Austen Quarry is an existing hard rock quarry located at Hartley in the Blue Mountains. The site is approximately 3.5 kilometres (km) southwest of the village of Hartley and 10 km south of Lithgow, in the Lithgow local government area (see **Figure 1**).

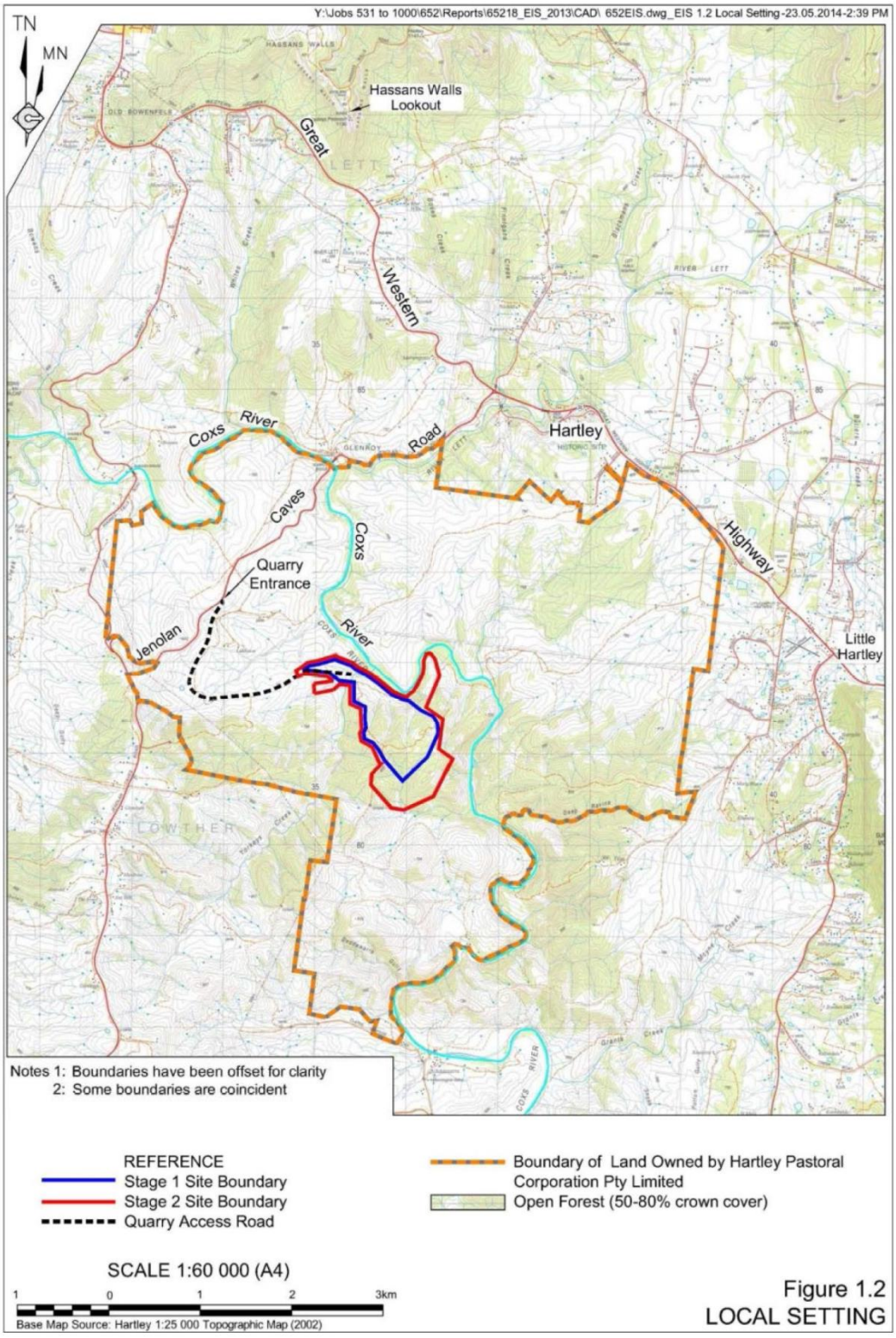


Figure 1: *Quarry Site Location*

The quarry operations are undertaken by Hy-Tec Industries Pty Ltd (Hy-Tec), a fully owned subsidiary of Adelaide Brighton Ltd. The site is leased from the Hartley Pastoral Corporation Ltd. The site boundary of the existing quarry encompasses parts of Lot 1 and 2 DP1005511, Lot 31 DP1009967 and Lot 4 DP876394 (see **Figure 2**).

Current operations are undertaken in accordance with a development consent granted by the Council of the City of Greater Lithgow (now Lithgow City Council) on 22 March 1995 (DA 103/94). This consent allows Hy-Tec to extract, process on-site and transport up to 1.1 million tonnes per annum (Mtpa) of hard rock (rhyolite) products a year.

The quarry is also regulated under an Environment Protection Licence (EPL No. 12323) issued by the NSW Environment Protection Authority under the *Protection of the Environment Operations Act 1997*.

Hy-Tec currently produces approximately 750,000 tpa of quarry products. Most of this product (50-70%) is supplied to Hy-Tec's concrete batching plants in the Sydney metropolitan area. Extraction occurs within a 12.1 hectare (ha) quarry pit (the existing extraction area), to a maximum depth of 730 metres Australian Height Datum (mAHD). Hy-Tec estimates that approximately 2.8 million tonnes (Mt) of rhyolite remains available for extraction under the existing consent, which expires in March 2020.

The existing extraction area is located at the top of a ridge with ancillary facilities located directly northwest, towards the northern base of the ridge. The site is accessed via a privately owned and sealed road connecting to the Jenolan Caves Road to the northwest. All trucks travelling to and from the quarry use this road, which joins the Great Western Highway at a four-way priority-controlled intersection.

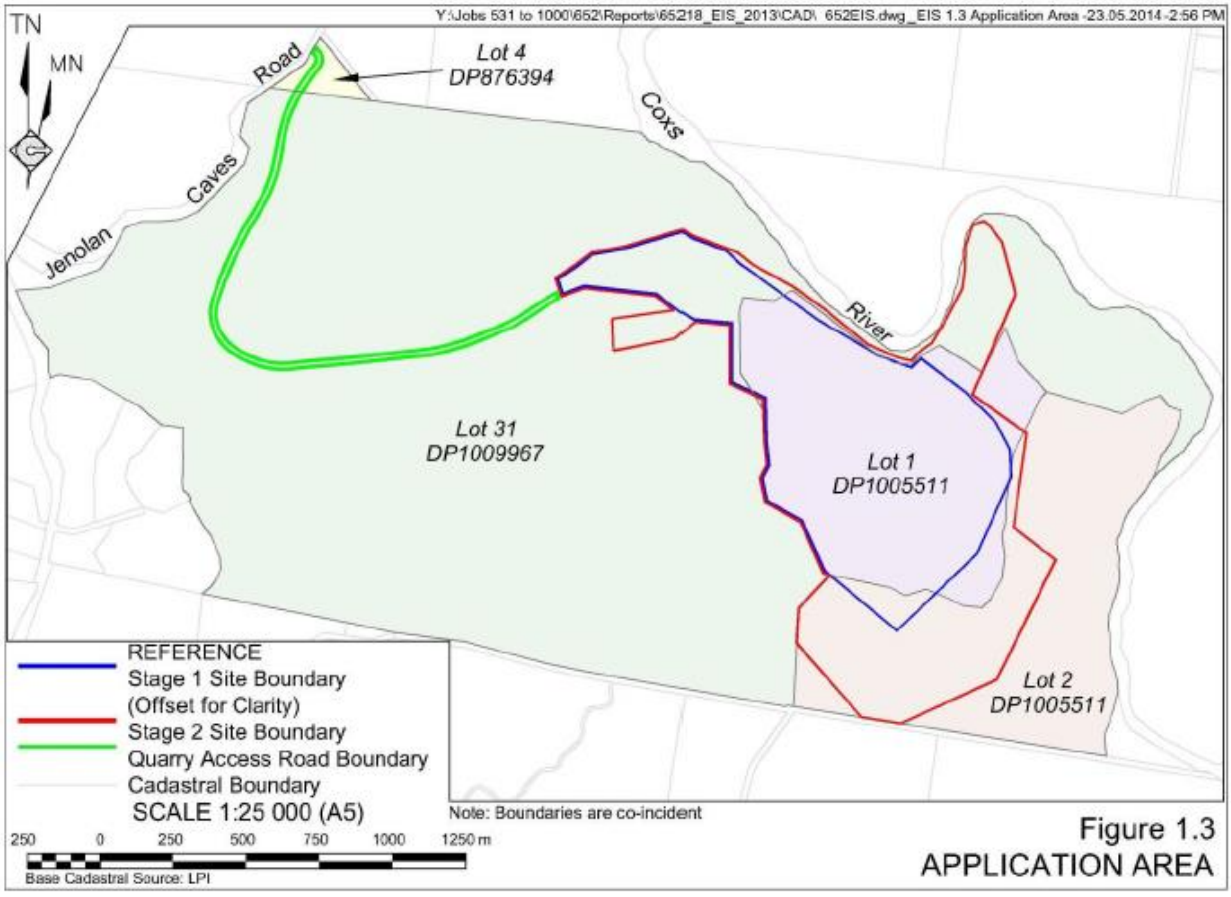


Figure 2: *Quarry Site Boundary*

1.2 Development Setting

The quarry is located within the Central Tablelands of NSW on the western fringe of the Blue Mountains, west of the Blue Mountains National Park and south of Mt York and Hassans Walls. The topography of the region is characterised by steeply incised ridges and valleys amongst undulating grazing land.

The site is underlain by volcanic rock. To the east of the site, the rock is overlain by sedimentary sandstone, shales and coal measures.

The existing and proposed extraction areas target a volcanic extrusion of rhyolite, which is typically surrounded by granite. Hy-Tec estimates that 44 Mt of recoverable rhyolite exists within the extended ridgeline trending from the south through to the northeast of the existing extraction area.

The quarry site is bordered by the Coxs River to the north and east. The Coxs River flows south through the Blue Mountains and drains into Lake Burragorang, a major water supply for the Sydney Metropolitan Area. Yorkeys Creek transects the site, passing between the secondary processing area and a stockpile area and then joining the Coxs River (see **Figure 3**).

2 PROPOSED DEVELOPMENT

2.1 Description

The proposed development is known as the Austen Quarry Extension or Austen Quarry Stage 2, distinguishing it from already approved operations (Austen Quarry Stage 1). The proposed development includes:

- continuing extraction and processing of up to 1.1 Mtpa of rhyolite products for up to 30 years;
- extending the existing extraction area by 16.1 ha and overburden emplacement area by 9.9 ha;
- transporting quarry products by road to local and Sydney markets;
- water management and progressive rehabilitation of the site; and
- extension of operating hours.

The key components of the development are shown in **Table 1**, and **Figure 3**, and fully described in the applicant's Environmental Impact Statement (EIS, see **Appendix A**) and Response to Submissions (see **Appendix D**).

***Table 1**: Key Components of the Austen Quarry Extension*

Component	*Proposed Development*
Site Area	• 24 ha expansion (103 ha total site area)
Development Life	• 30 years (ie until 2050)
Quarry Production	• up to 1.1 Mtpa of rhyolite products
Estimated Resource	• Approximately 46.8 Mt (existing quarry 2.8 Mt and expansion area 44 Mt)
Extraction Area	• Stage 1 (Existing Quarry Area) – 12.1 ha • Stage 2 (Expansion Area) – 16.1 ha
Extraction Methods	• Conventional drill and blast, load and haul methods • Staged extraction sequencing (see **Figure 4**)
Processing	• Rhyolite is crushed and separated into various aggregates via a series of crushers and screens • Stockpiles of aggregates and blended products are maintained within the secondary processing area from where they are loaded onto trucks for transport to market • Excess products including manufactured sands, select fills, drainage materials and road pavement materials are held in the Yorkeys Creek stockpile area

Hours of Operation	*Activity*	*Hours of Operation*
	• Extraction/ Processing	• 6 am to 10 pm Monday to Friday (currently 6 am to 6 pm Monday to Friday) • 6 am to 3 pm Saturday (currently 7 am to 3 pm Saturdays) • At no time on Sundays or public holidays
	• Blasting	• 10 am to 3 pm Monday to Friday (except public holidays).
	• Loading/ Transport	• 5 am to 10 pm Monday to Friday; • 5 am to 3 pm Saturdays • At no time on Sundays or public holidays
	• Maintenance	• Anytime (currently during existing hours of operation)
Water Management and Supply	• Water used for dust suppression for processing operations, hardstands and stockpiles is generally sourced from on-site • Hy-Tec holds a surface water licence WAL 25616 under the *Water Management Act 2000* to take water from Coxs River, if required • Excess water is discharged via 5 licensed points across the quarry site into the Coxs River, either directly or indirectly	
Product Transport	• Road transportation of product – up to 360 truck movements per day on weekdays and up to 210 truck movements per day on Saturdays • Use of the existing private access road and transport route along the Great Western highway via Jenolan Caves Road	
Infrastructure	• Continued use of existing infrastructure, such as: o crushing and screening plant; o above ground fuel storage tank; o weighbridge and site buildings; and o various water management structures.	
Rehabilitation	• Progressive rehabilitation of operational areas • Shaped and revegetated overburden emplacement area (see **Figure 5a**) • An appropriately bunded, fenced and signed final void and a smaller void to encourage habitat for native flora and fauna (see **Figure 5b**)	
Employment	• Direct – 16 employees • Indirect – estimated 40 employees (transport operations, maintenance and other supply industries)	
Capital Investment Value	• $3.5 million	

The existing quarry accommodates a number of structures, including various processing plants (crushers, separation units etc), two weighbridges, workshops, stores and amenities, offices and water management structures. These structures would continue to service the quarry's ongoing operations (refer to **Figure 6**). No additional structures are proposed.

