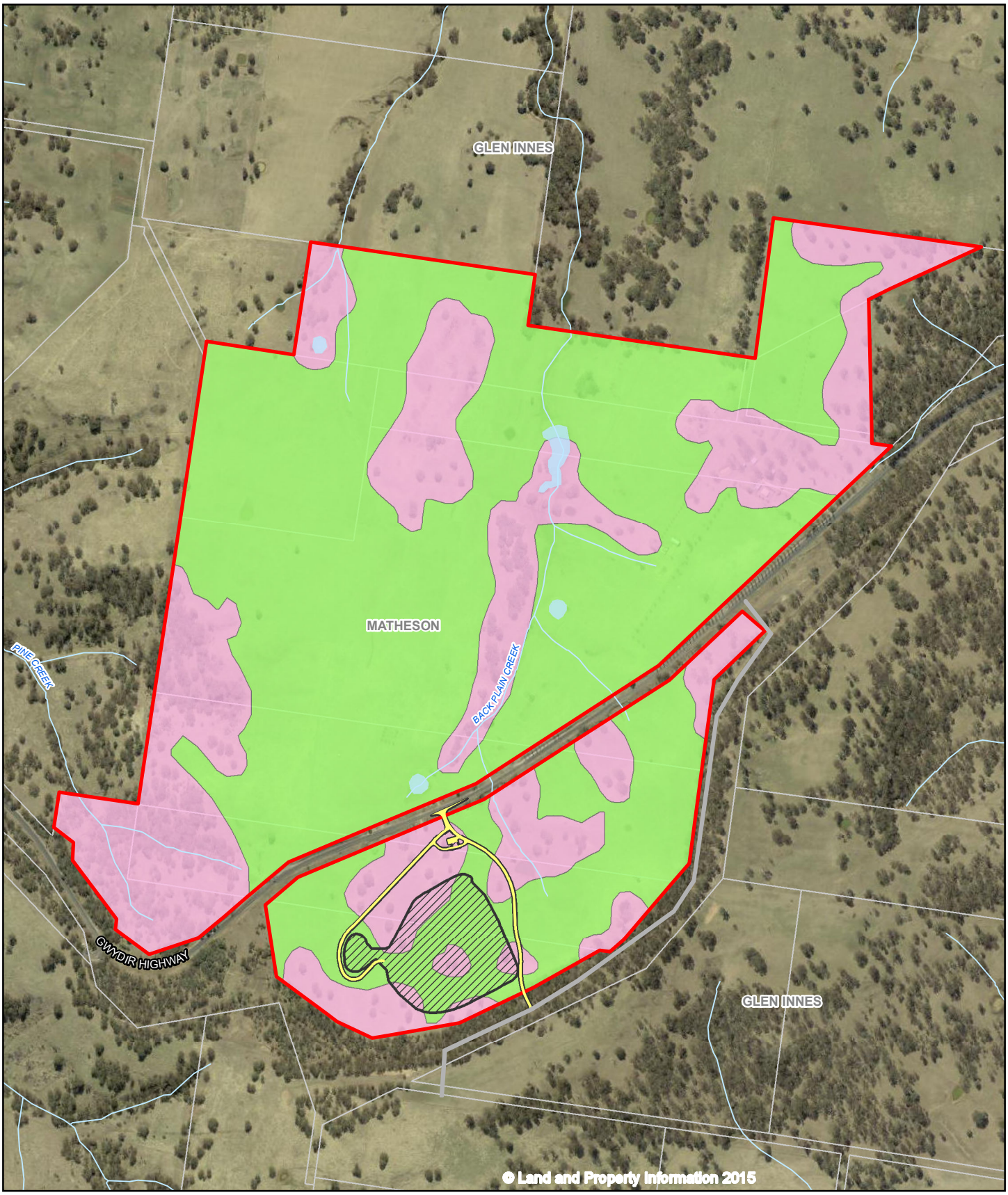


LEGEND

- Study area
- Cadastre
- Watercourse
- Waterbody
- Disturbance area
- Low condition - Ribbon Gum/ Mountain Gum Derived Grassland EEC and exotic grassland
- Low condition - Ribbon Gum/ Mountain Gum Grassy Woodland EEC
- Site access
- Existing access

Paper Size A4

0 50 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

Glen Innes Severn Council
Wattle Vale Quarry
Flora and Fauna Impact Assessment

Job Number 18380
Revision
Date 30 Nov 2016

Vegetation within the study area Figure 7-9

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

G:\22\18380\GIS\Maps\Deliverables\SouthernQuarryEIS\FloraFauna\2218380_SQFFA004_Vegetation_A.mxd

©2016. Whilst every care has been taken to prepare this map, GHD, LPI and GISSC make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: LPI: DCDB & DTDB, 2012,Aerial Imagery, 2016; GISSC: Quarry data, 2016. Created by: fmackay, tmorton

Noxious weeds

The disturbance area contains two species declared as a Category 4 noxious weeds in the Glen Innes Severn Council control area. These include African boxthorn (*Lycium ferocissimum*), and Blackberry (*Rubus fruticosus*).

Fauna species

Habitat values within the study area were low due to the limited extent of native vegetation present, as a result of extensive historical disturbance. As previously described vegetation within the study area is predominately exotic grassland with scattered mature-age trees

Habitat features identified included the following:

- Myrtaceous trees which would provide potential foraging resources for woodland birds.
- Low density of woody debris (fallen logs) which may provide shelter and foraging habitat for native reptiles and amphibians, and foraging substrate for native insectivorous birds and mammals.
- One dead tree with trunk fissures which may provide potential roost sites for microbats.
- A dam located adjacent to the western boundary of the study area that may provide foraging habitat for native frogs and birds.

A total of 12 native fauna species were recorded in the study area. This comprised 11 bird species and one mammal species (Eastern Grey Kangaroo (Macropus giganteus)).

No threatened fauna species were observed during the surveys.

Two threatened fauna species are considered to have potential foraging habitat within the disturbance area; the Regent Honeyeater and the Swift Parrot. Both of these species are typically found in box-ironbark habitats on the inland slopes and plains (Saunders and Heinsohm 2008), but may also forage on nectar-producing eucalypts. Breeding habitat for these species does not occur within the Project footprint as the Swift Parrot breeds in Tasmania and only occurs on the mainland during the winter non-breeding season. The Regent Honeyeater is only known to breed in two inland areas; Bundarra- Barraba region and the Capertee Valley (Menkhorst et al 1999).

7.5.2 Impact assessment

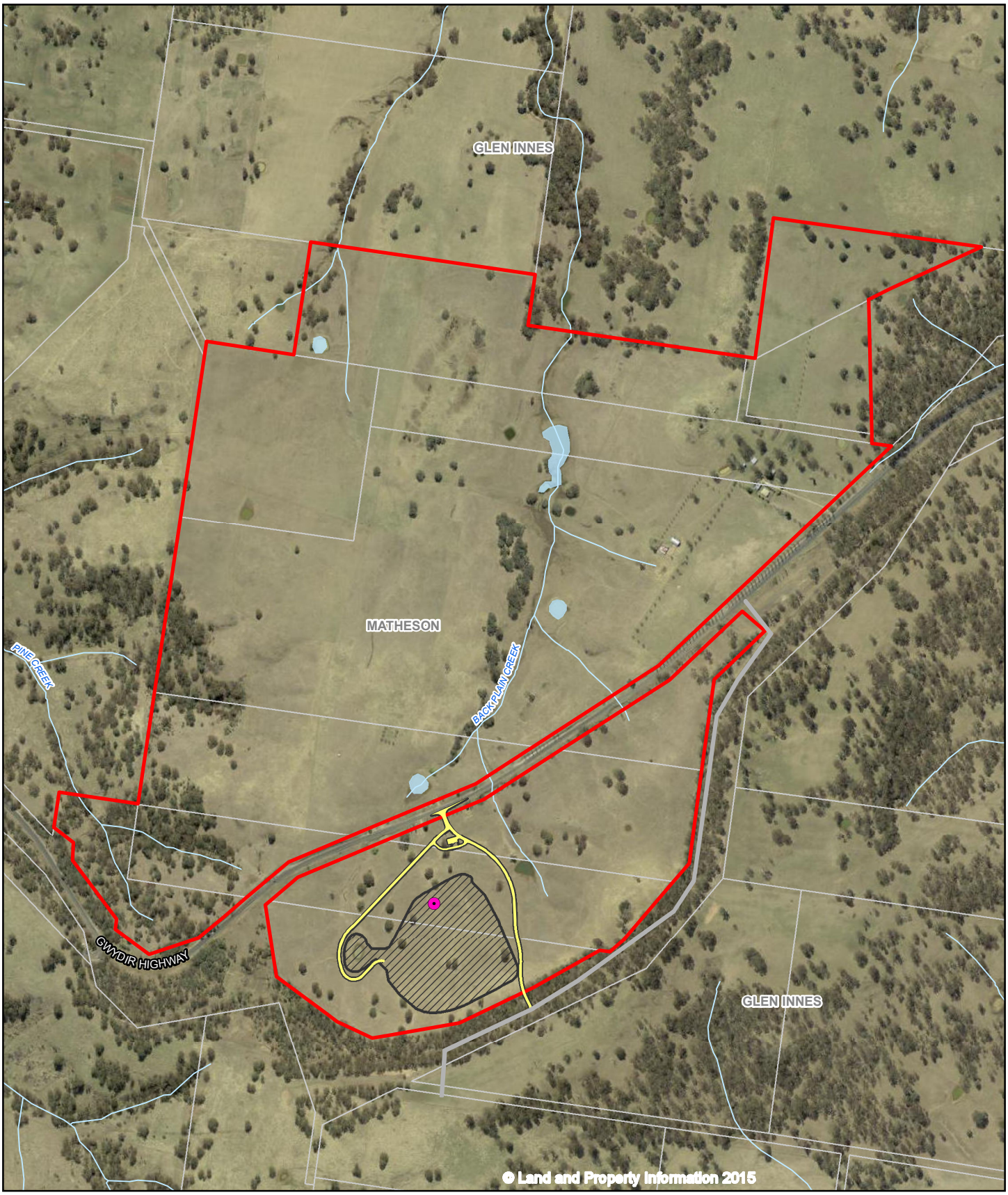
Vegetation removal

The Project would result in the permanent removal of 7.76 hectares of low condition EEC vegetation consisting of 2.29 ha of Ribbon Gum – Mountain Gum Grassy Woodland EEC and 5.46 hectares of Ribbon Gum – Mountain Gum derived native grasslands and exotic grasslands. This would include the removal of a few mature trees (<10 trees), however, due to the extent of vegetation clearing which has already occurred within the locality, the Project would not affect the connectivity of the EEC in surrounding areas.

Loss of flora habitat

The proposal would result in the removal of up to 7.76 hectares of low condition EEC vegetation. Vegetation within the study area exists in a highly modified state, as a result of past land uses and land management practices. The majority of species recorded within the study area are common and widespread, and capable of withstanding repeated and ongoing disturbance such as intense grazing pressure. Extensive areas of comparable vegetation also occur adjacent to the study area and within the wider locality.

The removal of flora habitat as a result of the proposal is unlikely to result in a loss of genetic or floristic diversity to retained vegetation within the study area and surrounding areas.



LEGEND

- Study area
- Cadastre
- Watercourse
- Waterbody
- Existing access
- Site access
- Dead stag (vertical fissures)
- Disturbance area

Paper Size A4

0 50 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

Glen Innes Severn Council
Wattle Vale Quarry
Flora and Fauna Impact Assessment

Job Number 18380
Revision
Date 08 Nov 2016

Threatened biota and habitat

Figure 7-10

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

G:\22\18380\GIS\Maps\Deliverables\SouthernQuarryEIS\FloraFauna\2218380_SQFFA005_Th_Biota_Habitat_A.mxd

©2016. Whilst every care has been taken to prepare this map, GHD, LPI and GISSC make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: LPI: DCDB & DTDB, 2012,Aerial Imagery, 2016; GISSC: Quarry data, 2016. Created by: fmackay, tmorton

Loss of fauna habitat

The vegetation that would be removed provides habitat for a limited number of fauna species due to the large distances between isolated mature trees and other remnant vegetation outside of the Project footprint. Fauna habitat resources that would be removed include the following:

- Myrtaceous species, including suitable feed trees for threatened woodland bird species
- A low density of fallen logs and woody debris, which would provide limited shelter and foraging habitat for native insects, common reptiles and amphibians.

Injury and mortality

The Project may cause displacement or in some cases possible mortality of fauna that are present at the time of vegetation clearing and quarry establishment activities. Less mobile terrestrial fauna, such as common species of frogs and reptiles are at most risk of mortality as a result of vegetation clearing.

The majority of native bird species and non-arboreal mammal species occurring within the disturbance area (i.e. such as those utilising mature trees) are likely to use these habitats as part of a wider network of habitat across the landscape. These species would likely disperse to avoid quarry establishment activities given their more mobile nature, and most individuals directly affected by the Project are likely to be displaced into surrounding habitat rather than killed.

Displaced individuals would be vulnerable to predation since they would be disturbed in daylight hours and would experience energy costs, increased risk of predation and increased competition for resources. This may result in impacts beyond the disturbance area by favouring aggressive or generalist species. Birds breeding in, or in the vicinity of, the disturbance area may have breeding disrupted for one season.

These direct impacts would affect limited numbers of individuals and so would be unlikely to threaten the survival of any local populations.

The Project would result in an increase of vehicle traffic through the site, thus increasing the risk of vehicle strike for terrestrial fauna.

Indirect impacts

A number of indirect impacts associated with the Project could affect locally occurring flora and fauna in the retained vegetation. These impacts include degradation of surface waters, sediments, dust and runoff, weed invasion and edge effects, and pests and pathogens (such as Phytophthora (*Phytophthora cinnamomi*) and Chytrid fungus (*Batrachochytrium dendrobatidis*).

With the implementation of the mitigation measures outlined in Section 7.5.3, potential indirect impacts to flora and fauna would be appropriately managed and are not expected to be significant.

Impacts on state listed biota

Threatened ecological communities

An assessment of significance in accordance with Section 5A of the EP&A Act has been undertaken for potential indirect impacts on Mountain Gum – Ribbon Gum Open Forest TEC, which concluded the Project is unlikely to have a significant effect on Mountain Gum – Ribbon Gum Open Forest, as:

- A small area (7.76 ha) of the TEC may be exposed to direct impacts which may result in further modifications to the already modified community within the proposal footprint.
- The relatively large areas of better quality vegetation that exist elsewhere within the locality that would not be impacted by the proposal.
- The modified nature of the vegetation that may be impacted.
- The proposal will not result in the isolation or fragmentation of this vegetation from other areas of vegetation or habitat.

The proposal is unlikely to interfere with the recovery of this community as it occurs elsewhere within the locality.

Threatened flora species

To date, no threatened flora species have been recorded within the study area. Notwithstanding, suitable habitat exists for one threatened flora species listed under the TSC Act. An assessment of significance in accordance with Section 5A of the EP&A Act has been undertaken for this species which concludes the Project is unlikely to have a significant effect on threatened flora species for the following reasons:

- No individuals have been recorded in the locality of the proposal footprint.
- Only marginal potential habitat would be removed that is likely to be of poor quality for the species due to habitat degradation.
- The potential habitat to be removed is unlikely to be necessary for the long-term survival of these species within the locality given no known individuals would be impacted.
- Clearing would not fragment habitat such that potential habitat in retained areas of vegetation would be impacted and no barriers to dispersal would be created outside of the proposal footprint.
- Only a small area of habitat would be impacted compared to the large areas that exist elsewhere in the locality, including within the various conservation reserves in the area.

Threatened fauna species

The Project site contains potential habitat for two species of threatened woodland birds (Swift Parrot and the Regent Honeyeater). Assessments of significance in accordance with Section 5A of the EP&A Act have been undertaken for these species and conclude the Project is unlikely to have a significant effect on these species for the following reasons:

- The Regent Honeyeater and Swift Parrot would be unlikely to breed within habitats to be removed.
- Vegetation to be removed comprises a negligible proportion of native vegetation present and conserved in surrounding areas and the broader locality.
- Habitat connectivity would be retained for these highly mobile species.

Impacts on MNES

Threatened ecological communities

No nationally threatened ecological communities are present in the Project site. The Project would not impact any nationally threatened ecological communities in the locality.

Threatened flora species

No threatened flora species as listed under the EPBC Act have been recorded within the Project site; however potential habitat for one threatened flora species listed under the Act exists within the Project site. Potential habitat for *Thesium australe* (Austral Toadflax) may be impacted by the Project.

The factors listed in the EPBC Act significant impact guidelines (DotE 2013c) were considered and it was concluded that the proposal would not lead to a significant impact on *Thesium australe* (Austral Toadflax).

Threatened fauna species

Potential habitat for a total of two threatened fauna species listed under the Act exists within the Project site, and may be impacted by the proposal:

- Regent Honeyeater, listed as an endangered species under the EPBC Act.
- Swift Parrot, listed as an endangered species under the EPBC Act.

The factors listed in the EPBC Act significant impact guidelines (DotE 2013c) were considered and it was concluded that the Project would not lead to a significant impact on these species.

Migratory species

Seven migratory species were modelled to occur within the Project site, however, the study area is not considered important habitat for any of these species, according to the Significant Impact Guidelines (DotE 2013c). This is due to the fact that potential habitat in the Project site would not support an ecologically significant proportion of the population of these species, is not of critical importance to these species at particular life-cycle stages, is not at the limit of these species ranges, and is not within an area where these species are declining. No assessments of significance have been prepared for these species.

7.5.3 Mitigation measures

With the implementation of the following mitigation measures, the project would not result in any significant impacts on native flora and fauna, including any threatened species or endangered ecological communities:

- During the detailed design process, the impact of the Project on areas with higher biodiversity values would be minimised wherever possible by:
  - Minimising the area of native vegetation to be cleared wherever possible.
  - Avoidance of identified hollow-bearing trees wherever possible.
  - Minimising disturbance to adjacent retained vegetation, aquatic and riparian areas.
- An Environment Management Plan (EMP) would be prepared for the Project which would include, as a minimum, industry-standard measures for the management of soil, surface water, erosion, weeds and pollutants, as well as site-specific measures.

- A Flora and Fauna Management Plan (FFMP) would be prepared as a sub-plan to the EMP to identify environmental management measures to protect the natural environment (e.g. weed and pathogen controls) and detailed site-specific and species-specific mitigation measures and management protocols to be implemented before, during and after all quarry establishment works and quarry activities to further avoid or reduce impacts on threatened biodiversity, including:
  - Minimising vegetation clearance and habitat loss
  - Pre-clearance surveys
  - Phytophthora management
  - Chytrid fungus management
  - Management of weeds and edge effects
  - Managing vehicle movements
- Following completion of extraction works in the future, the quarry would be rehabilitated in an ecologically appropriate manner using local and endemic species characteristic of the vegetation types in the area, as per the rehabilitation plan (Figure 3-6).

7.6 Traffic and transport

Bitzios (2016) prepared a *Traffic Impact Assessment* (TMP) (Appendix I) for the Project with the following scope:

- reviewing the newly proposed access arrangement for the Project (i.e. internal one way system)
- reviewing existing background traffic volumes for the Gwydir Highway
- estimating the expected development traffic generation and determining the anticipated impacts to the Gwydir Highway
- confirming suitability of the proposed access configurations.

For clarity, the scope of works was limited to an external traffic and access assessment.

7.6.1 Existing environment

The Project site is located on the Gwydir Highway which is a two-way, two-lane arterial road linking Glen Innes and Inverell. The Gwydir Highway would provide the main transport route to and from the site and has a posted speed limit of 100 km/h.

7.6.2 Impact assessment

The Project would operate with a one-way internal traffic system comprising the following accesses arrangements:

- Entry-only via the approved Wattlevale access following its upgrade as part of the Glen Innes Wind Farm project (GIWFP).
- Exit-only via a proposed exit-only access to the Gwydir Highway located approximately 900m west of the Wattlevale access.

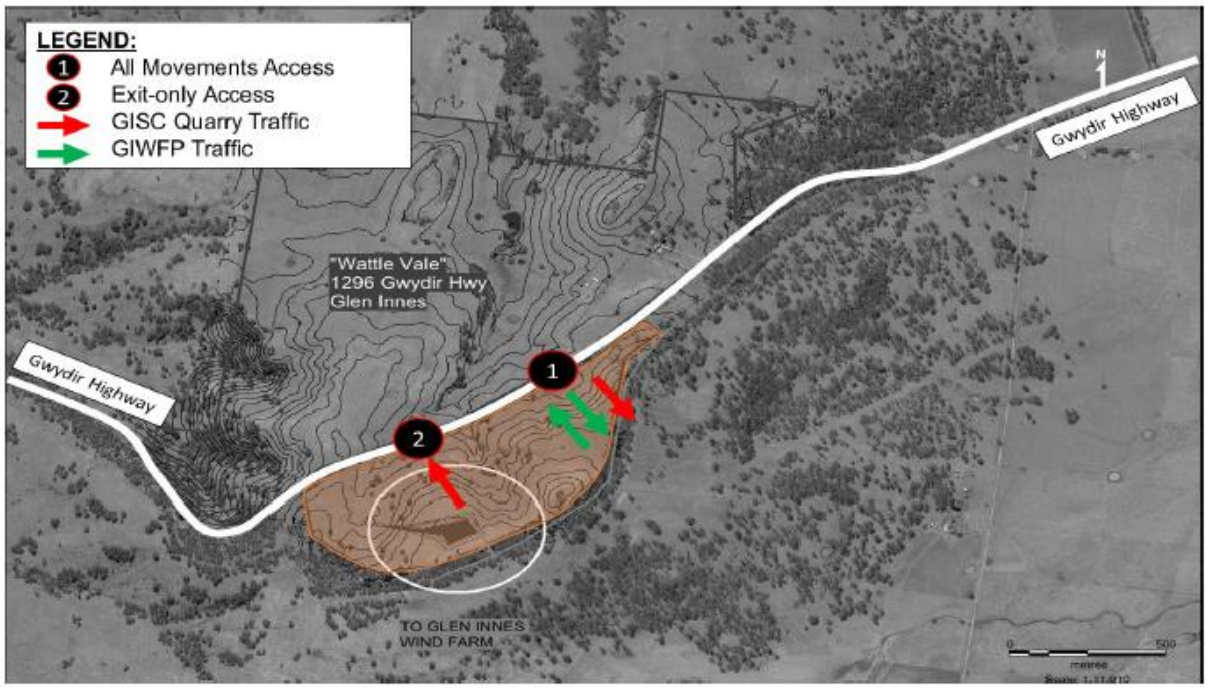


Figure 7-11 One-way internal access arrangement

In the short term, both the GIWFP and Sapphire Wind Farm project (SWFP) are assumed to be in the construction phase and supplied with material from the Project. It is anticipated that the Project will supply the GIWFP via internal roadways.