The development is not proposing to change the:
- rate or methods of rhyolite extraction and processing;
- access point or transport route to and from the site; and
- volume of material transported.

2.2 Justification

The expansion of existing quarries helps to ensure a continued supply of material for a range of building and construction uses. Austen Quarry represents an important regional source of hard rock, providing a range of aggregate and road base products for the local and Sydney markets. The proposed development would allow for continued supply of hard rock aggregate for the next 30 years, reducing the need to locate and develop alternative sources over that time. It would make use of the existing processing and stockpiling infrastructure on the site, and avoid new impacts associated with alternative 'greenfield' extraction locations.

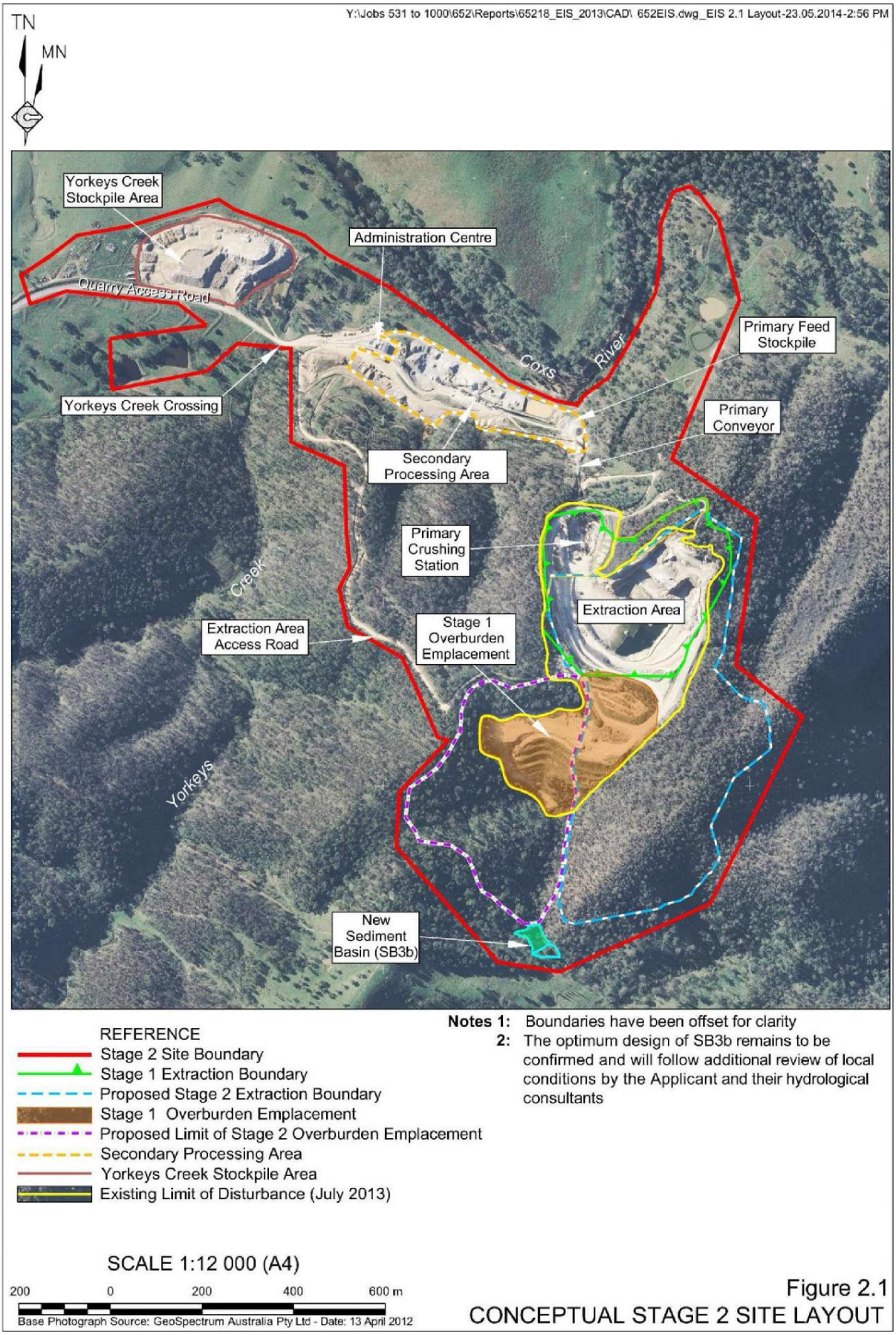


Figure 3: *Proposed Development*

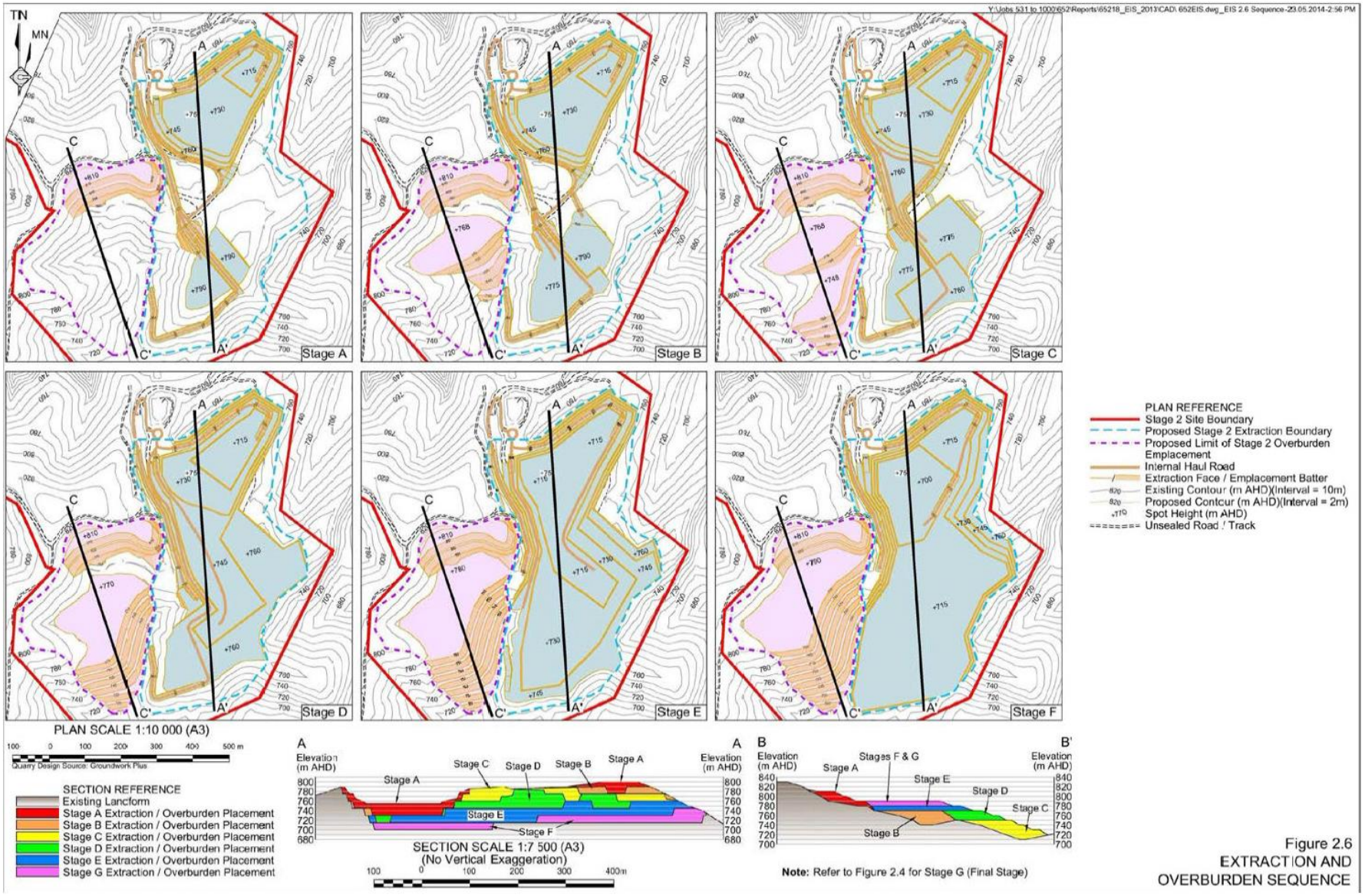


Figure 2.6
EXTRACTION AND OVERBURDEN SEQUENCE

Figure 4: *Extraction and Overburden Sequence*

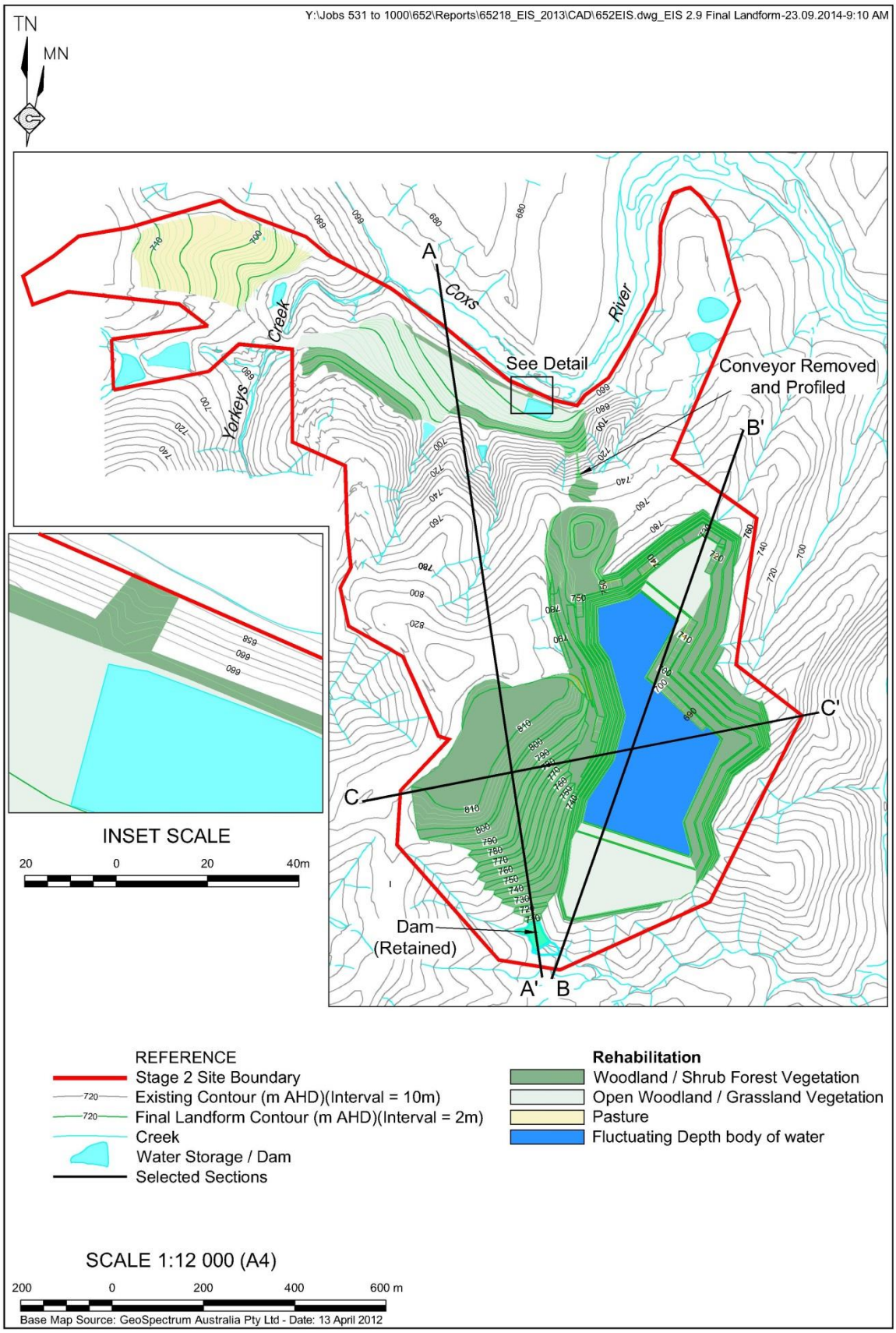


Figure 5a: *Final Landform*

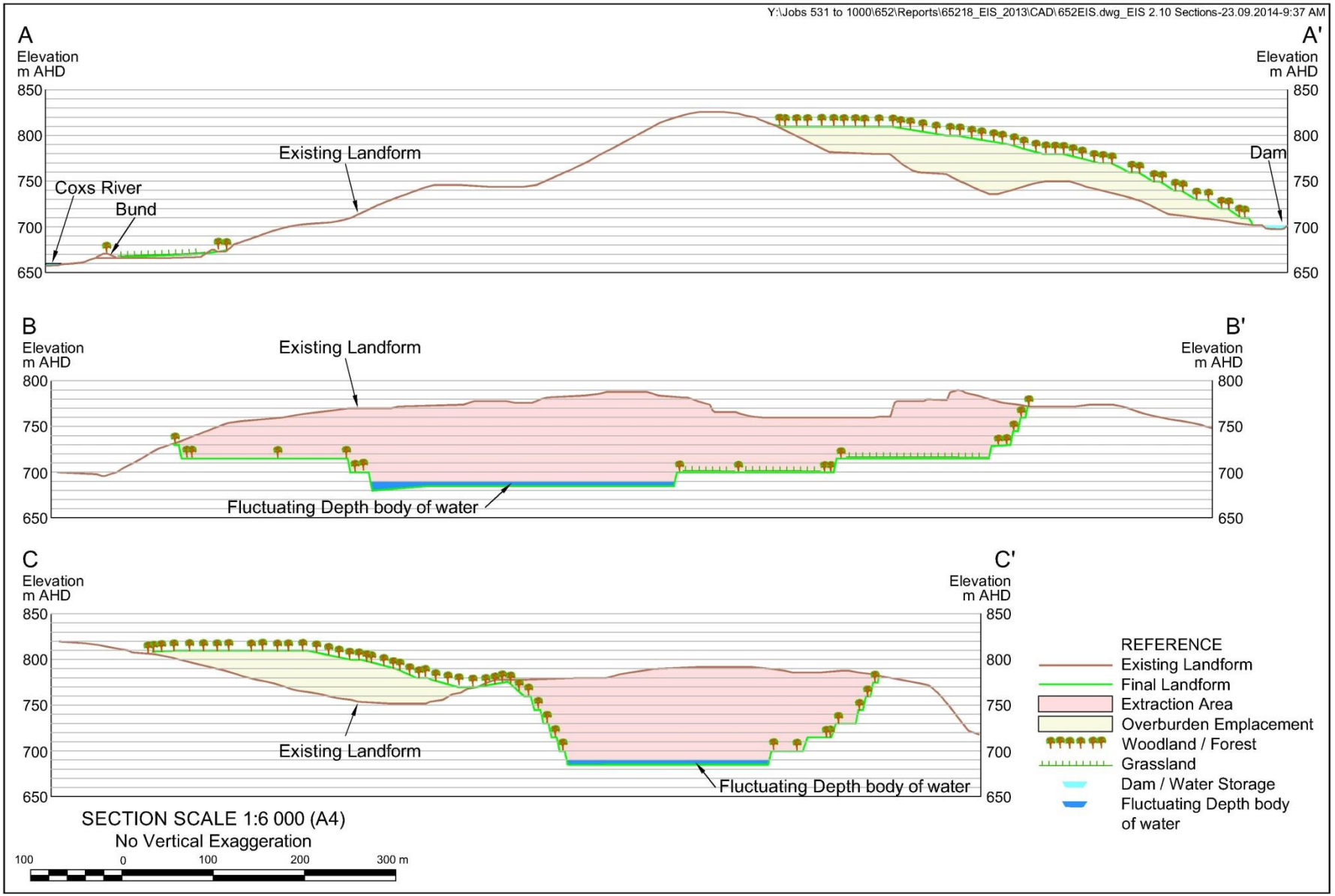


Figure 5b: *Final Landform Cross-sections*

3 STATUTORY CONTEXT

3.1 State Significant Development

The proposal is classified as State significant development (SSD) under section 89C of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Since it is a development for the purpose of an extractive industry that would extract over 500,000 tonnes per annum (tpa), the proposal meets the criteria in Clause 7 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011.*The Department notes that the proposal would also be classified as SSD as it would extract from a total resource of more than 5 Mt.

Under existing Ministerial delegations (dated 16 February 2015), the Executive Director, Resource Assessments and Compliance may determine the development application as there were less than 25 public objections to the application, Council has not objected, and a political disclosure statement in regard to donations has not been made.

3.2 Permissibility

The site is zoned RU1 Primary Production under the *Lithgow Local Environmental Plan 2014* (Lithgow LEP). Extractive industries are permissible with consent in this zone.

The development is also permissible with consent under clause 7(3) of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)* 2007 (Mining SEPP). The Mining SEPP makes extractive industries permissible with consent on any land where agriculture is permissible.

3.3 Environmental Planning Instruments

Hy-Tec has undertaken a review of the relevant provisions of various environmental planning instruments (EPIs) that apply to the proposed development (see Section 3.2.3 of the EIS), including:

- *SEPP (State and Regional Development) 2011*;
- *SEPP (Mining, Petroleum Production and Extractive Industries) 2007*;
- *SEPP (Rural Lands) 2008*;
- *SEPP No. 33 – Hazardous and Offensive Development*;
- *SEPP No. 44 – Koala Habitat Protection*;
- *SEPP No. 55 – Remediation of Land*;
- *SEPP (Sydney Drinking Water Catchment) 2011*;
- *Lithgow City Local Environmental Plan 1994* (which applied prior to the current Lithgow LEP).

The Department has considered Hy-Tec's review and undertaken its own assessment (see **Section 5** and **Appendix B**). The Department considers that the proposed development can be undertaken in a manner that is generally consistent with the aims, objectives and provisions of these instruments, subject to a range of mitigation, monitoring and management measures that have been incorporated in the recommended conditions of consent (see **Appendix E**).

3.4 Integrated approvals

Under section 89J(1) of the EP&A Act, a number of approvals are not required to be separately obtained for the proposed development. These include:

- various approvals and permits under the *Fisheries Management Act 1994*, *National Parks and Wildlife Act 1974* and the *Heritage Act 1997*;
- a bush fire safety authority under the *Rural Fires Act 1997;*
- an authorisation to clear native vegetation under the *Native Vegetation Act 2003*; and
- certain water related approvals under the *Water Management Act 2000.*

Under section 89K of the EP&A Act, a number of further approvals are required and must be substantially consistent with any development consent for the proposal. These include environment pollution licences.

The Department has consulted the relevant government authorities and considered the relevant issues in its assessment (see **Section 5**).

3.5 Commonwealth Approval

The development has been declared a 'controlled action' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as it has the potential to impact listed threatened species and communities. In particular, the Commonwealth Department of the Environment has decided that the development is likely to cause a significant impact on the local population of Silver-leafed Mountain Gum, which is listed as vulnerable under the EPBC Act.

The Commonwealth Department of the Environment has accredited the NSW assessment process for the development. This means that assessment of both State and Commonwealth matters has been integrated into a single assessment process. However, the Commonwealth Minister maintains a separate approval role for the development.

4 CONSULTATION

4.1 Exhibition

After accepting the EIS for the proposed development, the Department:

- publicly exhibited the EIS from 6 November 2014 until 10 December 2014:
  - on the Department's website;
  - at the Department's Information Centre in Sydney;
  - at the Blue Mountains and Lithgow City Council offices; and
  - at the Nature Conservation Council's office;
- advertised the exhibition of the EIS in the Lithgow Mercury newspaper;
- notified Lithgow City Council, Blue Mountains City Council and relevant State Government authorities by email; and
- notified the relevant roads authorities in accordance with the Mining SEPP and Infrastructure SEPP.

This satisfies the notification requirements of section 89F of the EP&A Act and the relevant environmental planning instruments.

4.2 Submissions

The Department received 11 submissions on the proposed development (see **Appendix C**), including 9 from public authorities (outlined below) and 2 submissions from the general public. None of the public authorities objected to the proposal; however, both public submissions did object.