Given that the Project will utilise the Wattlevale access for entry, the cumulative impact of the Project and the GIWFP need to be assessed to confirm that the approved turn treatments are sufficient to accommodate the proposed traffic increase.

The Project is expected to generate a maximum of 200 heavy vehicle movements per day (100 IN: 100 OUT) and 24 light vehicle movements per day (12 IN: 12 OUT) (i.e. 1 IN: 1 OUT every 5 minutes). The light vehicle movements are assessed to occur predominantly within two critical peak periods (i.e. influx in the AM period and outflux in the PM period). The heavy vehicle movements will be spread evenly throughout the 10-hour working day based on a 50% IN: 50% OUT split which equates to 10 IN: 10 OUT movements per hour (i.e. 1 IN: 1 OUT every 6 minutes). It is noted that a component of light vehicle movements will be made throughout the day, however these traffic movements are not expected to be significant to warrant detailed analysis or trigger intersection upgrades over peak period requirements.

It is assumed for the purpose of this assessment that 50% of workers (i.e. light vehicle users) for the Project will be based in Glen Innes (east) and the remaining 50% based in Inverell (west).

The GIWFP is expected to generate a maximum of 130 heavy vehicle movements per day (65 IN:65 OUT) and 80 light vehicle movements per day (40 IN: 40 OUT) (i.e. 1 IN: 1 OUT every 1.5 minutes).

As per the above, the light vehicle movements for the GIWFP are assessed to occur in AM and PM peak periods. For the purpose of this assessment it has been estimated that 40% of GIWFP heavy vehicle volumes will be internal to the site (i.e. supplied material internally by the Project) and therefore not impact the external intersections with the Gwydir Highway. This equates to a revised total of 78 movements per day using the external intersections which equates to 39 IN:39 OUT based on a 50% IN:OUT split. The heavy vehicle movements will be spread evenly throughout the 10-hour working day which equates to 4 IN: 4 OUT movements per hour (i.e. 1 IN: 1 OUT every 15 minutes).

The worst-case scenario is considered to be the AM peak period where the inbound traffic is at its highest from the Gwydir Highway. The resultant traffic volumes and the distribution to / from the site accesses in the AM peak period are summarised within Figure 7-12.

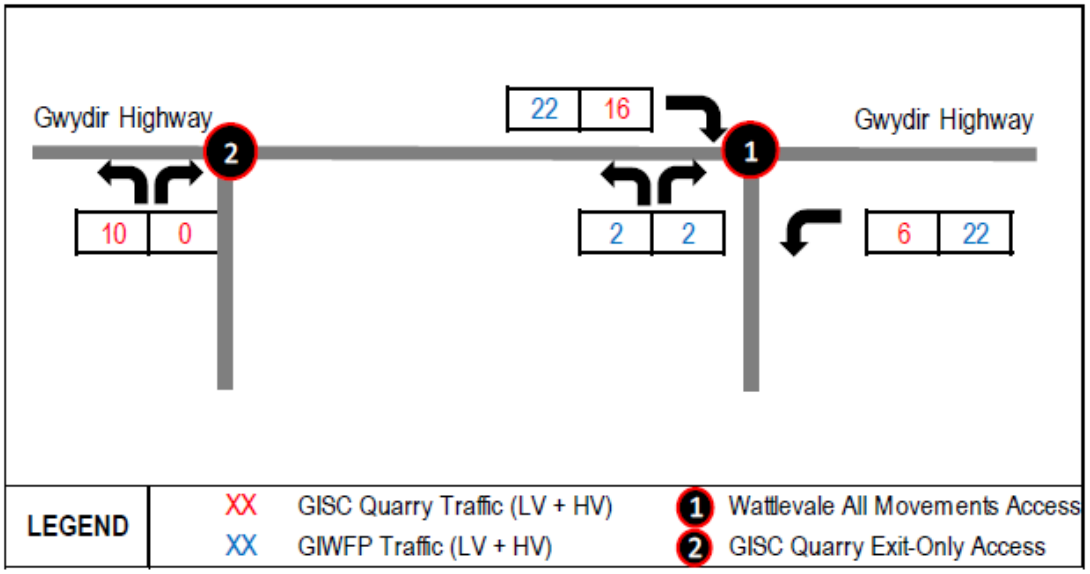


Figure 7-12 Short term development AM peak period traffic volumes (The Project + GIWFP traffic)

In the long term, the GIWFP and SWFP are assumed to be in the operational phase and the Project will supply a reduced volume of material to the Glen Innes area to the east. The Project is expected to generate a maximum of 80 heavy vehicle movements per day (40 IN: 40 OUT) and 24 light vehicle movements per day (12 IN: 12 OUT) (i.e. 1 IN: 1 OUT every 5 minutes). The GIWFP is not expected to generated any significant amount of traffic during the operational phase. For the purpose of this assessment it has been assumed that a maximum of 2 IN: 2 OUT light vehicle movements in the peak period (i.e. 1 IN: 1 OUT every 30 minutes).

The worst-case scenario is considered to be the AM peak period where the inbound traffic is at its highest from the Gwydir Highway. The resultant traffic volumes and the distribution to / from the site accesses in the long term AM peak period are summarised within Figure 7-13.

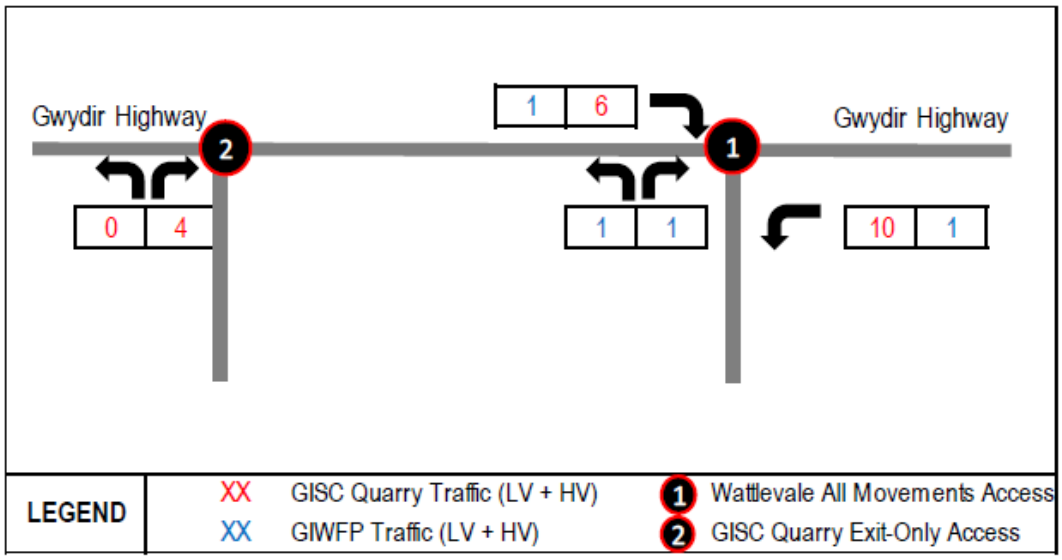


Figure 7-13 Long term development AM peak period traffic volumes (The Project + GIWFP)

The proposed development volumes are not substantial to impact existing or forecast background traffic volumes on the Gwydir Highway. In summary, during the AM and PM peak periods, the overall development traffic volumes equate to approximately 1 vehicle every minute entering the site and 1 vehicle every 4 minutes exiting the site.

In order to ensure that the approved Wattlevale access can satisfactorily accommodate the additional traffic movements associated with the Project, a turn warrants assessment has been undertaken in accordance with the *Austroads Guide to Road Design: Part 4A Unsignalised and Signalised Intersections*. The worst-case design traffic volumes have been adopted for the turn warrants assessment presented within Figure 7-14.

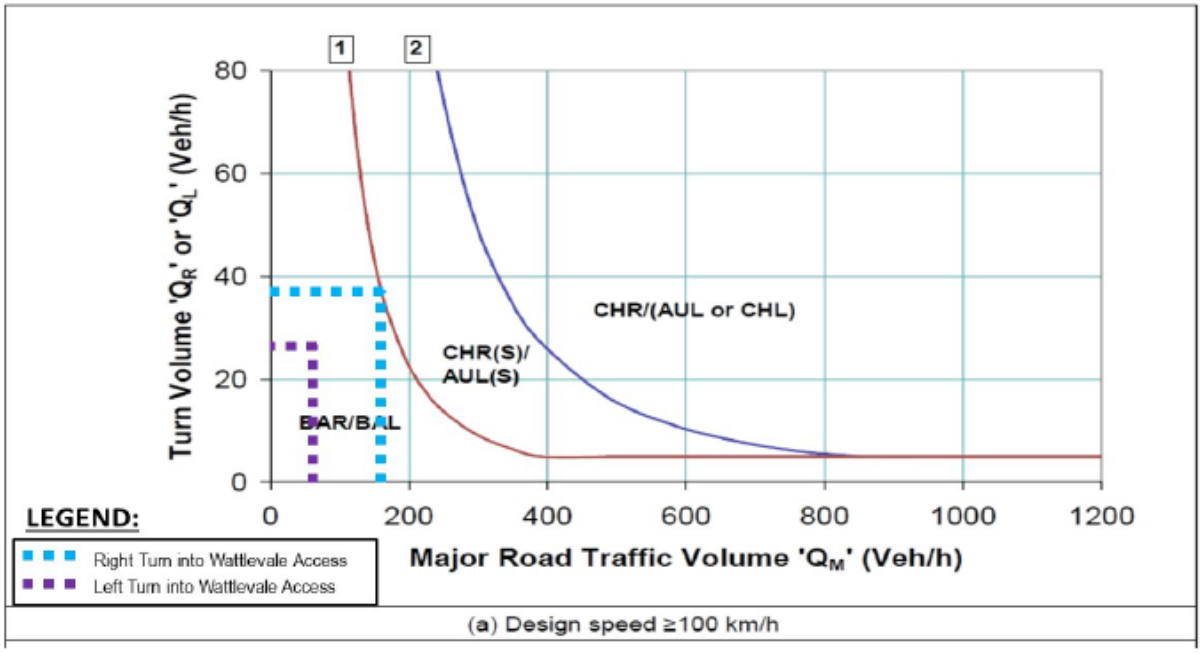


Figure 7-14 Design turn warrant assessment

The warrants assessment has determined that Short Channelised Right-Turn (CHR(s)) and Basic Left-Turn (BAL) treatments are warranted at the Wattlevale access based on the combined Project and GIWFP traffic. The approved Wattlevale access design which incorporates CHR(s) and AUL(s) treatments is therefore sufficient to cater for the predicted traffic volumes.

The exit only access does not require a turn warrants assessment as no external turn movements are applicable.

A sight distance assessment and the design of functional layouts have been included in Appendix I for both access locations. This indicates the sight distances are sufficient and functional accesses can be provided to accommodate the maximum design vehicles.

7.6.3 Mitigation measures

The traffic related mitigation measures are:

- An access management plan be prepared and implemented
- All truck drivers utilising the site are appropriately inducted in relation to traffic movements to / from the public road
- Internal roads and parking be designed in accordance with AS2890.1 and GISC DCP requirements.

7.7 Heritage

Everick Heritage Consultants Pty Ltd (Everick) prepared an *Aboriginal Cultural Heritage Assessment* (Everick, 2016) (Appendix D) which included:

- A search of relevant Aboriginal heritage registers.
- An archaeological investigation of the Quarry area.
- A brief review of the archaeological and cultural heritage assessments pertinent to the potential heritage values associated with the Quarry area.
- A review historic aerial photographs of the Quarry area.
- Consultation with the Aboriginal Community via Glen Innes Local Aboriginal Land Council.
- Assessment of the potential for the Project Site to contain significant Aboriginal heritage and the impact on the Project may have on said heritage, consistent with the Office of Environment and Heritage Due Diligence Code for the Protection of Aboriginal Objects in NSW (2010).

7.7.1 Existing environment

Aboriginal community consultation was undertaken via the Glen Innes LALC which did not identify knowledge of any specific sites in the area of the proposed quarry, but did identify the potential for sites to occur within the Project site based on knowledge of archaeological values in similar landscapes across the Tablelands. The LALC indicated that camp sites were known further along Back Plain Creek (north of the Project site).

A 'basic' Aboriginal Heritage Information Management System search was conducted on 22 July 2016 for the area surrounding the Project site (with a 1000 metre buffer- Service ID 235468). The search returned no (0) registered Aboriginal heritage sites.

The following heritage registers were accessed on 14 August 2016:

- ***The National Heritage List*** (Australian Heritage Council): Contains no Aboriginal heritage listings within the Project site.
- ***Commonwealth Heritage List*** (Australian Heritage Council): Contains no Aboriginal heritage listings within the Project site.
- ***Register of the National Estate*** (Australian Heritage Council): Contains no Aboriginal heritage listings within the Project site.
- ***The State Heritage Register*** (NSW Heritage Office): Contains no Aboriginal heritage listings within the Project site.
- ***The State Heritage Inventory:*** Contains no Aboriginal heritage listings within the Project site.
- ***The Register of the National Trust of Australia:*** Contains no Aboriginal heritage listings within the Project site.
- ***Glen Innes Severn Local Environment Plan 2012 (LEP):*** Contains no Aboriginal heritage listings within the Project site.

No Aboriginal Objects were identified during the archaeological survey.

No relics of historic (non-Indigenous) significance were identified during the site inspection.

With regard to potential archaeological deposits (as defined by the Due Diligence Code of Practice) no areas were specifically identified as meeting these criteria.

The following considerations are relevant to the findings of this assessment:

- It would be expected that should archaeological materials be present in the topsoil layer of the Project site there would be some surface expression of these sites given the short ground cover.
- As the Project site is in the upper watershed better sources of water are likely to occur to the north of the Project site on Back Plains Creek and to the south east on Wellingrove Creek.
- The only locally available raw materials observed are local basalts which are of poor quality in terms of knapping and tool production.
- The soils of the plateau are known to be quite thin and disturbed from grazing and tilling in the historic period.

Everick (2016) consider Aboriginal objects, should they occur in the Project site, would consist of isolated artefacts and stone artefact scatters (open campsites), stone quarries and scarred trees.

7.7.2 Impact assessment

Everick (2016) is of the opinion that the Project is unlikely to lead to harm to Aboriginal or non-Aboriginal objects.

7.7.3 Mitigation measures

As a precautionary measure, the following measures are provided:

Measure 1: Aboriginal Object Find Procedure.

If it is suspected that Aboriginal material has been uncovered as a result of development activities within the Project Area:

a. Work in the surrounding area is to stop immediately.

b. A temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site.

c. An appropriately qualified archaeological consultant is to be engaged to identify the material.

d. If the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the ACHCRP Guidelines (2010).

Measure 2: Aboriginal Human Remains

Although it is unlikely that Human Remains will be located at any stage during earthworks within the Project Area, should this event arise it is proposed that all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Glen Innes), the Glen Innes LALC and the OEH Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also proposed that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

Measure 3: Conservation Principles

It is proposed that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.

7.8 Visual amenity

A visual impact assessment investigates the potential visual impacts of the proposed quarry on the surrounding environment. This assessment reviews the existing visual character of the site and its surrounds and the expected impacts of the quarry on the existing visual character of the surrounds, nearby existing residences and publicly accessible locations. More specifically, the visual assessment considers the following:

- Existing views to the proposed site.
- The visual character of the surrounding landscape.
- The sensitivity of the landscape to alteration by the Project.
- The visual character and extent of the Project.
- Viewer sensitivity to alteration of the environment by the Project.

7.8.1 Existing environment

The natural topography of the Project site would be described as undulating, with a gentle slope ranging from 1,090 m AHD, up to a ridge with an elevation of approximately 1,190 m AHD. Large areas are clear of native vegetation and are now covered with native pasture grasses. The dominant land use is agricultural in nature.

This topography combined with remnant vegetation largely screen views of the Project to most public and private locations.

The locations identified with a view to or from the Project site are local residences and the Gwydir Highway.

7.8.2 Impact assessment

The visual assessment has found that the landscape around the Project site, generally has a high visual absorption capacity due to the existing terrain and remnant vegetation. This high visual absorption capacity corresponds directly with the generally low significance of impact to views from the Project.

The following summary provides an overview of each of the potentially affected locations and the visual impact in relation to the Project. The overall rating has been provided for each of the potentially affected properties by making an assessment as to how each property rated relative to the sensitivity and magnitude of the impact on the view.

Table 7-9 Potential visual impacts from key view points

Viewing site	Summary of findings	Potential visual impact
Gwydir Highway	• Views from the Gwydir Highway will be largely filtered by existing roadside vegetation, topography and remnant vegetation on the Project site. • Views visible for approximately one kilometre on the Gwydir Highway. With vehicles travelling at 100 km/hr on the Gwydir Highway, this would equate to views for approximately 36 seconds.	Low to moderate
Residence at the entrance to Pitlochry Road	• This residence is located more than 1.7 kilometres from the quarry. • Vegetation buffers and the natural topography would screen any view to the quarry extent. • Not possible to view the Project site.	Negligible
Residence on Rose Hill Road	• This residence is located more than 1.5 kilometres from the quarry. • Vegetation buffers and the natural topography would screen any view to the quarry extent. • Not possible to view the Project site.	Negligible
Residence north-east of the Project site on Malboona Road	• This residence is located 2.8 kilometres from the quarry. • Vegetation buffers and the natural topography would screen any view to the quarry extent. • Not possible to view the Project site.	Negligible
Residence north of the Project site on Malboona Road	• This residence is located more than 2.6 kilometres north of the quarry. • No long term visual impacts. • The quarry extent would not interrupt views to landscape features or be viewed against the sky. • The quarry extent would be unlikely to detract from the visual amenity of the existing rural context. • Vegetation buffers and the natural topography would screen any view to the quarry extent.	Low

Viewing site	Summary of findings	Potential visual impact
Residence east on the Gwydir Highway	• This residence is located more than 2.8 kilometres north-east of the quarry. • Vegetation buffers and the natural topography would screen any view to the quarry extent. • Not possible to view the Project site.	Negligible

The Project will have a total disturbance area of about 8 hectares and create a 20 metre excavation which would change the topography of the Project site. The Project would only be visible from a very limited number of areas because of topography, vegetation and distance to sensitive receptors. In addition, the proposed amphitheatre shape of the quarry excavation would assist in screening from surrounding vantage points.

Ancillary areas such as the site office, stockpiles and access roads would be visible from the Gwydir Highway. However, due to the relatively short distance and the speed limit on the Gwydir Highway, views of the Project would be for approximately 36 seconds. Topography, roadside vegetation and remnant vegetation would also provide intermittent shielding along this one kilometre section of the Gwydir Highway. As a result, the overall impact of the Project is considered low.

7.8.3 Mitigation measures

Whilst the visual impact from the Project is considered to be low, the following mitigation measures are proposed to minimise future visual impacts:

- Maintenance of existing vegetation outside the extraction limit boundary for visual screening.
- Maintain the site in a clean and tidy condition at all times.
- Ensure that areas of disturbance are kept to the minimum practicable at any one point in time.
- Progressively revegetate all areas where quarrying is completed.
- Where possible, stockpiles, plant and equipment should be located in positions which are naturally screened from views into the site.

7.9 Waste management

The Project has the potential to generate waste from quarry activities and general site use.

This section describes the type and classification of waste that would be generated at the site. The potential impacts of the Project in regard to waste generation during the establishment, operation and decommissioning of the quarry is also assessed.

A description of the measures that would be implemented to avoid, minimise, mitigate, offset, manage and/ or monitor the potential impacts associated with the waste generated, as a result of the Project, are provided.

7.9.1 Impact assessment

Quarrying involves the stripping and emplacement of topsoil and overburden, extraction, screening and stockpiling of raw materials and product loading and distribution. The types of waste generated by the Project are not expected to be generated in significant quantities.

The operation of the Project would generate the following waste types:

- Excavated material (topsoil and overburden not suitable for sale)
- Green waste
- Liquid waste
- Contaminated soil
- Wastewater from amenities and office
- Domestic waste (e.g. office paper and general rubbish)

The classification and description of each of the general waste types to be potentially generated by the Project is summarised in Table 7-10.

Table 7-10 Potential wastes description

Waste type	Waste classification	Detail
Excavated material	General Solid Waste (non-putrescible)	Excavated material waste is likely to consist of rock, gravel and silt. The volume of waste excavated material would be small as excess excavated material would generally be utilised on-site as backfill or for rehabilitation and other site works.
Green Waste	General Solid Waste (non-putrescible)	The disturbance area would be limited to approximately 8 hectares. All cleared vegetation would be mulched and stockpiled on site for revegetation works.
Liquid waste	Liquid Waste	A limited amount of liquid waste is expected to be generated by the Project. The waste is expected to consist of oil, paint, lubricants, glue etc. Liquid wastes would be stored and disposed of appropriately.
Contaminated Soil	To be determined	Any spills of chemicals or fuel could result in contaminated soil that would require disposal in an appropriately licenced landfill or trade waste facility.
Wastewater	Liquid Waste	Wastewater may be generated as a result of dewatering of pits and sediment ponds. Management of this wastewater is outlined in Section 7.2.
Biological waste (Sewage)	Liquid Waste and General Solid Waste (putrescible)	The site would be equipped with a septic system, which will be designed and maintained in accordance with the relevant guidelines.
Domestic waste	General Solid Waste (non-putrescible and putrescible)	The limited general waste generated on-site would be collected and disposed of appropriately (in Council bins and/or landfills). Waste would consist of everyday items such as paper, aluminium cans, plastics, packaging and other material generated by onsite staff.

Potential impacts from the production and inappropriate disposal of waste generated from the Project include:

- Contamination of land
- Pollution of waterways
- Air pollution
- Overuse of scarce resources
- Human and animal health impacts.

7.9.2 Mitigation measures

All waste would be managed in accordance with the requirements of the *Waste Avoidance and Resource Recovery Act 2001*, the POEO Act, and the *Waste Classification Guidelines* (NSW EPA, 2014) and the principles of the waste management hierarchy.

All waste generated by the Project would be managed by way of Council collection services or via appropriately licensed waste contractors. No on-site disposal of general waste would occur.

GISC is committed to the waste hierarchy where emphasis is placed upon reducing, re-using and recycling prior to disposal of its wastes. In order to minimise the generation of waste and maximise re-use of waste products, where practicable, the mitigation measures summarised in Table 7-11 will be undertaken for the Project. These measures would be documented in an EMP and communicated to all employees and contractors during site induction, prior to commencing works at the site and a copy should remain on-site for reference purposes during operation.