The Commonwealth **Department of Environment** (DoE) did not make a direct submission to the Department during exhibition of the EIS, electing to consult directly with Hy-Tec regarding its concerns over its proposed biodiversity offset strategy. To date, DoE has been satisfied with the assessment of impacts on matters of national environmental significance and has indicated that, whilst the approval of the project is at the ultimate discretion of the Commonwealth Minister or his delegate, provided the proposed biodiversity offset strategy demonstrates consistency with the EPBC Act offset policy and requirements, the identified impacts may be acceptable.

Lithgow City Council (Council) did not object to the development on the basis that:

- Continued approval for Stage 1 of the development remained consistent with DA 103/94:
- the proposed development would not undertake extraction, processing, blasting, loading and transport on Sundays and public holidays;
- the consent would lapse 30 years from the date of determination;
- Hy-Tec continues to submit Annual Reviews to Council; and
- Hy-Tec enters into a Voluntary Planning Agreement for the proposed development providing financial contributions to the local community.

Hy-Tec has either met these conditions or has committed to undertake them. The Department has recommended a number of conditions to ensure that this occurs, including a requirement that Hy-Tec enter into a planning agreement with Council for the provision of funds for community enhancement.

Blue Mountains City Council (BMCC) has raised concern over the potential impacts of quarry-related traffic on roads within its local government area, particularly over the interaction of heavy vehicles with tourist and cycling traffic. BMCC also raised concerns over the visibility of the proposed development from Barden's Lookout. The Department has considered these issues in its assessment (see **Sections 5.1** and **5.5**)

The only residual concern of the **Environment Protection Authority** (EPA) is over thepotential noise impacts of the proposed increase in operational hours. While the EPA has agreed to vary the site's EPL to be consistent with the development consent, it has advised the Department that it would restrict hours of operations to daytime hours in the event that noise predictions are exceeded (refer to **Section 5.3**).

The **NSW Office of Water** (NOW) is the only section of the **Department of Primary Industries** that provided comments. The Department is proposing to adopt NOW's recommendations (refer to **Section 5.2**).

The **Office of Environment and Heritage** (OEH), **NSW Rural Fire Service** (RFS), **NSW Roads and Maritime Services** (RMS) **Water NSW** (formerly Sydney Catchment Authority) and **NSW Trade & Investment - Division of Resources & Energy** (DRE) all advised the Department that they were satisfied that all concerns they had raised had been addressed by Hy-Tec in its Response to Submissions.

4.3 Submissions from the Public

Two objections were received from residents within the broader local community (over 10 km away from the development site) raising a variety of concerns which have been addressed in **Section 5**. These included:

- traffic impacts;
- impacts to water, particularly the Coxs River;
- visual impacts;
- proposed rehabilitation strategy; and
- vibration.

The public submissions also raised concerns associated with the proposed 30 year life of the development, including the accuracy of population projections and construction market demand, and the ability to implement environmental controls over this period of time.

The Department recognises that there are inherent risks associated with modelling of increases in population and demand for construction materials. The development consent will include environmental monitoring, reporting and auditing requirements such that any unanticipated impacts can be identified and appropriate mitigation implemented.

4.4 Response to Submissions

Hy-Tec provided a Response to Submissions (RTS) dated January 2015 (see **Appendix D**). The RTS provided clarifications, additional information and further commitments, primarily relating to traffic, surface water, biodiversity and noise concerns. The RTS was made publicly available on the Department's website, and was reviewed by relevant Government authorities and councils.

A further submission from a member of the public was received in response to the RTS, with concerns consistent with their original submission, which the Department has addressed in **Section 5**.

5 ASSESSMENT

In assessing the merits of the development, the Department has considered the:

- EIS, submissions, RTS and additional information provided by Hy-Tec and public authorities;
- current development consent for the site;
- relevant EPIs, policies and guidelines; and
- relevant provisions of the EP&A Act.

The Department's assessment is summarised below.

5.1 Transport

Introduction

The proposed development is predicted to lead to higher road traffic volumes along Jenolan Caves Road and the Great Western Highway. BMCC and members of the public raised concerns over this increase and its impacts on safety and amenity.

The EIS includes a road transport assessment undertaken by GTA Consultants (GTA). The assessment considers the potential impacts of the development associated with transport, including heavy vehicle movements to and from the site and the capacity of the road network.

The assessment includes modelling for two scenarios representative of peak traffic conditions. The first scenario is based on the assumption that the bulk of product demand comes from the Sydney Metropolitan Area (95% on average). This includes Hy-Tec's own concrete batching plants which currently account for 50 to 70% of product demand. The second scenario is representative of the infrequent periods of high local demand, where a higher number of trucks is used to transport product to local projects.

Existing Situation

GTA surveyed vehicle movements on the private access road over a two week period from 8 to 21 March 2013. The surveys indicated that the road carried between 11 and 303 vehicles/day, with an average of 202 vehicles/day (256 vehicles/weekday), 148 of which were for quarry transport vehicles (162 trucks/weekday).

On average there were 4.8 laden truck movements/hour from the quarry. This figure is higher than the annual average derived from weighbridge records over 2012-2013. GTA reasons that the surveyed traffic was reflective of a reasonably busy period for the quarry and provides a robust basis for examining existing road transportation. The Department agrees. A conservative estimate of a maximum of 300 truck movements/weekday has been adopted by GTA to represent the number of truck movements generated by the quarry during normal peak periods.

The quarry is currently despatching approximately 750,000 tpa of quarry products. Products are dispatched from 5 am to 10 pm Monday to Friday and 5 am to 3 pm on Saturdays via the private access road which connects to Jenolan Caves Road, a classified main road 4.2 km south of the Great Western Highway (see **Figure 6**). The private access road extends south and then east from Jenolan Caves Road, crossing Yorkeys Creek (an ephemeral tributary of Coxs River) at an elevated culvert crossing, prior to entering the secondary processing area of the quarry via the incoming weighbridge.

All trucks travelling to and from the quarry use the Great Western Highway and Jenolan Caves Road. Products destined for the Sydney Metropolitan Area are despatched via truck and dog combinations of 19 m long B-Doubles. Products servicing local customers travel to either the west or the east on the highway using smaller volume rigid trucks with less than 15 tonne capacity.

Traffic Predictions and Impacts

Hy-Tec predicts that the proposal would lead to a corresponding increase in traffic generation. The Department notes this an increased level of traffic could occur regardless of the proposal, since the quarry has existing development consent to transport up to 1.1 Mtpa of product until 2020.

If the quarry was operating at its current maximum approved production level, GTA estimates that there would be up to 360 truck movements/day over weekdays and up to 210 truck movements/day over Saturdays. During the peak period (weekdays), this represents a maximum increase of 60 truck movements/day along the Great Western Highway (57 through the Blue Mountains and towards Sydney) or about 3.5 truck movements/hour.

BMCC has raised concerns with heavy vehicle usage along the Great Western Highway. In particular, BMCC has highlighted the potential incompatibilities between heavy vehicle traffic and the operation of the highway as a main street for local towns and villages and a tourist route. BMCC also raised concerns over potential convoying trucks and impacts to cyclists. However, the Department considers that there is no viable alternative transport route for the quarry and that the existing route on the Great Western Highway via Jenolan Caves Road is the most appropriate transport route to Sydney, given that both roads are State roads and the Great Western Highway has been designated a State highway.

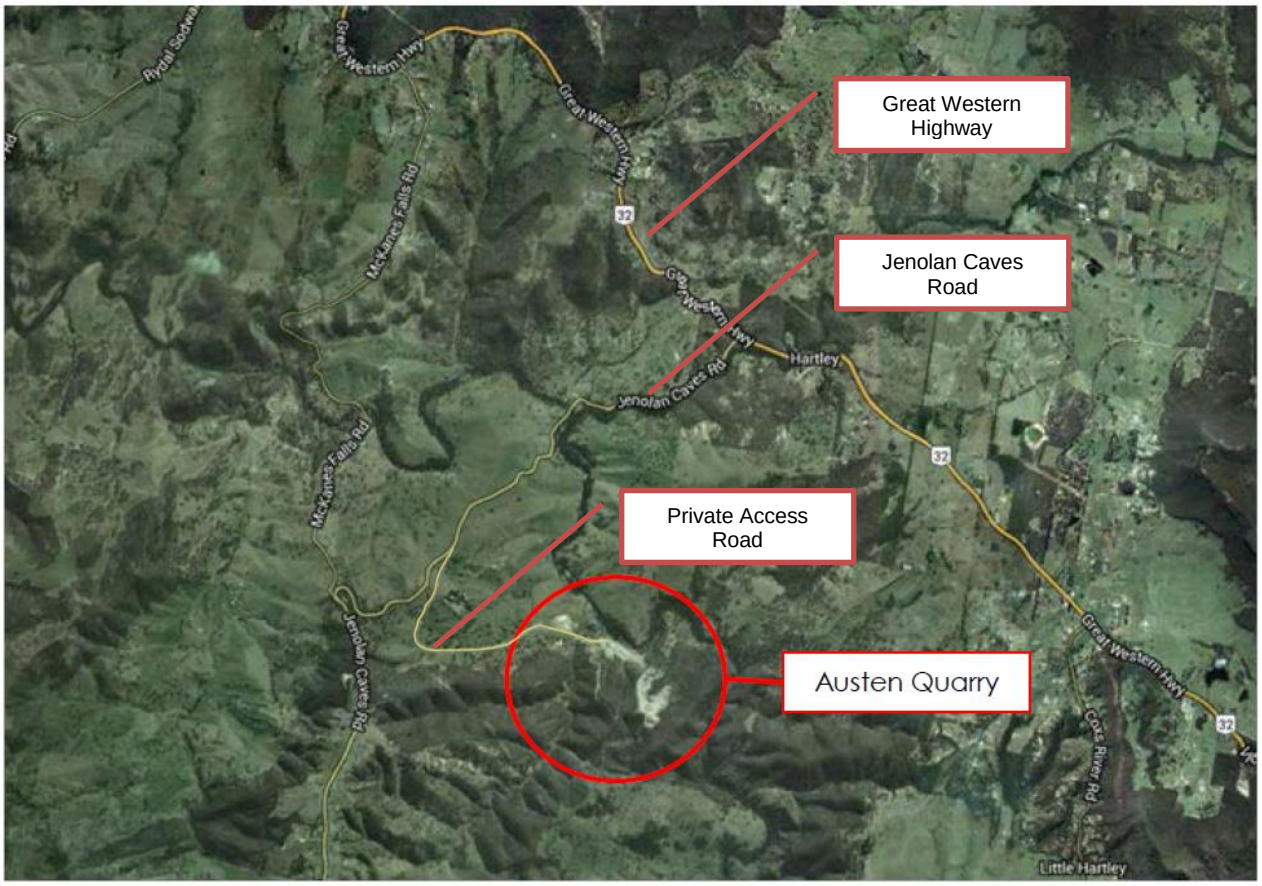


Figure 6: *Austen Quarry Transport Route*

In addition, the Department considers that the contribution of the proposal to traffic along the Great Western Highway is relatively low. The EIS includes a forecast of the quarry's heavy vehicles as a proportion of heavy vehicle traffic along the Great Western Highway through the Blue Mountains (from Blackheath and Faulconbridge). This forecast shows that in 2015, the quarry's trucks account for a maximum of 7.32% of total heavy vehicle traffic. This figure is predicted to decline to 5.39% by 2035. As a proportion of total traffic, heavy vehicles generated by the proposed development from 2015 to 2035 represent less than 1% along this section of the highway.

Road Capacity

To assess the operating performance of key intersections near the quarry, GTA used SIDRA INTERSECTION (SIDRA), a computer-based modelling package which calculates intersection performance characteristics.

SIDRA modelling of two intersections (between Jenolan Caves Road and the Great Western Highway and the quarry access road) was undertaken for the morning and evening peak periods, under the following scenarios (see **Table 2**):

- peak traffic volumes at existing production rate (based on surveys conducted in 2013);
- peak traffic volumes at current maximum approved production rate in 2020;
- peak traffic volumes in the event that the quarry ceases operations in 2020 (ie the control); and
- peak traffic volumes at current maximum approved production rate in 2035.

The modelling indicates that the intersection of the quarry access road and Jenolan Caves Road would continue to operate at a satisfactory level of service (ie minimum level of service of B – good with acceptable delays and spare capacity) during the morning and evening peak periods.

***Table 2**: Modelled Intersection Level of Service*

Jenolan Caves Road intersection	***Level of Service***											
	Existing production rate in 2020		***Maximum production rate in 2020***		***No Operations in 2020***		***Maximum production rate in 2035***		***2020 – Peak (Local)***		***2035 – Peak (Local)***	
	am	***pm***	***am***	***pm***	***am***	***pm***	***am***	***pm***	***am***	***pm***	***am***	***pm***
Great Western Highway	C	C	D	C	D	C	F	D	C	C	D	C
Quarry Access Road	B	B	B	A	A	A	B	A				

However, the level of service at the Jenolan Caves Road and Great Western highway intersection would steadily decline, culminating at an unacceptable level of service of F in the am (ie over capacity resulting in extreme delays) in 2035.

The Department notes that the modelling result is underpinned by the assumption that no upgrades to the intersection would be made by the RMS over a 20 year period. In the Department's opinion, this is unlikely, given the significance of the highway. Notwithstanding, Hy-Tec has committed to help ensure that the level of service at this intersection remains acceptable beyond 2020. To achieve this, Hy-Tec has committed to undertake monitoring at this intersection bi-annually, beginning in 2022 and, if necessary, it would restrict the number of quarry trucks leaving the site. The Department is satisfied that this commitment would maintain an appropriate level of service at this intersection.

The mid-block assessment indicates that, by 2035, additional traffic (background and quarry-related traffic growth) would result in a decreased level of service (from A to B) at the northern section of Jenolan Caves Road (north of the access road) on weekdays (see **Table 3**). This is satisfactory and consistent with the level of service experienced on other sections of the road and during weekends.

***Table 3**: Modelled Mid-Block Level of Service*

Road Capacity	***Level of Service***											
	2020 – Peak (Local)				***2035 – No operations***				***2035 – Peak***			
	Weekday		***Saturday***		***Weekday***		***Saturday***		***Weekday***		***Saturday***	
	am	***pm***	***am***	***pm***	***am***	***pm***	***am***	***pm***	***am***	***pm***	***am***	***pm***
Jenolan Caves Road (South)	A	A	A	A	B	A	B	B	B	A	B	B
Jenolan Caves Road (North)	A	A	B	A	A	A	B	B	B	B	B	B

Peak Local Demand

The quarry is expected to undergo infrequent periods of high local demand for road making material, driven by local roadwork projects. These events are estimated to occur on one or two days per year, resulting in increased movements as a result of the use of smaller volume rigid trucks.

Under this scenario, the maximum number of truck movements is expected to climb to 500 (250 laden trucks) per day. GTA has undertaken limited modelling for this scenario on the basis that the occurrence of these events would be infrequent and not representative of the quarry's typical operations. In general, the Department does not support this approach because it fails to fully account for the maximum transport impacts of the quarry during periods of peak demand.

However, this scenario would be infrequent and the key impacts would be limited to the existing haulage route (ie private and State roads). In addition, the modelling demonstrates that the level of service at the intersection of Jenolan Caves Road and Great Western Highway would be the same level as that experienced under the typical production scenario.

To ensure that the occurrence of the local peak demand would be limited to the frequency stated in the EIS, the Department is recommending conditions to limit the number of days that more than 150 (and less than 250) laden trucks could be despatched from the site.

Conclusion

In terms of traffic impacts, the Department considers the development to be ideally located, in that it affects no local roads. The Department is satisfied that the development would not result in unacceptable impacts on the road network, with no significant impacts on intersection/midblock performance or road capacity attributable directly to the quarry.

To ensure that traffic impacts are minimized and consistent with predictions made in the EIS, the Department has recommended conditions requiring Hy-Tec to:

- transport no more than 1.1 mtpa of quarry products from the site;
- despatch no more than 150 laden trucks from the site on any day that product despatch is permitted, except for up to 5 days in any calender year, where up to 250 laden trucks may be despatched.
- prepare and implement a detailed traffic management plan, including a drivers' code of conduct and measures that would be undertaken to minimise traffic impacts to the Jenolan Caves Road and Great Western Highway intersection beyond 2020

5.2 Water Management

Catchment context

The site is located in the Mid-Coxs River subcatchment of the Hawkesbury-Nepean Catchment. Water allocation is regulated by the *Greater Metropolitan Area Groundwater Sources* and *Greater Metropolitan Region Unregulated River Water Sources* Water Sharing Plans. The subcatchment includes Mulwarree River in the south and Capertee and McDonalds Rivers in the north. The subcatchment also forms part of the Warragamba catchment, a major drinking water supply source to Greater Metropolitan Sydney.

The Coxs River is the major regional drainage feature of the catchment, beginning in Gardeners Gap in the Ben Bullen State Forest, east of Cullen Bullen. The river flows through the Megalong Valley and parts of the Greater Blue Mountains World Heritage Area with a catchment area of approximately 2,640km^2. The river generally flows in a southerly direction and is joined by 15 tributaries before reaching its confluence with the Warragamba River and the stored waters of Warragamba Dam.

The EIS has identified four local catchments across the quarry site. Three of these drain directly into the Coxs River via ephemeral channels within incised gullies while the fourth runs directly into Yorkeys Creek, a shallow ephemeral tributary of the Coxs River.

Surface Water

The EIS includes a Surface Water Assessment undertaken by Groundwork Plus. The Department's key concern with the development's impact on surface water relates to on-site water management and the potential for the uncontrolled discharge of sediment-laden waters to the Coxs River and Yorkeys Creek.

The existing site water management system is composed of storage and sediment dams. These are interconnected by a series of pipes and pumps to water storage tanks. Water collected in sumps on the floor of the primary crushing station and the extraction area is pumped to either storage tanks or a storage dam (SD1). Water is discharged through 5 discharge points to the Coxs River (or its tributary, Yorkeys Creek). The discharge points are regulated by EPL 12323.

Hy-Tec also holds a water access licence under the *Water Management Act 2000* which allows for the extraction of 40 megalitres per annum from the Upper Nepean and Upstream Warragamba Water Source under the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources*. Process water is sourced on-site or, in times of short supply, from the Coxs River.