Table 7-11 Proposed waste management measures

Waste Type	Waste Management Hierarchy		
	Avoid	Reuse/ Recycle/Recover	Dispose
Excavated material	Avoid excess excavation	Use excess material on site as fill and/or in rehabilitation works.	Excess excavated material to be classified and disposed in accordance with the *Waste Classification Guidelines*.
Green waste	Minimise clearing	Mulch cleared vegetation and use on site.	Excess material to be classified and disposed in accordance with the *Waste Classification Guidelines*.
Contaminated soil	Proper storage of all chemicals and fuels (e.g. bunded areas with 110% capacity). Refuel plant and machinery offsite, where possible or using appropriate equipment	Utilise bioremediation for large quantities of fuel-impacted soil. Tracking during transportation would be carried out where required.	Disposed in accordance with the *Waste Classification Guidelines*.
Liquid waste	Materials to be sourced and ordered	Reuse excess material on-site wherever	Excess material to be classified and disposed in accordance with the

Waste Type	Waste Management Hierarchy		
	Avoid	Reuse/ Recycle/Recover	Dispose
	in appropriate quantities	possible (e.g. store and reuse lubricants).	*Waste Classification Guidelines*.
Wastewater	Divert clean water from the site	Waste water to be pumped to a holding pond and used on-site (e.g. for dust suppression/ plant watering etc.).	Discharge wastewater, in accordance with EPL requirements
Biological (sewage) waste	Minimise use of site facilities e.g. toilets	Consider using composting toilet.	Sewage waste to be disposed via a suitable treatment system.
Domestic waste	Materials to be sourced and ordered in appropriate quantities	Reuse excess material on-site wherever possible. All recyclables to be collected and recycled accordingly.	Excess material to be classified and disposed in accordance with the *Waste Classification Guidelines*.

7.10 Hazards and risks

As indicated by Table 6-2 there are limited hazards and risks associated with the Project and most have been addressed in other sections of this EIS, as follows:

- Flooding – refer to Section 7.2
- Blasting - refer to Section 7.3
- Traffic - refer to Section 7.6

The risk not considered previously relates to bushfire. As the Project site has been identified as bushfire prone land, to assess the risk and mitigation measures required, a bushfire risk assessment has been prepared in Table 7-12 to demonstrate compliance with *Planning for Bush Fire Protection* (NSW RFS, 2006).

Table 7-12 Bush Fire Risk Assessment

Performance Criteria	Response
Asset Protection Zones (APZ)	In the location of the site office the site undulates but has with very little vegetation. An assessment of the site office based on a Bushfire Attack Level (BAL) 29 and AS3959-2009 indicates APZ required is:

Direction	Slope (^{0})	Vegetation	APZ (m)
North	6^0 downslope	Grass	9
East	2^0 upslope	Grass	8
South	9^0 upslope	Grass	8
West	2^0 downslope	Grass	9

Performance Criteria	Response
	The required APZ is achievable without the need for vegetation clearing.
Siting and design	The site office would be a metal structure. They are located and designed appropriately in terms of bushfire protection.
Construction standards	AS3959-2009 construction standards are not applicable to Class 10 buildings, however, it is considered the site office and shed comply with BAL 29.
Access	The access is within 200 m of the Gwydir Highway and suitable for heavy vehicles.
Services	Electricity would not be provided. Water would be provided by rainwater. The dedicated water supply for firefighting purposes would be the water in the sediment basin. This is supplied by runoff from the quarry and is considered a reliable water source.
Landscaping	The landscaping would be maintained, in accordance with Appendix 5 of NSW RFS (2006)

7.10.1 Mitigation measures

As indicated in Table 7-12, the Project has limited bushfire risks, providing the following mitigation measures are maintained:

- Maintain the APZ in accordance with NSW RFS (2006)
- Maintain a dedicated water source for fire fighting purposes
- Establish an evacuation plan in case of a bushfire

7.11 Socio-economic

The following section describes the social and economic impacts of the Project. The potential social and economic impacts requiring assessment are as follows:

- Alteration of social activities or employment due to employment generation and capital expenditure.
- Perceived or real impacts on local amenity of neighbouring properties.
- Reduction in property values due to the presence of the quarrying operation.
- Implications of the increased workforce on the need for services and infrastructure.
- Actual or perceived reduction in quality of life.

The statistical data referenced in this section is drawn from the census data compiled by the Australian Bureau of Statistics (ABS) for 2011.

7.11.1 Existing environment

Geographic location

The Project site is located on the Gwydir Highway, Matheson and has a site area of approximately 200 hectares. The site was recently purchased by GISC and is under occupation by the former owners for six months as a condition of the contract of sale. There are no existing extractive industries on the Project site; however, there is a small roadside quarry on crown/council road reserve adjacent to the site that has not operated for some years.

The surrounding area is relatively sparsely populated, with the closest residence lying approximately 1.5 kilometres to the east of the Project site. Land uses surrounding the Project site are associated with agricultural enterprises, with low connectivity of surrounding vegetation due to historical land clearing activities. Properties surrounding the Project site are rural in nature.

Social characteristics

Results of the 2011 Census found there were 8,656 people in the Glen Innes Severn LGA, of these, 49.5 per cent were male and 50.5 per cent were female. Aboriginal and Torres Strait Islander people made up 5.6 per cent of the population; more than twice the national average.

The median age of people in the Glen Innes Severn LGA was 46, some nine years older than the national median. Children aged between 0 and 14 made up 18.1 per cent of the population and people aged 65 years and over made up 22.1 per cent of the population. Of people in the area aged 15 years and over, 60.2 per cent of the population were registered married or in a de facto relationship.

Between the 2006 Census and the 2011 Census, population growth in the Glen Innes Severn LGA declined by approximately 1.4 per cent. When compared with total population growth of Australia for the same periods (being 5.78 per cent and 8.32 per cent respectively), population growth in the Glen Innes Severn LGA indicates a negative trend and is significantly lower than the national average.

The median weekly income for families within the Glen Innes Severn LGA was $915, significantly below the national average of $1,481, which is one of the factors that place parts of the Glen Innes Severn LGA in an area of social disadvantage.

Other social indicators for the Glen Innes Severn LGA included the following:

- 47 per cent are employed full time, 45 per cent are working on a part time basis, with an unemployment rate of 6.7 per cent.
- The main occupations of people from Glen Innes Severn LGA are Managers (21.8 per cent), Labourers (13.9 per cent), Technicians and Trades Workers (12.8 per cent), Professionals (12.8 per cent), Clerical and Administrative Workers (10.5 per cent), Sales Workers (9.1 per cent), Machinery Operators and Drivers (6.8 per cent).
- The median individual income is $395.00 per week and the median household income is $734.00 per week.
- 44.8 per cent of homes are fully owned, and 25.5 per cent are in the process of being purchased by home loan mortgage. 25.4 per cent of homes are rented.
- The median rent in the Glen Innes Severn LGA is $155 per week and the median mortgage repayment is $1,083 per month.

Economic characteristics

The Glen Innes Severn Gross Regional Product (GRP) is $458,159 million. Glen Innes Severn area contributes 4.43 per cent of the Northern Inland GRP (Regional Development Australia, 2015).

It is estimated that 3,658 people have a job in the Glen Innes Severn LGA, with the largest number of people employed in sheep, beef cattle and grain farming (543 people), followed by school education (178 people), and cafés, restaurants and takeaway food services (131 people) (ABS, 2007 and 2013). Between 2006 and 2011, the sheep, beef cattle and grain farming industry had a large decline in the number of people employed in this sector, with 11 per cent less people employed in this sector (ABS, 2007 and 2013). School education saw large growth between 2006 and 2011 in the LGA, with 12 per cent more people employed in this sector (ABS, 2007 and 2013).

Between 2006 and 2011, the unemployment rate in Glen Innes Severn LGA declined by 13 per cent, from 277 in 2006 down to 245 in 2011 (ABS, 2007 and 2013).

The highest levels of education by the majority of persons in the Glen Innes Severn LGA was secondary – government (20 per cent) and technical or further education institution (12.1 per cent).

The required workforce for the Project will vary depending on the needs for specific activities (contracted crushing and screening, haulage etc.), however, it is anticipated that up to eight full-time employees would be required during periods of maximum extraction. Haulage of material would also provide employment for truck drivers. Additional off site employment would also be generated, in the maintenance and support services for equipment and machinery

The Project site is strategically placed to provide a supply of aggregate material for use in public road construction and maintenance, but would also fulfil an anticipated short and medium term demand for aggregate products for the construction of major wind farm projects in the region.

7.11.2 Impact assessment

Socio-economic impacts were identified based on the impact assessments completed for this EIS and the stakeholder consultation conducted for the Project.

The assessment considered both positive and negative impacts.

Social

The noise and vibration, air quality, traffic and visual amenity impacts on the surrounding community would be minimal as shown in Sections 7.3, 7.4, 7.6 and 7.8 of this EIS.

The Project is a significant distance from major residential and retail areas, with the township of Glen Innes located approximately 13 kilometres to the east. The nearest residential receiver is approximately 1.5 kilometres from the pit. The location of the quarry is not located within proximity to incompatible land uses, such as residential development.

The Project will provide a valuable resource for an anticipated short and medium term demand for aggregate products for the construction of major wind farm projects in the region. The close proximity of the site to the Glen Innes Wind Farm, located to the immediate south of the Project site, and the proximity to the Gwydir Highway is also a benefit to the wider community because it avoids transporting materials over a longer distance and potentially impacting on a greater number of people.

Economic

The construction and operation of the Project will require a workforce of approximately eight full-time equivalent (FTE) personnel. These employment opportunities will be made available to the labour pool of Glen Innes Severn LGA.

Construction and operation of the Project will generate the need for goods and services thereby creating opportunities for business development in the Glen Innes region. Employees working at the quarry would have an economic impact through expenditures from their weekly earnings. Similarly, spending by construction workers during the construction period would have a beneficial impact on the local and State economies. Expenditure by workers from their wages would largely occur in the town where they reside and in nearby towns. Construction workers who reside locally on a temporary basis would spend only a part of their income locally, as they have permanent residences and families elsewhere.

The expenditure on materials by the quarry during both the construction and operations phases is spread more widely than expenditure by employees. This is to be expected with materials and equipment being sourced from outside of Glen Innes and the surrounding area, and outside of NSW.

Access to the aggregate resource is critical to the continued sustained growth of the Glen Innes Severn LGA. Additionally, the production of the Project would reflect positively in ongoing local operational expenditure in respect of the maintenance of equipment and supply of services.

State Governments can expect economic benefits from the quarry, including revenue from taxes and payments for service from statutory bodies.

A potential negative impact which may be perceived by some adjoining landowners is the degradation of the road from truck movements and creation of potholes. It is anticipated that this impact would be minimal as the operation would pay a levy for the maintenance of the road.

7.11.3 Mitigation measures

The following mitigation measures are proposed:

- As part of the construction contractor's terms of engagement, GISC will encourage local recruitment and procurement to maximise local employment and business opportunities.
- Ongoing stakeholder consultation through the construction and operation of the Project.

Implement the mitigation measures outlined in the noise and vibration, air quality, traffic and access, and visual amenity sections of this EIS.

8. Environmental management and monitoring

8.1 Summary of environmental controls

Environmental management safeguards can be used to minimise any potentially adverse impacts arising from the Project on the surrounding environment. The proposed safeguards and management measures for the Project are summarised in Table 8-1.

Table 8-1 Summary of proposed mitigation measures

Issue	Mitigation measure
Land resources	• Where topsoil is to be disturbed, GISC will implement the following procedures: – Topsoil will be stripped prior to quarrying and stockpiled separately for later reuse in rehabilitation activities. – Where topsoil stockpiles are expected to remain in place for longer than three (3) months they will be re-grassed with local native seed to inhibit erosion, dust and siltation. – Where possible, freshly stripped topsoil will continue to be placed directly onto rehabilitated areas to reduce the potential for loss of soil structure and make best use of soil seed stores. • Erosion and sediment controls will be implemented in accordance with *Managing Urban Stormwater Soils and Construction – Volume 2e Mines and quarries* (Landcom, 2004). • Extraction of the resource would be undertaken in stages to minimise the area of disturbance at any one time. • If obvious signs of contamination such as discoloured soils or odorous soils are encountered during construction, work will stop in the vicinity of the area and, if considered safe to do so, samples will be collected for analysis. • Fuels, lubricants and chemicals will be stored and, where practicable, used within containment/hardstand areas designed to prevent the escape of spilt substances to the surrounding environment. • The amount of hazardous material stored and used on site will be kept to the minimum practicable. • Personnel will be trained in spill containment and response procedures. • Appropriate spill response material will be kept on site. • Appropriate maintenance schedules for plant and equipment will be followed to detect and repair leaks.

Issue	Mitigation measure
	• Spills will be reported and managed in accordance with legislative and licensing requirements.
Water resources	**General** • An environmental protection licence (EPL) will be obtained for the quarry. All relevant conditions relating to soil and water management will be implemented as required by the EPL. • An Environmental Management Plan will be compiled for the works which will contain a Soil and Erosion Management Plan. Training will be provided to all quarry staff including relevant sub-contractors on erosion and sediment control practices and the requirements of the Plans through inductions, toolboxes and targeted training. • If groundwater is intercepted, WaterNSW is to be contacted and a groundwater water access licence (WAL) obtained. Based on the most likely estimate for groundwater inflow of 8.0 m^3/day, an annual allocation of 2.9 ML/year will need to be licenced under the WM Act. **Water supply** • A 4,000 m^3 basin will be required for water supply. Where available, and of appropriate quality, the quarry operation will use recycled runoff for quarry activities. **Erosion and sedimentation control** • Implement erosion and sediment controls in accordance with Managing Urban Stormwater Soils and Construction – Volume 2e Mines and quarries (Landcom, 2004). • Increase the size of the water supply basin by 1.2ML to act as a sediment basin. **Material storage and management** • Designated impervious bunded facilities will be provided for cleaning and/or maintenance of vehicles, plant or equipment. These facilities will be located at least 20 metres away from natural and built drainage lines. • All chemicals and fuels associated with the quarry will be stored in roofed and bunded areas. Spill kits will be provided at all chemical storage facilities/compound sites. • Where refuelling is required onsite, the following management practices will be implemented: – Refuelling will be undertaken on level ground and at least 20 metres from drainage lines, waterways and/or environmentally sensitive areas

Issue	Mitigation measure
	– Refuelling will be undertaken within the designated refuelling areas with appropriate bunding and/or absorbent material – Refuelling will be via a designated refuelling truck – Refuelling will be attended at all times – Spill kits will be readily available and all personnel will be trained in their use. A spill kit will also be kept on the refuelling truck at all times – Hand tools will be refuelled within lined trays of site vehicles wherever possible – An emergency spill kit (such as oil absorbent material) will be available onsite at all times to contain and clean up any accidental hydrocarbon spill – Any contaminated material will be disposed at an appropriately licensed facility and used spill kit materials replaced. • Regular checks of vehicles working at the quarry will be conducted to ensure that no oils or fuels are leaking. **Monitoring** • The basin is to be monitored to confirm it complies with the EPL and Managing Urban Stormwater Soils and Construction – Volume 2e Mines and quarries (Landcom, 2004) requirements. • To confirm groundwater levels, a series of groundwater wells should be established around the quarry pit. • A routine monitoring program should be established to include regular inspections and maintenance of erosion controls, especially after rain.
Noise and vibration	***Work ethics*** All site workers would be sensitised to the potential for noise impacts on local residents and encouraged to take practical and reasonable measures to minimise the impact during the course of their activities. This would include: • Where practical, machines would be operated at low speed or power and switched off when not being used rather than left idling for prolonged periods. • Keep truck drivers informed of designated vehicle routes, parking locations and delivery hours. • Dropping materials from height and metal to metal contact on material would be avoided. • All engine covers would be kept closed while equipment was operating.

Issue	Mitigation measure
	Community relations Consultation and cooperation with the community would assist in minimising uncertainty, misconceptions and adverse reactions to noise. It is recommended the following community relation measures be implemented: • The quarry manager would erect a sign at the entrance of the quarry with a phone number and permanent site contact so that noise complaints could be received and addressed in a timely manner. • Upon receipt of a noise complaint, noise monitoring would be undertaken and reported as soon as possible. If exceedances are detected, the situation would be reviewed in order to identify means to attempt to reduce the impact to acceptable levels. ***Blasting mitigation measures*** It is recommended that all sensitive receivers be informed when blasting is to be undertaken. Reducing charge mass and increasing distance is the most effective way of reducing blasting impacts. Blasting would only occur between 9 am to 5 pm, Monday to Friday and would not generally take place more than once per day. Adverse meteorological conditions such as temperature inversions and wind direction can significantly increase airblast overpressure levels. Temperature inversions are most common during night and early morning periods, particularly during winter periods and therefore should not affect blasting during the recommended standard hours. Due to variability in blasting impacts, it is recommended that monitoring be undertaken during initial blasts at the site to confirm predictions and assess compliance with the ground vibration and airblast overpressure limits.
Air quality and greenhouse gas emissions	Due to the assessed dust impacts being low and within acceptable criteria, in-principle mitigation and management measures to reduce dust impacts, other than standard practices already included (i.e., water sprays on crushers and screen, watering stockpiles and watering roads at >2L/m^2/hr), and air quality monitoring programmes are not required. Mitigation measures to reduce greenhouse gas emissions are: • Opportunities for the use of biodiesel should be investigated and used where possible. • Efficient plant and vehicles would be used where reasonable and feasible to do so. • Turn off engines when not in use.

Issue	Mitigation measure
Biodiversity	• During the detailed design process, the impact of the Project on areas with higher biodiversity values would be minimised wherever possible by: – Minimising the area of native vegetation to be cleared wherever possible. – Avoidance of identified hollow-bearing trees wherever possible. – Minimising disturbance to adjacent retained vegetation, aquatic and riparian areas. • An Environment Management Plan (EMP) would be prepared for the Project which would include, as a minimum, industry-standard measures for the management of soil, surface water, erosion, weeds and pollutants, as well as site-specific measures. • A Flora and Fauna Management Plan (FFMP) would be prepared as a sub-plan to the EMP to identify environmental management measures to protect the natural environment (e.g. weed and pathogen controls) and detailed site-specific and species-specific mitigation measures and management protocols to be implemented before, during and after all quarry establishment works and quarry activities to further avoid or reduce impacts on threatened biodiversity, including: – Minimising vegetation clearance and habitat loss – Pre-clearance surveys – Phytophthora management – Chytrid fungus management – Management of weeds and edge effects – Managing vehicle movements Following completion of extraction works in the future, the quarry would be rehabilitated in an ecologically appropriate manner using local and endemic species characteristic of the vegetation types in the area, as per the rehabilitation plan (Figure 3-6)
Traffic and access	• An access management plan be prepared and implemented • All truck drivers utilising the site are appropriately inducted in relation to traffic movements to / from the public road • Internal roads and parking be designed in accordance with AS2890.1 and GISC DCP requirements.
Heritage	**Aboriginal Object Find Procedure.** If it is suspected that Aboriginal material has been uncovered as a result of development activities within the Project Area: a. Work in the surrounding area is to stop immediately.

Issue	Mitigation measure
	b. A temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site. c. An appropriately qualified archaeological consultant is to be engaged to identify the material. d. If the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the ACHCRP Guidelines (2010). **Aboriginal Human Remains** Although it is unlikely that Human Remains will be located at any stage during earthworks within the Project Area, should this event arise it is proposed that all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Glen Innes), the Glen Innes LALC and the OEH Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations. It is also proposed that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens. **Conservation Principles** It is proposed that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.
Visual amenity	• Maintenance of existing vegetation outside the extraction limit boundary for visual screening. • Maintain the site in a clean and tidy condition at all times. • Ensure that areas of disturbance are kept to the minimum practicable at any one point in time. • Progressively revegetate all areas where quarrying is completed. • Where possible, stockpiles, plant and equipment should be located in positions which are naturally screened from views into the site.

Issue	Mitigation measure
Waste management	Management measures for excavated material are: – Avoid excess excavation – Use excess material on site as fill and/or in rehabilitation works – Excess excavated material to be classified and disposed in accordance with the Waste Classification Guidelines Management measures for green waste are: – Minimise clearing – Mulch cleared vegetation and reuse on site – Excess material to be classified and disposed in accordance with the Waste Classification Guidelines Management measures for contaminated waste are: – Proper storage of all chemicals and fuels (e.g. bunded areas with 110% capacity). Refuel plant and machinery offsite, where possible or using appropriate equipment – Utilise bioremediation for large quantities of fuel-impacted soil. Tracking during transportation would be carried out where required. – Disposed in accordance with the Waste Classification Guidelines Management measures for liquid waste are: – Materials to be sourced and ordered in appropriate quantities – Reuse excess material on-site wherever possible e.g. store and reuse lubricants – Excess material to be classified and disposed in accordance with the Waste Classification Guidelines Management measures for wastewater are: – Divert clean water from the site – Waste water to be pumped to a holding pond and used on-site e.g. for dust suppression/ plant watering etc. – Discharge wastewater, in accordance with EPL requirements Management measures for biological waste are: – Minimise use of site facilities e.g. toilets. – Consider using composting toilet. – Sewage waste to be disposed via a suitable treatment system Management measures for domestic waste are: – Materials to be sourced and ordered in appropriate quantities. – Reuse excess material on-site wherever possible. All recyclables (including aluminium, paper & cardboard, steel, glass, rigid plastic, organics) to be collected and recycled accordingly – Excess material to be classified and disposed in accordance with the Waste Classification Guidelines
Hazards and risks	• Maintain the APZ in accordance with NSW RFS (2006) • Maintain a dedicated water source for fire fighting purposes • Establish an evacuation plan in case of a bushfire

Issue	Mitigation measure
Socio-economic	• As part of the construction contractor's terms of engagement, GISC will encourage local recruitment and procurement to maximise local employment and business opportunities. • Ongoing stakeholder consultation through the construction and operation of the Project

8.2 Licensing and approvals

Licenses, approvals or other requirements from stakeholders are presented in Table 8-2.

Table 8-2 Licensing, approvals and other requirements

Statutory authority	Licence, approval or other requirement
EPA	EPL under POEO Act 1997
RMS	Section 138 approval under the Roads Act 1993
WaterNSW	If groundwater is intercepted, a water access licence under the *Water Management Act 2000*

9. Conclusion and justification

9.1 Project justification

9.1.1 There is a justified need for the Project

Based on current extraction and production rates, the existing quarry east of Glen Innes has less than 10 years' capacity remaining. The Project is therefore important and well positioned to cater for the predicted demand for quarry products, given its location in close proximity to the Gywdir Highway and Glen Innes.

The Project site is strategically placed to provide a supply of aggregate material for use in public road construction and maintenance, but would also fulfil an anticipated short and medium term demand for aggregate products for the construction of major wind farm projects in the region. The Project would also facilitate the efficient transport of aggregate material to the proposed Glen Innes Wind Farm, located to the immediate south of the Project site, with the Project and the wind farm proposed to share site access.

9.1.2 The Project will provide significant benefits

Overall the Project will:

- Provide access to a total of up to approximately 2.1 million tonnes of aggregate materials.
- Provide for the employment of up to eight quarry personnel, with additional support of employment in relation to road transport drivers; resulting in positive flow on economic effects to the local and regional economy.
- Assist in meeting the demand from the wind farms, which has been reported to be in the order of 200,000 tonnes during their construction. With limited quarries with approved extraction rates in the local area available to meet this demand, GISC intends to establish this quarry so the development of the wind farms is not jeopardised.
- Contribute to the State and Commonwealth government finances through payment of various taxes.
- Have minimal significant environmental impacts.