Groundwork Plus undertook a water balance assessment for the proposed development. This included evaluation of on-site water storage capacity (refer to **Table 4**) and proposed enhancements (see **Figure 7**). The review indicates that the quarry would fall short of the water storage capacity required for a 95th percentile 5-day rainfall event, in accordance with *Managing Urban Stormwater, Soils and Construction – Volume 2E Mines and Quarries* (the 'Blue Book').

***Table 4**: On-site Water Storage Capacity*

Water Storage	***Capacity (ML)***	***95th percentile 5-day volume requirement (ML)***	***Surplus/Deficit (ML)***
SB1	6	11	-5
SB2b (existing)	2.8	4	-1.2
SB2b (proposed)	4.5	4	0.5
SB3a	3	6.2	-3.2
SB3b	12.3	12.3	0
SD1	3.5	1.5	2
SD2	5	1	4
SD5	4	22.8	-18.8
SD6	8	2	6
Total	**49.1**	**64.8**	**-15.7**

EPA and NOW have consistently raised concerns about the shortfall, particularly with SB1 (Sediment Basin 1) and the potential for uncontrolled discharges to the immediately adjacent Coxs River. Hy-Tec has advised that increasing capacity of SB1 is constrained by the availability of surface area and the potential to intersect subsurface water flows associated with nearby watercourses.

EPA has advised the Department that it proposes to vary the quarry's EPL to include a Pollution Reduction Program to ensure that this issue is addressed. Hy-Tec has since committed to upgrading the on-site water management system to ensure that it would meet the required capacity. On this basis, the Department has recommended a condition requiring Hy-Tec to undertake a Surface Water Audit and Water Management Improvement Program to fully describe the current site water management practices and identify and recommend all reasonable and feasible measures to improve surface water management, with particular emphasis on opportunities to divert clean water away from the site (thereby reducing catchment size and required water storage capacity).

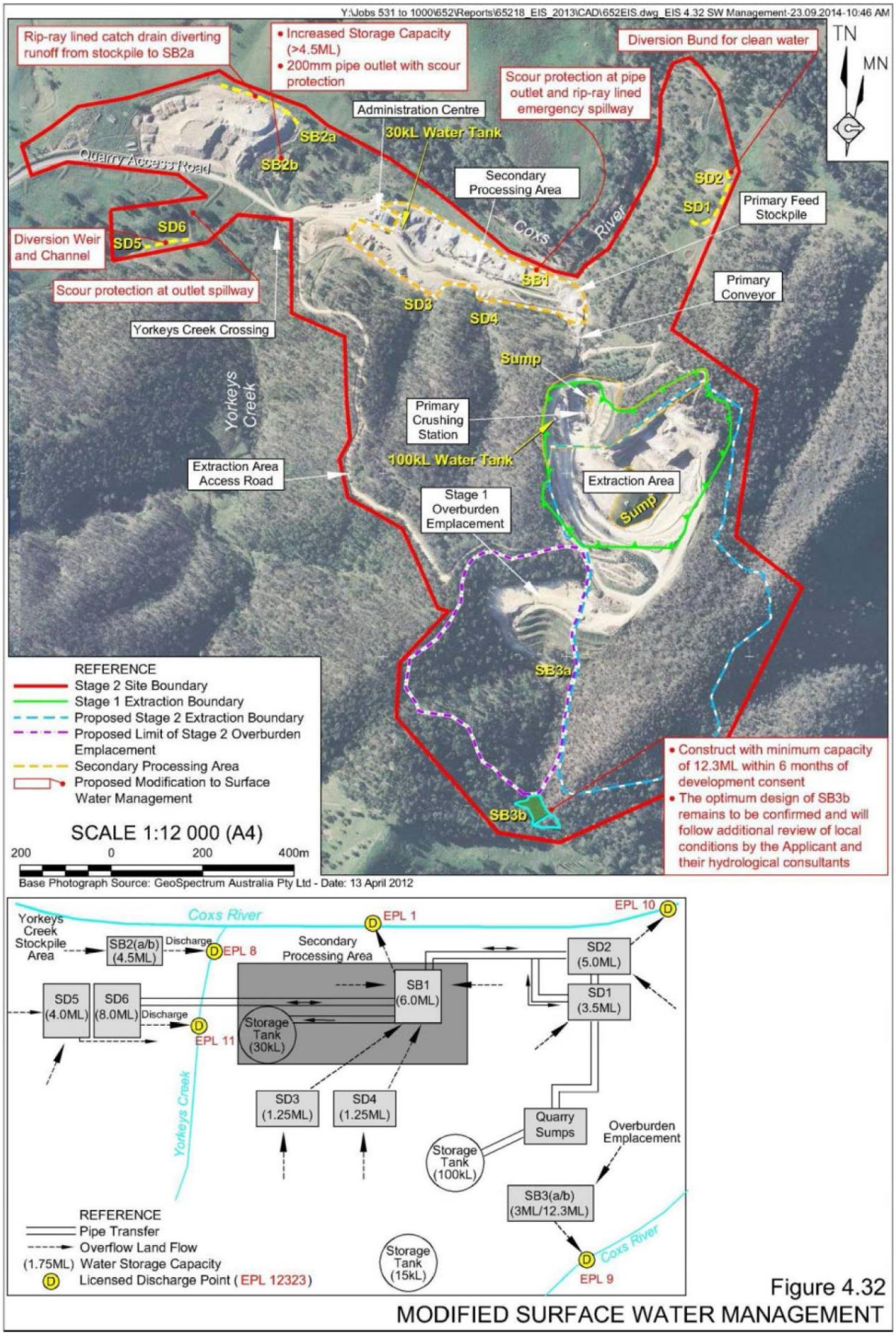


Figure 7: *Surface Water Management*

Groundwater

The EIS includes a Groundwater Impact Assessment (GIA) undertaken by Ground Doctor Pty Ltd. The proposed increase in area and depth of the extraction area is likely to result in localised drawdown of the groundwater table. Therefore the proposed development is an aquifer interference activity subject to the provisions of the *NSW Aquifer Interference Policy* and requiring aquifer interference approval under the *Water Management Act 2000*.

The assessment determined that groundwater in the vicinity of the extraction area is isolated from surrounding aquifers by topographic and surface drainage conditions. Recharge to groundwater occurs as a result of infiltration from the immediate surrounds only. Groundwater discharge is expected to occur on the lower slopes near drainage lines, including the Coxs River. A conceptual site model (see **Figures 8** & **9**) has been developed to assess impacts to groundwater. The Department understands that NOW accepts the appropriateness of this model, having undertaken site visits during the preliminary stages of the development application.

The GIA identified the standing groundwater level beneath the quarry extension area at a depth of approximately 730 mAHD, the elevation of the current extraction area floor. The proposed maximum depth of extraction is 45 m (685 mAHD) below the current water table, leading to groundwater seepage into the extraction area. A 45 m drawdown is expected but the area of effect is predicted to be limited to a radius of 225 m due to low permeability of the surrounding fractured rock and the presence of aquifer boundaries in all directions from the extraction area.

At 685 mAHD, the extraction area would still remain well above the Coxs River and most surrounding natural drainage gullies (including Yorkeys Creek). The GIA predicts that standing water levels between the extraction area and the surrounding gullies would remain more elevated than the gullies themselves, maintaining existing hydraulic gradients to the gullies. However, drawdown is expected to result in reductions in the availability of groundwater to the upper slopes of gullies which direct flow to Coxs River. This is considered to be a negligible impact given the limited extent of the drawdown area.

No registered groundwater users have been identified within the maximum possible extent of groundwater drawdown. No groundwater dependent ecosystems or culturally significant groundwater receptors have been identified within the study area (refer to Section 5.4).

The Department considers that potential impacts to groundwater quality are limited, due to the isolated nature of groundwater storage around the site and the nature of activities that would be carried out at the quarry. On this basis, the primary risk to groundwater is potential contamination from on-site chemicals (limited quantities of diesel fuel, hydraulic oils, lubricant and common automotive chemicals) or residue from explosives used in blasting. To minimise spill risk, the Department considers that liquids storage facilities should be appropriately bunded and any dangerous goods are stored, handled and transported in accordance with relevant Australian Standards.

The conceptual site model shows that impacted groundwater would be contained within the extraction area void, and transferred to surface water storage facilities and basins, which are managed as part of the on-site water management system (refer to '**Surface Water**').

The GIA concludes that impacts to groundwater are limited and considered to be 'minimal' with regards to the *NSW Aquifer Interference Policy*. Notwithstanding, the GIA recommends the establishment of a network of piezometers to monitor water levels around the extraction area. The Department, NOW and Hy-Tec all agree with the recommendation.

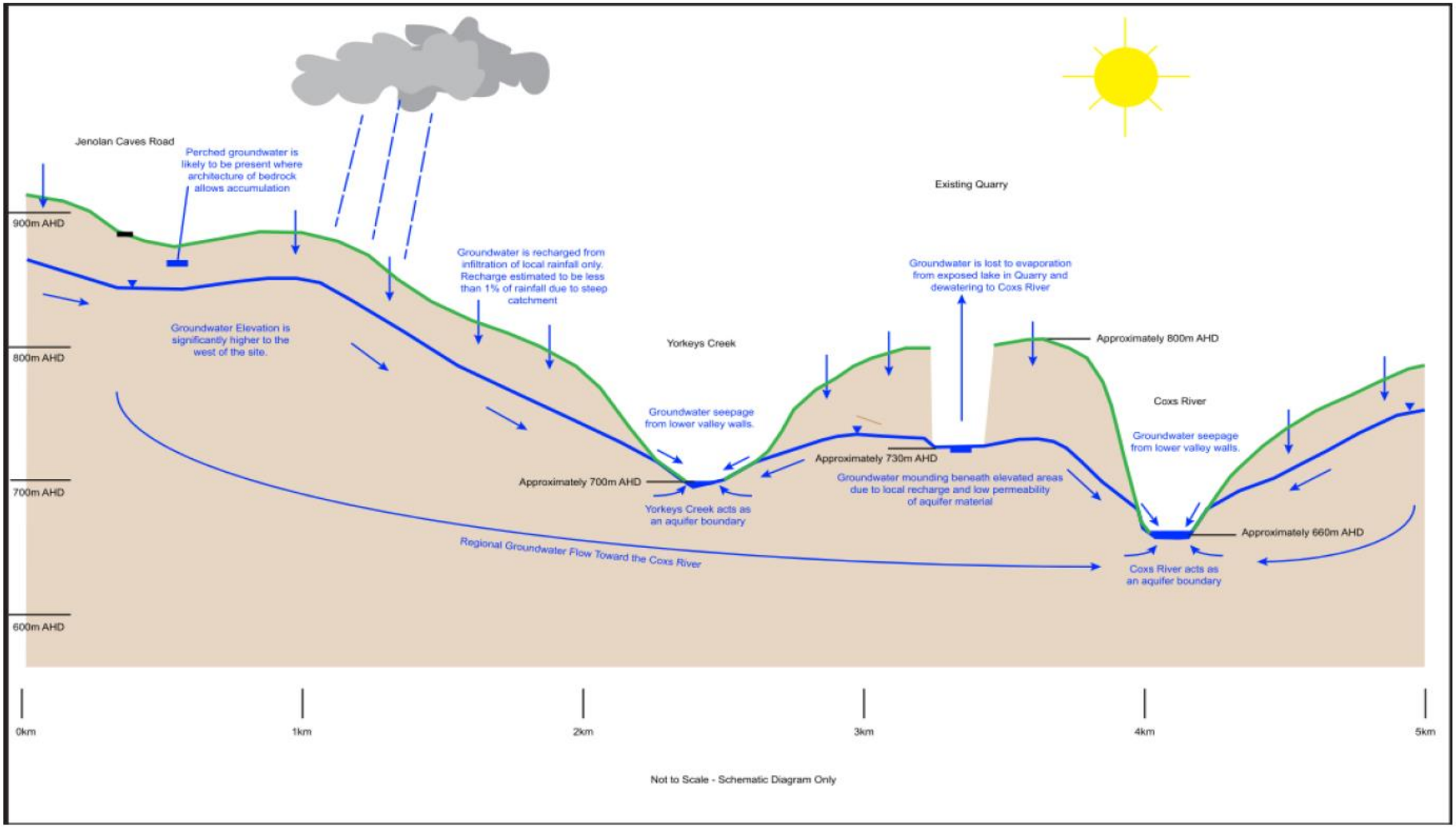


Figure 8: *Conceptual Hydrogeological Site Model – Current Development*

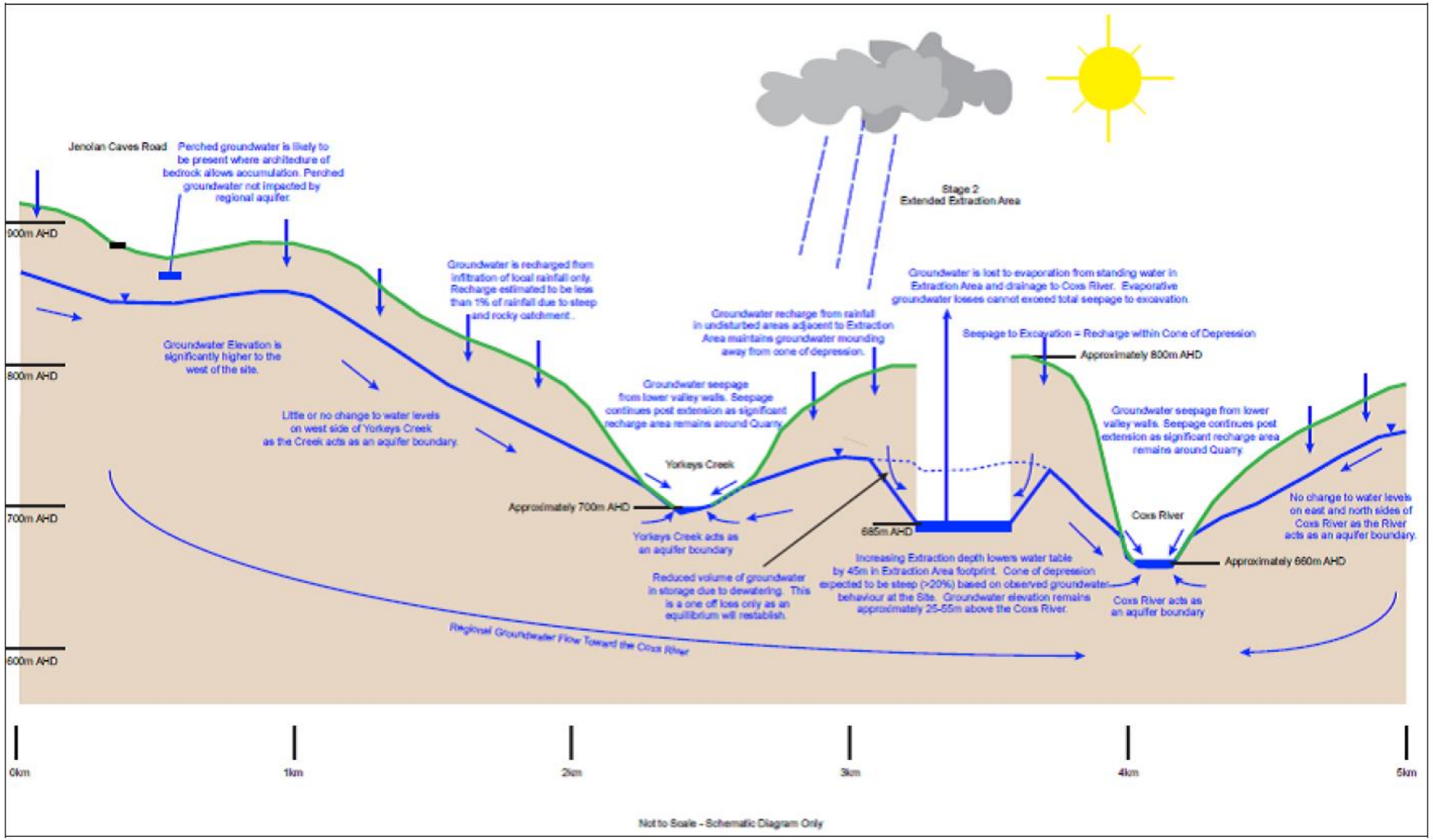


Figure 9: *Conceptual Hydrogeological Site Model – Proposed Development*

Conclusion

The critical issue for the management of surface water resources is the potential for uncontrolled discharge into nearby watercourses as a consequence of inadequate on-site water storage for large rainfall events. The Department has recommended conditions requiring Hy-Tec to undertake an audit of current and proposed surface water management practices and infrastructure on the site. The audit is to be accompanied by a Water Management Improvement Program, based on the audit report's recommendations, to improve surface water management practices on the site, in particular, implementing opportunities to divert clean water away from the site.

In addition, the Department has recommended that Hy-Tec prepare a Water Management Plan, in consultation with NOW. The Water Management Plan would include a site water balance and Surface Water Management Plan, which would contain measures to:

- improve baseline data on surface water flows and water quality in water bodies that could potentially be affected by the development;
- account for all water use by the development; and
- monitor and report on surface water flows and quality in the water bodies that could potentially be affected by discharges from the development.

The Department is recommending a condition requiring preparation of a Groundwater Management Plan which would include a program to monitor and report on groundwater inflows to the quarry pit and the impacts on surrounding aquifers and privately-owned groundwater bores.

Subject to these conditions, the Department considers the development can be managed to have limited impacts on both surface water and groundwater resources.

5.3 Noise Impacts

Operational Noise

The proposed development would extend operating hours for extraction and processing activities from 6 pm to 10 pm on weekdays and from 7 am to 6 pm on Saturdays, increasing the time nearby residences would continue to be potentially impacted by noise from the quarry. The proposal would also allow Hy-Tec to undertake maintenance operations at any time. **Table 5** compares existing and proposed hours of operation for various quarry activities, with changes shown in bold.

***Table 5**: Existing and Proposed Hours of Operation*

Operation	Existing Hours of Operation			Proposed Hours of Operation		
	Monday to Friday	**Saturday**	**Sunday & Public Holidays**	**Monday to Friday**	**Saturday**	**Sunday & Public Holidays**
Extraction/ Processing	6 am to 6 pm	7 am to 3 pm	N/A	**6 am to 10 pm**	**6 am to 3 pm**	N/A
Blasting	10 am to 3 pm	N/A	N/A	10 am to 3 pm	N/A	N/A
Loading/ Transport	6 am to 10 pm	5 am to 3 pm	N/A	6 am to 10 pm	5 am to 3 pm	N/A
Maintenance	Not specified	Not specified	N/A	**24/7**	**24/7**	**24/7**

To assess the impacts of noise, the EIS included a noise and vibration impact assessment (NVIA) undertaken by Benbow Environmental and prepared in general accordance with the applicable guidelines, including the *NSW Industrial Noise Policy* (INP). The NVIA established both on-site and off-site background noise levels (RBLs) The assessment also modelled project specific noise levels (PSNLs) and the potential operational, construction, sleep disturbance, cumulative and traffic noise impacts of the development. Noise impacts were modelled at 14 receptors, representative of residences surrounding the subject site and nearby vacant lands (see **Figure 10**).

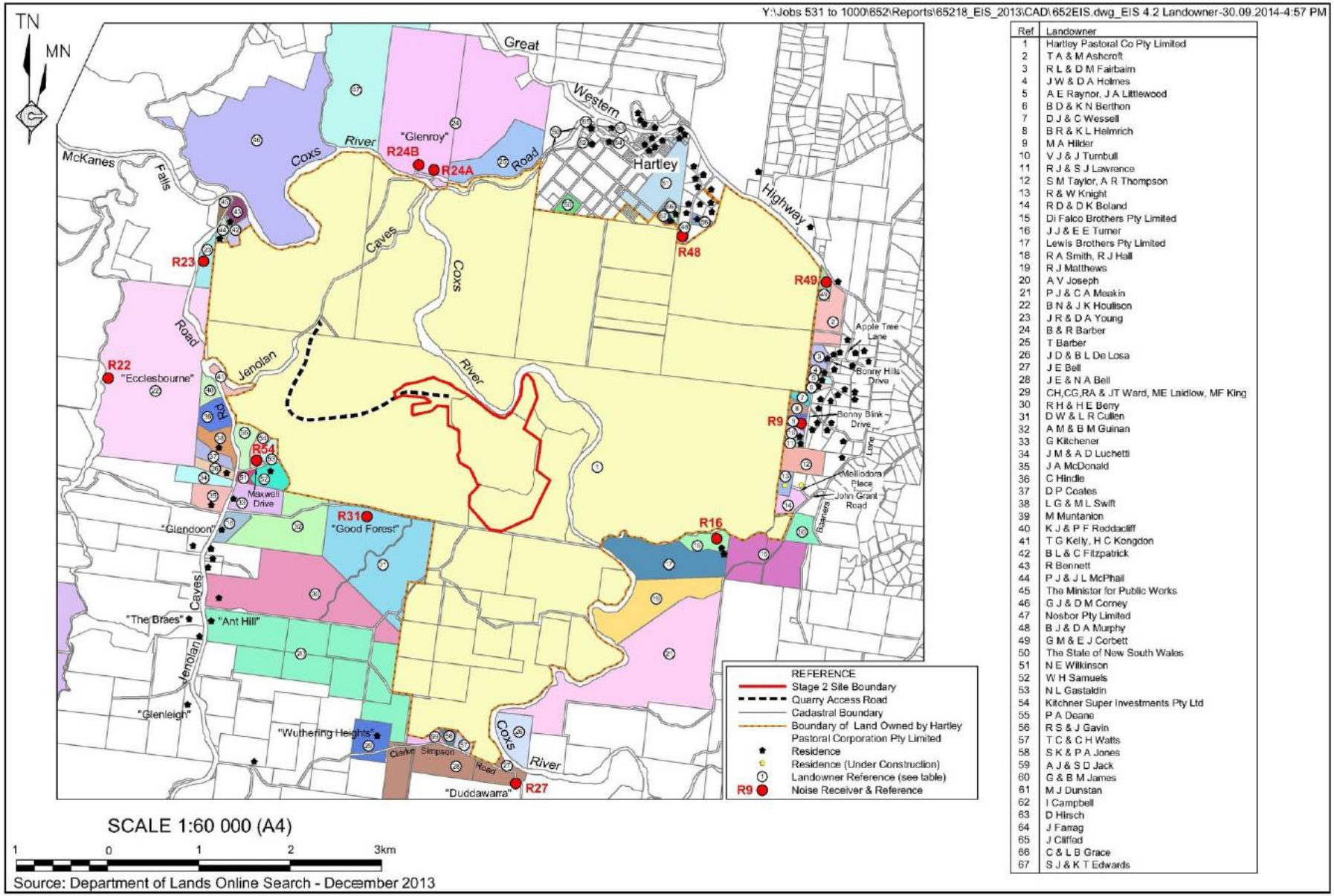


Figure 10: *Development site, showing locations of nearby sensitive noise receivers*

Noise modelling was undertaken for three representative scenarios of quarry operations in order to assess the development's potential impacts (refer to **Table 6**). The scenarios represent varying life stages of the quarry and take into account operating hours and potential noise-enhancing weather conditions in the area. The primary difference between the three scenarios is the location of noise sources across the quarry site.

Three of the 14 receptors were identified to represent the potential noise impacts of the proposed development on nearby vacant lands. Modelling determined that the proposed development would not exceed the applicable noise levels for any nearby vacant lands.

Noise monitoring in the local area determined that existing noise levels were low throughout the day, evening and night time periods. On this basis, PSNLs were established to be 35 dB(A) L_{Aeq} for all receivers during all time periods. This represents the lowest possible criterion under the INP.

In most circumstances, modelling demonstrates that the proposed development would not exceed the PSNLs. This includes operations throughout the evening period on weekdays, during which Hy-Tec is proposing an extension of hours for extraction and processing. However, the EPA remains concerned over the ability to meet the PSNLs during the evening time period and advises the Department that while it would vary the allowable hours of operation for the quarry in line with the proposed development consent, it would review this if subsequent noise monitoring demonstrates non-compliance.

***Table 6**: Predicted Operational Noise for Residential Receptors*

Location	***PSNLs for Day, Evening & Night (dBA L_{Aeq})***	***Predicted Noise levels – Day, Evening & Night (dB(A) L_{Aeq})***								
		Scenario 1 (Stage A)			***Scenario 2 (Stage C)***			***Scenario 3 (Stage E)***		
		Calm	***Temperature Inversion***	***Adverse winds***	***Calm***	***Temperature Inversion***	***Adverse winds***	***Calm***	***Temperature Inversion***	***Adverse winds***
R31	35	30.5	**36.1**	31.7	30.7	**36.3**	31.7	27.3	30.7	31.4
R54		29.9	34.7	32	29.9	34.7	32	29.9	34.6	32
R22		<20	<20	<20	<20	<20	<20	<20	<20	<20
R23		24.9	30.7	<20	24.9	30.7	<20	25.1	25.2	<20
R24A		28.2	34	22.1	28.1	33.9	22	27.9	28.1	21.8
R24B		27.4	33.3	21.3	27.4	33.2	21.2	27	27.4	20.9
R48		29.5	**35.3**	28.6	29.5	**35.2**	28.6	29.3	35	28.5
R49		20.2	26.2	23.4	<20	25.8	23.2	<20	<20	22.9
R9		<20	25.6	25.8	20.5	**36.6**	26.8	<20	20.5	22.2
R16		22	28	27.9	23.9	30.1	30	<20	23.9	<20
R27		<20	<20	<20	<20	<20	<20	<20	<20	<20

Notes for Table 6

- *Predicted exceedances of PSNLs are shown in bold.*
- *Temperature Inversions occur during night period only.*

The only time that noise levels were predicted to exceed the PSNL was under temperature inversion events. These would only occur during the morning shoulder period and during Winter. Under this scenario, temperature inversions would result in 2 receivers (Locations R31 and R48) being predicted to experience marginal exceedances of the PSNL by up to 1.6 dB(A) during two life stages of the proposed development. The Department notes that the human ear is generally unable to distinguish noise levels that differ by this margin.