9.1.3 Suitability of the site

The Project site is suitable for the Project for the following reasons:

- The Project is located within a generally rural environment approximately 13 kilometres west of Glen Innes. The primary land uses in the vicinity of the Project site include agriculture as well as rural-residential uses.
- The Project is positioned away from major population centres and incompatible land uses. While the proposed quarry is neighboured by some rural-residences, the Project site is a significant distance from any dwellings.
- The ridgeline, undulating terrain and remnant vegetation surrounding the Project site provides topographical shielding for the Project from rural-residential properties. The nearest sensitive receiver is approximately 1.3 kilometres east of the Quarry area.
- The Project is located on land which has been heavily modified historical by land clearing activities and disturbances associated with agricultural activities.

- The Project has convenient, economic access to its core market, which assists in reducing supply costs, greenhouse gas emissions and other environmental impacts per tonne kilometre of product transported.
- The Project is well positioned to cater for the predicted demand for quarry products, given its location in close proximity to the Gywdir Highway and Glen Innes.

9.1.4 Public interest

The Project is in the public interest as it will:

- Provide a high quality supply of construction materials into the Glen Innes district to meet an identified need for these materials.
- Support continued development of the area through supply of high quality construction materials.
- Provide for the employment of up to eight quarry personnel, with additional support of employment in relation to road transport drivers; resulting in positive flow on economic effects to the local and regional economy.
- Provide direct economic benefits in the form of $500,000 in CIV, plus expenditure associated with quarry operations and labour, providing an ongoing contribution to the local economy.

The environmental and social impacts of the Project have been minimised through refining the Project design in consideration of environmental constraints and stakeholder input, and implementation of appropriate control measures as part of an iterative Project design process. With the proposed measures to avoid, minimise and/or manage impacts associated with the Project, it is anticipated the Project can proceed without significantly impacting the environment or local community.

The Project is therefore in the public and community's interest.

9.1.5 Consistency with the objects of the EP&A Act

Table 9-1 identifies the objects of the EP&A Act and their relevance to the Project.

Table 9-1 Objects of the EP&A Act

Object	Comment
5(a)(i) To encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.	The Project responds to an identified need for quarry products in the short, medium and long term within the Glen Innes district. The Project design has been refined in consideration of environmental constraints and stakeholder input, and appropriate control measures are proposed to avoid, minimise and/or manage Project impacts.
5(a)(ii) To encourage the promotion and co-ordination of the orderly economic use and development of land.	The Project site is highly modified from clearing activities associated with historical land uses including logging and dryland cattle grazing. The Project is considered to constitute the orderly economic use and development of the land.

Object	Comment
5(a)(iii) To encourage the protection, provision and co-ordination of communication and utility services.	The Project will not impact on communication or utility services.
5(a)(iv) To encourage the provision of land for public purposes.	The Project involves work for the purpose of an extractive industry, providing a long term supply of aggregate products to the Glen Innes district to replace the existing quarry east of Glen Innes which has less than 10 years' capacity remaining. The proposed location of the Project on land already owned by GISC removes the need for additional land to be acquired for public purposes.
5(a)(v) To encourage the provision and co-ordination of community services and facilities.	Not relevant to the Project.
5(a)(vi) To encourage the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats.	The Project has been sited and designed to minimise the impacts on the environment. Potential impacts have been identified within the EIS and mitigation and management measures have been proposed to encourage the protection of the environment.
5(a)(vii) To encourage ecologically sustainable development.	Ecologically sustainable development (ESD) is considered in Section 9.1.6.
5(a)(viii) To encourage the provision and maintenance of affordable housing.	Not relevant to the Project.
5(b) To promote the sharing of the responsibility for environmental planning between different levels of government in the State.	Not relevant to the Project.
5(c) To provide increased opportunity for public involvement and participation in environmental planning and assessment.	Consultation with the community and relevant government agencies was undertaken during the development of the Project. Details of this consultation can be found in Section 5. Consultation will be ongoing during detailed design and construction.

9.1.6 Consistency with the principles of ecologically sustainable development

The principles of ESD are defined under the EP&A Regulation (Schedule 2) as:

(a) the precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

These principles are addressed in turn, as they apply to the Project, in the following sections.

The precautionary principle

This principle states, 'if there are threats of serious or irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation'.

Evaluation and assessment of alternative options has aimed to reduce the risk of serious and irreversible impacts on the environment. Stakeholder consultation considered issues raised by stakeholders and a range of specialist studies were undertaken for key issues to provide accurate and impartial information to assist in the development process.

A range of environmental studies have been undertaken as part of development of the Project and the environmental assessment process, to ensure that the potential impacts are understood. The assessment of the potential impacts of the Project is considered to be consistent with the precautionary principle. It is considered that the assessments that have been undertaken are consistent with accepted scientific and assessment methodologies, and have taken into account relevant statutory and agency requirements.

The Project has evolved to avoid impacts where possible and to reflect the findings of the studies undertaken.

A number of safeguards have been proposed to minimise potential impacts. These safeguards will be implemented during construction and operation of the Project. No safeguards have been postponed as a result of lack of scientific certainty.

A EMP will be prepared before construction starts. This requirement will ensure the Project achieves a high-level of environmental performance. No management measures or mechanisms will be postponed as a result of a lack of information.

Intergenerational equity

This principle states, 'the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhance for the benefit of future generations'.

The Project will not result in any impacts that are likely to adversely impact on the health, diversity or productivity of the environment for future generations.

The key objective of the Project is to maximise the effective use of existing resources and meet the needs of the community for quarry products, whilst minimising environmental and social impacts. As part of quarrying operations to recover a substantial, hard rock resource, a comprehensive rehabilitation strategy will be developed for the Project site.

As detailed in Section 7, the Project can be undertaken without having a significant adverse impact on the local environment or community. The environmental management measures detailed in Section 8.1 have been developed to minimise the impact of the Project on the environment and community to the greatest extent reasonably possible.

In addition, the Project will improve local employment potential and contribute to economic growth in the local area.

The management of environmental issues, as outlined in this EIS, will maintain the health, diversity and productivity of the environment for future generations.

Conservation of biological diversity and ecological integrity

This principle states the 'diversity of genes, species, populations and communities, as well as the ecosystems and habitats to which they belong, must be maintained and improved to ensure their survival'.

All environmental components, ecosystems and habitat values potentially affected by the Project are described in this EIS. Potential impacts are also outlined (refer to Section 7) and measures to ameliorate adverse are outlined in Section 8.1. Consequently, the biodiversity assessment completed for the Project (refer to Section 7.5 and Appendix E) concluded that the Project can be undertaken in a manner that will not have a significant impact on biodiversity of the surrounding area.

Improved valuation, pricing and incentive mechanisms

This principle requires 'costs to the environment should be factored into the economic costs of a Project'.

The EIS has examined the environmental consequences of the Project and identified management measures to manage the potential for adverse impacts. The requirement to implement these management measures will result in an economic cost to GISC. The implementation of management measures will increase both the capital cost and operating costs of the Project. This signifies that environmental resources have been given appropriate valuation.

The concept design has been developed with an objective of minimising potential impacts on the surrounding environment. This indicates that the Project is being developed with an environmental objective in mind.

9.1.7 Environmental considerations

Environmental investigations were undertaken during the preparation of the EIS to assess the potential impacts. These included assessments of:

- Land resources
- Water resources (surface water and groundwater)
- Noise and vibration
- Air quality and greenhouse gas emissions
- Biodiversity
- Traffic and access
- Heritage (Aboriginal cultural and historic)
- Visual amenity
- Waste management
- Hazards and risks
- Socio-economic.

The EIS has documented the potential impacts of the Project, considering both potential positive and negative impacts, and identifies mitigation and management measures to protect the environment where required, as outlined in Section 7.

The Project also incorporates measures and design features to ensure that impacts are managed and mitigated as far as practicable.

With the implementation of the identified mitigation measures, the Project is not expected to have a significant negative environmental impact.

9.1.8 Consequences of not proceeding

The consequences of not proceeding are as follows:

- An identified need to provide a high quality supply of construction materials in the Glen Innes district will not be met.
- Direct economic benefits in the form of $500,000 CIV, plus expenditure associated with quarry operations and labour, providing an ongoing contribution to the local economy will not be realised.
- The Project site would remain undeveloped and its ongoing use would likely be in the form of agricultural dryland grazing, which would not provide the economic benefits afforded by the Project.
- The demand from wind farms is reported to be in the order of 200,000 tonnes during their construction. With limited existing quarries with approved extraction rates in the local area available to meet this demand, if the Project does not proceed this material may be sourced from outside the Glen Innes Severn LGA or the wind farms may not proceed.

9.1.9 Summary

The Project is considered to be justified as:

- It responds to a recognised need in the Glen Innes Severn LGA for aggregate materials in the short, medium and long term.
- It will provide a number of social and economic benefits.
- Is in the public interest and the site is suitable for the Project.
- Is consistent with the objects of the EP&A Act and the principles of ESD.
- It will not have any significant negative environmental impact as long as the identified mitigation measures are implemented.
- The consequences of not proceeding are considered to be unacceptable.

9.2 Conclusion

The Project involves the construction and operation of Wattle Vale Quarry, 13 kilometres west of Glen Innes. Wattle Vale Quarry will predominantly supply materials for use in public road construction and maintenance, but would also provide a resource as required for construction of nearby wind farm projects. The Project would extract up to 300,000 tpa over 30 years with a total disturbance area of approximately 8 hectares.

The Project is classified as designated development under the EP&A Regulation. This EIS has been prepared in accordance with the provisions of the EP&A Act and addresses the SEARs.

As summarised in Section 9.1, the Project justification is robust because it responds to a recognised need for resources and provides a number of economic benefits. The EIS has demonstrated that the site is suitable for the proposed use, the Project is in the public interest and that it is consistent with the objects of the EP&A Act and the principles of ESD.

The EIS has documented the potential environmental impacts of the Project, considering both negative and positive impacts, and recommended management and mitigation measures to protect the environment, where required. Based on this, the environmental and community impacts are considered to be minimal and the Project benefits outweigh the negatives.

10. References

Australian Bureau of Statistics (ABS), 2007, *2006 Census QuickStats*. Accessed on 22 August 2016 from: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/quickstat/LGA13010?opendocument&navpos=220

Australian Bureau of Statistics (ABS), 2013, *2011 Census QuickStats*. Accessed on 22 August 2016 from: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/LGA13010?opendocument&navpos=220

ANZEC, 1990, *Technical guidelines to minimise annoyance due to blasting overpressure and ground vibration.*

Australian Standards, 2009, *AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines*

Bitzios (2016), *Traffic Management Plan*.

Bureau of Meteorology (BoM), 2016, *Climate averages for Glen Innes Airport AWS (Site Number: 056243)*. Accessed 25 August 2016 from: http://www.bom.gov.au/climate/averages/tables/cw_056243.shtml

Department of Environment and Climate Change (DECC), 2009, *Interim Construction Noise Guideline.*

Department of Environment and Conservation (DEC), 2006, *Assessing Vibration: A Technical Guideline*.

Department of Environment, Climate Change and Water (DECCW), 2009, *Draft Reconnaissance Soil Landscape Mapping for the Border Rivers-Gwydir CMA*

Department of Environment, Climate Change and Water (DECCW), 2010, *Due Diligence Code for the Protection of Aboriginal Objects in NSW.*

Department of Environment, Climate Change and Water (DECCW), 2011, *Road Noise Policy.*

Department of the Environment (DotE), 2013, *Matters of National Environmental Significance: Significant Impact Guidelines 1.1, Environment Protection and Biodiversity Conservation Act 1999.*

Environment Protection Authority (EPA), 2000, *Industrial Noise Policy*.