Notwithstanding, EPA considers that the quarry can be managed in a manner that keeps noise levels from exceeding PSNLs and recommends noise criteria that reflect this. Hy-Tec accepts this recommendation, noting that scenarios used in noise modelling are conservative. Therefore, the Department has recommended that project noise criteria of 35 dB(A) L_{aeq} be adopted for all privately-owned residences, consistent with the PSNLs.

In addition, the Department is recommending a condition requiring Hy-Tec to prepare a Noise Management Plan outlining measures to be taken to ensure compliance with the recommended noise criteria and ensuring that best management practices are being employed at the site. The plan would also require a monitoring program to ensure noise levels do not exceed the criteria.

Road Traffic Noise

Hy-Tec is not proposing to change the hours of operation for product loading and transport activities. As such, any additional road traffic noise impacts associated with the proposed development are limited to the extension of the quarry's life and increased number of trucks on the road when operating at maximum capacity.

The road traffic noise impact assessment included in the NVIA is based on peak local demand, representative of the maximum number of heavy vehicles generated by the development (250 laden trucks). The assessment found that the road traffic noise levels would comply with the relevant noise criteria established in accordance with the *NSW Road Noise Policy*, with the exception of sleep disturbance criteria.

Sleep Disturbance

Instantaneous or short term high noise levels have the potential to cause sleep disturbance. The NVIA identified that exceedances of sleep disturbance criteria already occur and a portion of these occurrences have been identified as not being attributable to existing quarry operations.

The INP recognises that it may be unduly stringent to expect operations during shoulder periods to be assessed against standard day, evening or night-time noise assessment criteria. In these situations, the INP recommends case-by-case consideration of the appropriate noise levels.

The Department recognises the significance of early morning operations for quarries, particularly those serving the Sydney Metropolitan Area, as it allows products to be delivered to construction sites before morning peak traffic, when deliveries would be slowed and other motorists inconvenienced. The Department notes that the quarry has existing consent to undertake loading and transport from 5 am on Saturdays and 6 am on weekdays. Given the expectation of full compliance with the recommended noise criteria during the day and evening period from 7 am onwards, the Department considers that the predicted noise levels are acceptable.

Conclusion

The Department is satisfied that Hy-Tec has assessed the potential noise impacts of the development in accordance with relevant guidelines. The Department has recommended conditions requiring compliance with noise criteria, consistent with the PSNLs. Conditions have also been recommended which require the preparation and implementation of a noise management plan to ensure that noise impacts are managed in accordance with best practice and in compliance with the noise criteria.

Subject to the recommended conditions of approval, the Department is confident that noise associated with the quarry can be appropriately managed so that amenity impacts on residences are low and acceptable.

5.4 Biodiversity

Introduction

To assess the development's impacts on biodiversity, the EIS included a specialist ecological assessment undertaken by Niche Environment and Heritage (Niche).

The native vegetation within the proposed extension area forms part of a larger patch of adjacent remnant vegetation that in total is greater than 500 ha. This remnant is in moderate to good condition and is connected to vegetation within the Blue Mountains Wilderness area to the east and fragmented vegetation in the Little Hartley area to the north. The existing extraction and processing areas are devoid of native vegetation, due to previous extraction activities.

Impacts on Vegetation Communities

The ecological assessment identified 3 native vegetation communities in the proposed extension area, none of which are listed under the *Threatened Species Conservation Act 1995* (TSC Act) or the EPBC Act. Furthermore, none of the vegetation communities within the area are considered likely to be a groundwater dependent ecosystem. The River Oak riparian open forest locally present is dependent on the intermittently flowing Coxs River, is tolerant of a regular cycle of wetting and drying and does not constitute forested wetland or swamp in semi-permanent standing or sub-surface water.

The development would result in disturbance of 29 ha (direct removal of 26.5 ha and edge effects to 2.5 ha) of native vegetation (see **Table 7** and **Figure 10**). The area of indirect impacts (ie edge effects) was defined as a 10 m buffer around the disturbance area. A Biodiversity Offsets Strategy has been prepared to offset the removal of native vegetation (see **Table 7**).

Table 7: *Native Vegetation Community Impacts*

Vegetation Community	***Direct Impact (ha)***	***Indirect Impact (ha)***	***Proposed Offset (ha)***
Brittle Gum – Broad-leafed Peppermint open forest	17.3	1.3	46.3
Silver-leafed Mountain Gum mallee woodland			1.9
Forest Red Gum grassy open forest	4.4	0.8	22.8
Forest Red Gum native grassland			0.8
Forest Red Gum exotic grassland			9.7
Rough-barked Apple gully forest			2.4
Stringybark – Apple Box open forest	4.8	0.4	-
River Oak riparian open forest			10.4
Total	***26.5***	***2.5***	***94.3***

Threatened Flora Impacts

The ecological assessment identified 214 flora species in the proposed extension area, including 41 species of weed. The Silver-leafed Mountain Gum, listed as vulnerable under both the TSC and EPBC Acts, was the only threatened flora species recorded.

There is a substantial population of Silver-leafed Mountain Gum within Austen Quarry's lease area, estimated in the EIS at 3,815 individuals, including 2,283 within core habitat, 146 within non-core habitat and 1,386 have been planted by Hy-Tec as part of its regeneration efforts. There are nine other known populations in the Lithgow to Bathurst area, although all are substantially smaller than the population on the site.

The local importance of this species was recognised in the existing development consent for the site (DA 103/94). Condition 7 of that consent required Hy-Tec to pursue a conservation agreement over suitable habitat for the species, as identified by the National Parks and Wildlife Service. This led to the establishment of a 2.2 ha conservation area to the northeast of the site, known as Conservation Area H. Condition 7 also required Hy-Tec to undertake a propagation program for this species, under which over 3,000 individuals have been successfully grown. Nearly 1,400 of these have been planted on site as part of Hy-Tec's regeneration efforts. Rehabilitation areas that are not proposed to be impacted by the proposed extension would preserve 755 of these planted individuals. The overall success of these plantings and extent of natural regeneration is indicated by an estimate in 1994 that the population of Silver-leafed Mountain Gum on the site was just 1,680.

The Commonwealth DoE earlier considered that up to 1,500 of the 3,815 individuals on site might be affected by the project. However, the EIS states that only 721 individuals would be disturbed. Of these, 631 have been planted by Hy-Tec and the remaining 90 are within non-core habitat. The proposed extraction area would avoid direct impacts to the two core habitat areas for this species, which are both located to the northeast of the existing operations and are included in the proposed biodiversity offset (see below).

The Department has recommended that Hy-Tec's proposed management measures for the Silver-leafed Mountain Gum be included in a Landscape and Rehabilitation Management Plan for the development and that Hy-Tec's commitment to plant at least 1,000 individuals of this species as part of its rehabilitation program is formalised by way of conditions of consent.

Fauna Impacts

A total of 89 fauna species were recorded during surveys of the study area, comprising 50 birds, 23 mammals, 10 reptiles, 6 frogs and 3 introduced species. The recent surveys and past surveys have recorded 8 threatened fauna species listed under the TSC and/or EPBC Act. These include the Gang Gang Cockatoo, Powerful Owl, Scarlet Robin, Hooded Robin, Flame Robin, Varied Sittella, Eastern Bentwing Bat and Large-eared Pied Bat. The main impact to fauna species would be through habitat loss. It is proposed that this impact be offset (see below). Other impacts would include edge effects and loss of connectivity.

The tests of ecological significance in the EIS indicated that the development is unlikely to result in significant impacts on any of the threatened fauna species known or considered likely to occur in the proposed disturbance area, due to avoidance and management measures, proposed rehabilitation and the proposed Biodiversity Offset Strategy.

To ensure that day-to-day operations are appropriately managed to minimise impacts to threatened species, the Department has recommended conditions requiring Hy-Tec to prepare and implement a Landscape and Rehabilitation Management Plan, in consultation with OEH. The plan would minimise impacts on threatened species, populations and habitats through measures to:

- protect vegetation and fauna habitat outside the approved disturbance area on-site; and
- minimise impacts on native fauna on site, including undertaking pre-clearance surveys.

Biodiversity Offsets Strategy

Hy-Tec has developed a Biodiversity Offsets Strategy as shown in **Figure 11**, and summarised in **Table 7**. The offset strategy has been developed to offset the residual impact to 29 ha of native vegetation and 721 individuals of Silver-leafed Mountain Gum. The proposed biodiversity offsets would protect 94.3 ha of generally 'like-for-like' native vegetation to account for the proposed clearing of 26.5 ha of remnant native vegetation.

The proposed offset contains both areas which are densely populated with naturally occurring Silver-leafed Mountain Gum, including the 2.2 ha Conservation Area H located approximately 150 m northeast of the proposed development (see **Figure 11**). This area would remain unaffected by the proposed development and would continue to be managed in order to promote natural regeneration of Silver-leafed Mountain Gum.

The total number of individual Silver-leafed Mountain Gum in the proposed offset area is estimated in the EIS to be 1,850. With an addition of 1,000 individuals to be planted as part of the rehabilitation of the quarry site, Hy-Tec estimates that there would be at least 3,055 Silver-leafed Mountain Gum that are either protected or else re-established by the end of the development's life. These would offset the 721 individuals which would be lost (including 631 grown and planted by Hy-Tec itself). These calculations do not include a further 1,244 individuals which would remain on or near the site, which would be unaffected by the development. OEH's Biobanking Assessment Methodology (BBAM) attributes 11,100 species credits to these 1,850 individuals, which meets OEH's offset requirement for this species.

The Department notes that one impacted vegetation community is not represented in the proposed offsets, Stringybark – Apple Box open forest. There would be 5.2 ha of this community impacted by the development. While the proposed offset does not contain a 'like-for-like' offset for this community, the other vegetation communities included in the proposed offset are similar in vegetation composition and provide similar fauna habitat for threatened species. The Department and OEH consider this to be an acceptable outcome given the small amount to be cleared and the biodiversity values associated with the proposed offset.

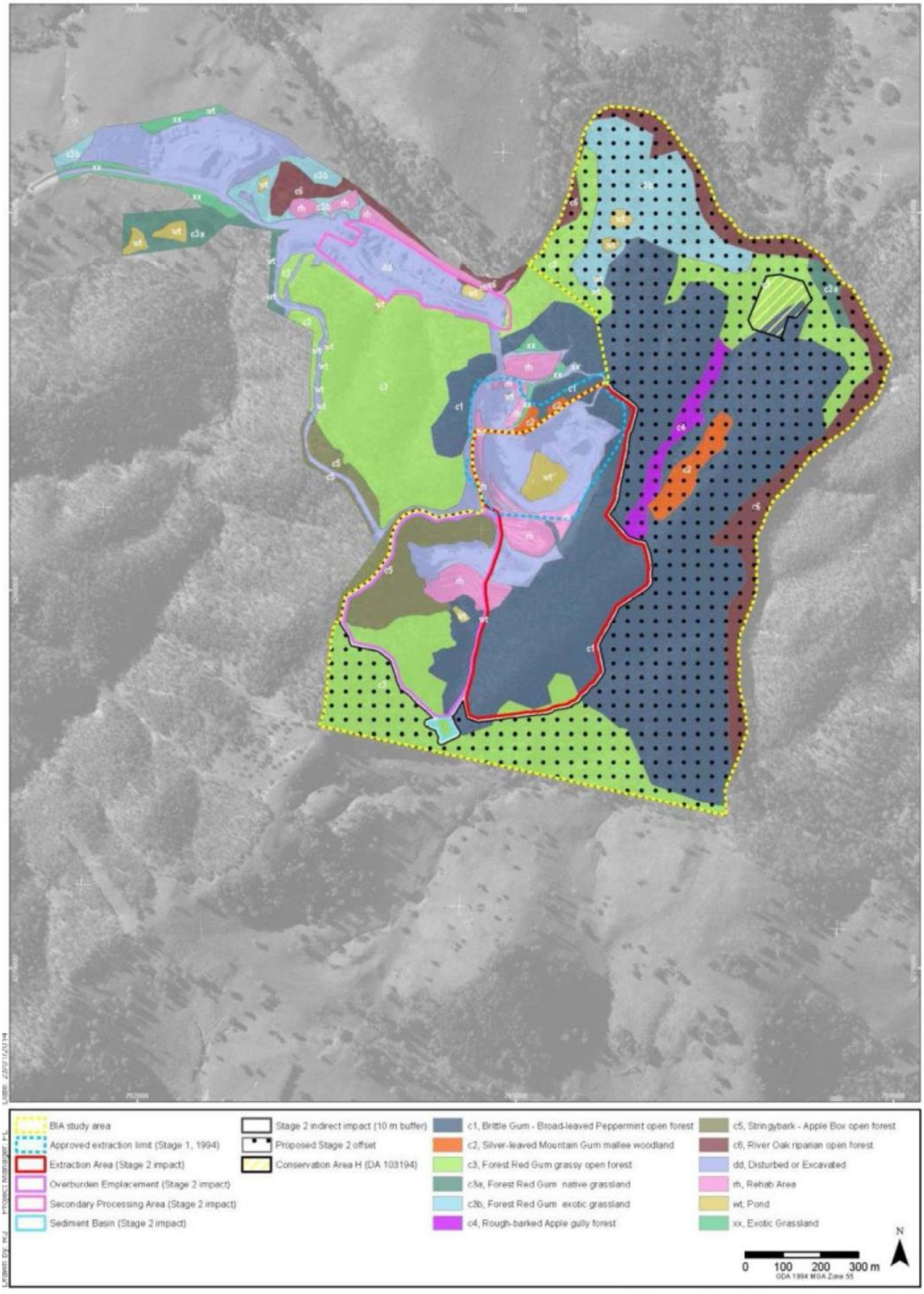


Figure 11: *Site and Offset Site with Mapped Vegetation Communities*

DoE has indicated that it satisfied with the assessment of impacts on matters of national environmental significance and that, whilst the approval of the project is at the ultimate discretion of the Commonwealth Minister or his delegate, provided the proposed biodiversity offset strategy demonstrates consistency with the EPBC Act offset policy and requirements, the identified impacts may be acceptable.

Conclusion

The Department is satisfied that Hy-Tec has designed the development in a manner that largely avoids impacts on key biodiversity values, but with some residual biodiversity impacts. In particular, the development impacts on a significant proportion of the principal local population of the vulnerable flora species Silver-leafed Mountain Gum. However, it is critical to note that the great majority (631) of the 721 individuals impacted have actually been grown and planted by Hy-Tec as a requirement of its existing development consent. The remaining 90 individuals do not form part of the two core local populations of this species, both of which would be protected in perpetuity under Hy-Tec's proposed Biodiversity Offset Strategy.

The Department is satisfied that the project's biodiversity impacts are acceptable and that Hy-Tec's proposed management measures and offsets are appropriate. The Department has recommended conditions requiring Hy-Tec to prepare and implement a comprehensive Landscape and Rehabilitation Management Plan, which would include management of its proposed Biodiversity Offsets Strategy. Hy-Tec would also be required to lodge a bond with the Department to ensure that the offset strategy is implemented in accordance with agreed performance and completion criteria and to ensure its long term (ie in-perpetuity) conservation.

With the implementation of these mitigation and offsetting measures, the Department is satisfied that the development can be undertaken in a manner that would maintain the biodiversity values of the locality over the medium to long term.

5.5 Other Issues

The assessment raised a number of other relevant issues, which are addressed in **Table 8** below.

***Table 8**: Other Issues*

Issue	*Consideration*	*Conclusion & Recommendation*
Visual	• The proposed development would further modify the local landform, removing three ridges to the southeast and northeast of the existing extraction area and in-fill two small gullies southwest of the existing overburden emplacement area, leading to an increase in the visibility of the quarry from residences, roads and local lookouts in the Lithgow City and Blue Mountains City LGAs. • To minimise visibility, Hy-Tec has designed the extraction and overburden emplacement sequence to naturally provide screening between the quarry and vantage points. This includes the delayed extraction of 2 Mt of its approved remaining resource located within the ridge on the northern side of the extraction area, which acts as a visual barrier to the extraction area when viewed from Hassans Wall. • In addition, Hy-Tec has proposed a number of mitigation measures to avoid and mitigate visual impacts at all vantage points, including but not limited to: – the retention of tree plantings along Jenolan Caves Road;	• The Department is satisfied that Hy-Tec has implemented all reasonable and feasible measures to minimise the visual impacts of the proposed development. • The Department has recommended conditions of consent which ensure that: – Hy-Tec prepares and implements a Landscape and Rehabilitation Management Plan including measures to establish vegetation screening; and – the visual impacts of the final rehabilitated landform are minimised.

	– additional tree plantings on the ridge on the northern side of the extraction area; – application of grassy vegetation cover on the outer slopes of stockpiled material; – application of bituminous film to terminal or inactive extraction area faces; – selective light placement; – progressive rehabilitation; and – annual monitoring and adaptive management.	
Air Quality	• The EIS identifies quarry operations as the only significant source of dust and particulate emissions within the locality. • Dispersion modelling demonstrates that the development would not exceed relevant air quality criteria. • The only sensitive receptor of concern is R31 under Scenario 2, where 24-hour maximum PM10 levels would approach relevant criterion. • The EPA did not raise concerns over air quality and advised that the existing EPL would remain applicable to the development.	• The Department is satisfied that the development would not cause unacceptable impacts on local air quality. • The Department has recommended air quality limits, and monitoring and reporting requirements to ensure these limits are met.
Rehabilitation/ Landform	• Progressive rehabilitation would continue under the proposed development. This includes the planting of at least individuals of 1,000 Silver-leafed Mountain Gum. • The proposed final landform would comprise a sloping landform adjacent to a single final void with fluctuating depths of water. • The vegetated bund along Coxs River and various water storage and sediment dams would be retained. • The overburden emplacement area would be revegetated, providing connectivity between remnant vegetation and fauna habitat of the Coxs River and Yorkeys Creek with that of uncleared ridges (see **Figure 5a** & **5b**). • The final void would be appropriately bunded, fenced and signed. The final void includes a smaller void to encourage habitat for water-dependent native flora and fauna. • Final land use may include low intensity grazing in parts of the extraction area and agricultural production in the stockpile, processing and surface water infrastructure areas, depending on further consultation and negotiation with the landowner and other stakeholders. To support these alternative land uses, Hy-Tec has proposed two separate but similar revegetation strategies. The Department supports this approach.	• To ensure that rehabilitation is successfully completed, the Department has recommended an appropriate set of rehabilitation objectives. • The Department has also recommended conditions which require Hy-Tec to prepare a Landscape and Rehabilitation Management Plan that would: – be prepared in consultation with OEH; – include rehabilitation methods and completion criteria; and – include provision for a rolling 3-year rehabilitation program. • Hy-Tec would also be required to lodge a rehabilitation security bond with the Department. • Subject to these conditions the Department is satisfied the Hy-Tec would successfully rehabilitate the site.
Hazards Management	• Approximately 41.4 kilolitres (kL) of diesel fuel would be stored on-site, in addition to other combustible products such as lubricating oils, chemicals and grease. • A significant portion of the quarry lease area is located on bushfire prone land and poses a potential fire risk.	• The Department has recommended conditions requiring: – dangerous goods to be stored in accordance with relevant Australian Standards and the *Dangerous Goods Code*; – the development to be suitably

	• The Department considers hazardous risks to be low, given that there would be no additional ignition sources as a result of the proposed development and that the existing and proposed development areas contain a limited number of building structures.	equipped to respond to any fires on site; and – assistance be provided to the Rural Fire Service and other emergency services, if there is a bushfire in the vicinity of the site.
Aboriginal and Non-Aboriginal Heritage	• No sites of Aboriginal or non-Aboriginal heritage significance were identified on the site. • The assessment concluded that the proposed development has low potential to adversely impact on heritage values. • Hy-Tec has committed to suspend works in the event that previously undiscovered items of Aboriginal or non-Aboriginal heritage significance are identified.	• The Department considers that impacts to Aboriginal and non-Aboriginal heritage are unlikely and is satisfied with the reactive measures outlined in Hy-Tec's Statement of Commitments to manage any undiscovered heritage items.
Blasting/ Vibration	• Blasting occurs (on average) 1.5 times per month. • Monitoring of blasting is undertaken in accordance with EPL 12323. Blast criteria adopted in the EPL are consistent with recommendations made by the Australian and New Zealand Environment and Conservation Council (ANZECC). • Monitoring data indicates that both air blast overpressure and ground vibration are well below the prescribed criteria.	• The Department is satisfied that blasting impacts would remain low. • The Department has recommended blasting impact criteria to ensure that any residences on privately-owned land are not subject to airblast overpressure or ground vibration that is above recommended ANZECC levels.
Socio-economic	• The proposed development would deliver benefits to the local and regional economies including: – continued direct employment of up to 16 full-time personnel at the quarry; – estimated indirect employment for 40 people (transport operations, maintenance and other supply services); – use of existing infrastructure, minimising the quarry footprint and potentially avoiding the need for an entirely new development site; and – provision of a source of high quality hard rock aggregate for the building and construction industries for the local and Sydney regions over the long term. • Hy-Tec has also committed to making contributions to the local community through a planning agreement with Council.	• The Department considers that the proposed development would result in a range of socio-economic benefits to the local and regional economy, without undue additional demand on local infrastructure and community services. • The Department is recommending a condition of consent requiring that Hy-Tec enter into a planning agreement with Lithgow City Council.

6 RECOMMENDED CONDITIONS

The Department has recommended conditions of consent for the development (see **Appendix E**) that:

- prevent, minimise, and/or offset adverse impacts;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for ongoing environmental management.

The conditions recommended by Council and State agencies have been incorporated where appropriate. Hy-Tec has reviewed and accepted the recommended conditions.

7 CONCLUSION

The Department has assessed the development application, EIS, submissions on the development and Hy-Tec's RTS, in accordance with the relevant statutory requirements.

The assessment found that the proposed application would have limited impacts, most notably relating to surface water, native vegetation, traffic, noise and visual amenity.

The Department considers the quarry to be ideally located, generally away from local residences and directly serviced by major roads. The development would provide an additional long term source of high quality hard rock aggregate for the building and construction industry at a time when other sources are becoming depleted. It would also generate social and economic benefits for the local and regional community.

The Department is satisfied that all potential impacts of the development can be mitigated to ensure an acceptable level of environmental performance. The Department considers that the recommended approval conditions would adequately mitigate the proposed impacts.

Based on these considerations, the Department is satisfied that the proposal is in the public interest, and should be approved subject to conditions.

8 RECOMMENDATION

It is RECOMMENDED that the Executive Director, Resource Assessments and Compliance, as delegate for the Minister:

- **considers** the findings and recommendations of this report;
- **approves** the development application, subject to conditions; and
- **signs** the attached instrument of consent (see **Appendix E**).

Howard Reed 7.7.15

Howard Reed
Director Assessments

15/7/15

Oliver Holm
Executive Director
Resource Assessments and Compliance

APPENDIX A – Environmental Assessment

Please refer to the Department's major project's website:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6084

APPENDIX B – Environmental Planning Instruments

SEPP No. 33 – Hazardous and Offensive Development
The Department is satisfied that the development is not potentially hazardous or offensive, and that the development is generally consistent with the aims, objectives and requirements of SEPP 33.

SEPP No. 44 – Koala Habitat Protection
The proposed development does not fall within land identified by the SEPP as requiring consideration of koala habitat. The Department is also satisfied that the development is unlikely to significantly affect core Koala habitat, and that the development is generally consistent with the aims, objectives, and requirements of SEPP 44.

SEPP No. 55 – Remediation of Land
The Department is satisfied that the development area does not have a significant risk of contamination given its historical and current land uses, and that the development is generally consistent with the aims, objectives, and provisions of SEPP 55.

SEPP (Rural Lands) 2008
The land impacted by the proposal is not identified as State or regionally significant agricultural land in the SEPP and would not impact on any additional land currently managed for agriculture. Therefore, the Department is satisfied that the provisions of this SEPP do not apply to the proposed development.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007
Under clause 7 of the Mining SEPP, the development is permissible with consent (see **Section 3.2**). Part 3 of the Mining SEPP lists a number of matters that a consent authority must consider before determining an application for consent for development for the purposes of mining, including:

- compatibility with other land uses;
- natural resource management and environmental management;
- resource recovery;
- transport; and
- rehabilitation.

The Department is satisfied that the development is able to be managed in a manner that is generally consistent with the aims, objectives, and provisions of the Mining SEPP.

SEPP (State and Regional Development) 2011
The proposal meets the criteria in Schedule 1 of the State and Regional Development SEPP for classification as a State Significant Development (see **Section 3.1**). The Department is satisfied that the development can be undertaken in a manner that is generally consistent with the aims, objectives, and provisions of the SEPP.

SEPP (Sydney Drinking Water Catchment) 2011
This SEPP applies to land within Sydney's drinking water catchment and limits a consent authority from granting consent to proposed development under Part 4 unless it would have a neutral or beneficial effect on water quality.

The Department is satisfied that the potential loss of surface base flows for the Coxs River would be minor and that on-site water management can be improved to ensure that any discharges (within the Sydney Water Catchment) are controlled. The monitoring and management of water quality would occur in accordance with a comprehensive Water Management Plan prepared in consultation with relevant government agencies.

The Department is therefore satisfied that the project is generally consistent with the aims and objectives of SEPP (Sydney Drinking Water Catchment) 2011.

Lithgow City Local Environmental Plan 2014
The site is zoned RU1 Primary Production under the *Lithgow City Local Environmental Plan 2014* (Lithgow LEP). Under the Lithgow LEP, development for the purpose of extractive industry within this zone is permissible with consent. No special provisions of the LEP substantially govern the development.

APPENDIX C – Submissions

Please refer to the Department's major project's website:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6084

APPENDIX D – Applicant's Responses to Submissions

Please refer to the Department's major project's website:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6084

APPENDIX E – Recommended Conditions of Consent