Environment Protection Authority (EPA), 2014, *Waste Classification Guidelines*.

Everick Heritage Consultants Pty Ltd (Everick), 2016, *Cultural Heritage Assessment*.

Geological Survey of NSW, 1976, *Grafton 1:250,000 Geology Series Sheet.*

GHD (2016a). *Water Resources Assessment.*

GHD (2016b). *Noise and Vibration Impact Assessment*

GHD (2016c). *Air Quality Impact Assessment*

GHD (2016d). *Biodiversity Assessment*

Landcom, 2004, *Managing Urban Stormwater: Soils and Construction* and *Volume 2A: Installation of Services*.

Local Land Services (LLS) Northern Tablelands, n.d., *Soil Management: Paddock Subdivision to Land Capability*

Menkhorst, P., Schedvin, N. and Geering, D. (1999). Regent Honeyeater Recovery Plan 1999-2003. Prepared on behalf of the Regent Honeyeater Recovery Team. Parks, Flora and Fauna Division, Department of Natural resources and Environment

Regional Development Australia, 2015, *RDA Northern Inland: Gross Regional Product*. Access on 22 August 2016 from http://www.economicprofile.com.au/northerninland/economy/gross-regional-product

Saunders, D.L. and Heinsohn, R. (2008). Winter habitat use by the endangered, migratory Swift Parrot (*Lathamus discolor*) in New South Wales. *Emu* 108: 81-89

11. Terms and acronyms

Term	Definition
°C	Degrees Celsius
ABS	Australian Bureau of Statistics
AHD	Australian height datum
AHIMS	Aboriginal Heritage Information Management Services
AQIA	*Air Quality Impact Assessment*
AVTG	*Assessing Vibration: A technical guideline*
BoM	Bureau of Meteorology
CadnaA	Computer Aided Noise Abatement
CMA	Catchment Management Authority. Authorities managing resources in their catchments
DCP	Development control plan
DECCW	Former Department of the Environment, Climate Change and Water
DotEE	Commonwealth Department of the Environment and Energy
DPI	Department of Primary Industries
EEC	Endangered Ecological Community
EMP	Environmental Management Plan
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EP&A Regulation	NSW *Environmental Planning and Assessment Regulation 2000*
EPA	Environment Protection Authority
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental planning instrument
EPL	Environment Protection Licence
FFMP	Flora and Fauna Management Plan
FM Act	NSW *Fisheries Management Act 1994*
FTE	Full-time equivalent
GDE	Groundwater dependent ecosystem
GHD	GHD Pty Ltd

Term	Definition
GISC	Glen Innes Severn Council
GRP	Gross Regional Product
Heritage Act	NSW *Heritage Act 1977*
ICNG	Interim Construction Noise Guideline
INP	Industrial Noise Policy
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local government area
LLS	Local Land Services
LSC	Land and soil capability
MNES	Matters of national environmental significance
MW	Megawatt
NIA	*Noise and Vibration Impact Assessment*
NPW Act	NSW *National Parks and Wildlife Act 1974*
NSW	New South Wales
NPI	National Pollutant Inventory
NV Act	NSW *Native Vegetation Act 2003*
OEH	Office of Environment and Heritage
POEO Act	NSW *Protection of the Environmental Operations Act 1997*
RBL	Rating background level
RNP	*Road Noise Policy*
Roads Act	NSW *Roads Act 1993*
SEE	Statement of Environmental Effects
SEPP	State Environmental Planning Policy
SEPP 33	*State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)*
TEC	Threatened ecological community
The Project	The construction and operation of the Wattle Vale Quarry.
TSC Act	NSW *Threatened Species Conservation Act 1995*

Term	Definition
TSP	Total suspended particulates
vtpd	Vehicle trips per day
WAD	Works Approval Deed
WAL	Water access licence
WM Act	NSW *Water Management Act 2000*

Appendices

Appendix A Secretary's Environmental Assessment Requirements

Planning Services
Resource Assessments
Contact: Lauren Evans
Phone: (02) 9228 6311
Email: lauren.evans@planning.nsw.gov.au

Ms Melissa Dunlop
GHD Pty Ltd
3/24 Honeysuckle Drive
NEWCASTLE NSW 2300

Dear Ms Dunlop

Wattle Vale Quarry (EAR 1060)
Secretary's Environmental Assessment Requirements

I refer to your request for the Secretary's Environmental Assessment Requirements (EARs) for the above development, which is designated local development under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

I have attached a copy of the EARs for the Environmental Impact Statement (EIS) for the development. These requirements have been prepared in consultation with relevant government agencies and are based on the information your company has provided to date. I have also attached the agencies' input into the EARs, which you are also advised to consider closely when preparing the EIS.

In your request for EARs, you have indicated that the proposal is classified as integrated development under section 91 of the EP&A Act. You are encouraged to consult with the Environment Protection Authority with respect to licence requirements. If further integrated approvals are required, you must undertake your own consultation with the relevant public authorities, and address their requirements in the EIS.

When you lodge your DA with the consent authority, you must provide:
- one hard and one electronic copy of the EIS to the Department;
- one hard and one electronic copy of the EIS to any identified integrated approval authority; and
- a cheque for $320 to each identified integrated approval authority, to offset costs involved in the review of the DA and EIS. No cheque is required for the Department as it is not an approval authority.

If your proposal contains any actions that could have a significant impact on matters of National Environmental Significance, then it will also require approval under the Commonwealth's *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. If you have any questions about the application of the EPBC Act to your proposal, you should contact the Department of the Environment in Canberra (6274 1111 or www.environment.gov.au).

You should contact the local Mine Safety Operations Branch of the NSW Department of Industry, Division of Resources and Energy in regard to this and other matters relating to compliance with the *Work Health and Safety (Mines and Petroleum Sites) Act 2013.*

If you have any enquiries about these requirements, please contact Lauren Evans on 9228 6311.

Yours sincerely

Howard Reed 25.7.16

Howard Reed
Director
Resource Assessments
As nominee of the Secretary

Secretary's Environmental Assessment Requirements

Section 78A(8) of the *Environmental Planning and Assessment Act 1979* and Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Designated Development

EAR Number	1060
Proposal	Development of a hard rock quarry to extract and process a maximum of 300,000 tonnes of basalt and tuff in any year over a 30 year period.
Location	1296 Gwydir Highway, Glen Innes (Lots 249, 174, 253, 101, 87 and 113 DP 753319)
Applicant	Glen Innes Severn Council
Date of Issue	25 July 2016
Date of Expiry	25 July 2018
General Requirements	The Environmental Impact Statement (EIS) for the development must comply with the requirements in Clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.* In particular, the EIS must include: • an executive summary; • a comprehensive description of the development, including: - a detailed site description and history of any previous quarrying on the site, including a current survey plan; - identification of the resource, including the amount, type and composition, as well as details regarding the timing and intensity of extractive operations, having regard to DRE's requirements (Attachment 2); - the layout of the proposed works and components (including any existing infrastructure that would be used for the development); - an assessment of the potential impacts of the development, as well as any cumulative impacts, including the measures that would be used to minimise, manage or offset these impacts; - a summary of all proposed environmental management and monitoring measures for the development; - a detailed rehabilitation plan for the site; - any likely interactions between the development and any existing/approved developments and land uses in the area; - a list of any other approvals that must be obtained before the development may commence; - the permissibility of the development, including identification of the land use zoning of the site; - identification of sensitive receivers likely to be affected by the development using clear maps/plans, including key landform areas, such as conservation areas and waterways; and • the reasons why the development should be approved, having regard to the economic, social and environmental aspects of the development and taking into consideration the objects of the *Environmental Planning & Assessment Act 1979*; and • a signed declaration from the author of the EIS, certifying that the information contained within the document is neither false nor misleading.
Key Issues	The EIS must assess the potential impacts of the proposal at all stages of the development, including the establishment, operation and decommissioning of the development. The EIS must address the following specific issues: • **Water** – including: - an annual site water balance for representative years over the life of the development and demonstration that sufficient water supplies would be available to meet operational requirements; - identification of any licensing requirements or other approvals required under the *Water Act 1912* and/or *Water Management Act 2000*; - a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant Water Sharing Plan or water source embargo; - an assessment of activities that could cause erosion or sedimentation issues, and the proposed measures to prevent or control these impacts;

- an assessment of the likely impacts of the development on the quality and quantity of surface and groundwater resources, having regard to the requirements of DPI Water (Attachment 2);
- a detailed description of the proposed water management system, water monitoring program and other measures to mitigate surface and groundwater impacts; and
- an assessment of potential downstream impacts from surface water runoff, having regard to the requirements of DRE (Attachment 2);

- **Air** – including an assessment of the likely air quality impacts of the development in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*, having regard to EPA requirements (Attachment 2). The assessment is to give particular attention to potential dust impacts on any nearby private receivers due to construction activities, the operation of the quarry and/or road haulage;
- **Noise and Blasting** – including:
  - an assessment of the likely construction and operational noise and vibration impacts of the development in accordance with the *NSW Industrial Noise Policy* and the *Interim Construction Noise Guideline*, having regard to EPA requirements (Attachment 2);
  - an assessment of the likely road noise impacts (traffic and haulage) of the development under the *NSW Road Noise Policy*; and
  - an assessment of the likely blasting and vibration impacts of the development, having regard to the relevant ANZEC guidelines and paying particular attention to impacts on people, livestock, heritage items and infrastructure;
- **Biodiversity** – including:
  - accurate predictions of any vegetation clearing on site;
  - a detailed assessment of the potential biodiversity impacts of the development, paying particular attention to threatened species and/or populations (or their habitats), endangered ecological communities and groundwater dependent ecosystems, and having regard to the requirements of OEH (Attachment 2);
  - a detailed description of the proposed measures to maintain or improve the biodiversity values of the site in the medium to long term, as relevant; and
  - an assessment of whether a Species Impact Statement is required;
- **Heritage** – including:
  - an assessment of the potential impacts on Aboriginal heritage (cultural and archaeological), including evidence of appropriate consultation with relevant Aboriginal communities/parties and documentation of the views of these stakeholders regarding the likely impact of the development on their cultural heritage, and having regard to OEH requirements (Attachment 2); and
  - identification of Historic heritage in the vicinity of the development and an assessment of the likelihood and significance of impacts on heritage items, having regard to the requirements of relevant policies and guidelines listed in Attachment 1;
- **Transport** – including:
  - an assessment of potential traffic impacts on the capacity, condition, safety and efficiency of the local and State road networks, detailing the nature of the traffic generated, transport routes, traffic volumes and potential impacts on local and regional roads, having regard to RMS requirements (Attachment 2);
  - a description of the measures that would be implemented to maintain and/or improve the capacity, efficiency and safety of the road network (particularly the proposed transport routes) over the life of the development;
  - evidence of any consultation with relevant roads authorities, regarding the establishment of agreed contributions towards road upgrades or maintenance; and
  - a description of access roads, specifically in relation to nearby Crown roads, fire trails and travelling stock routes, having regard to the requirements of DPI Lands and Local Land Services (Attachment 2);
- **Land** – including:
  - an assessment of potential impacts on the quality and quantity of the soils and land capability of the site, including any likely disturbance of contaminated soils, and the proposed mitigation, management and remedial measures (as appropriate), having regard to EPA requirements (Attachment 2);
  - an assessment of the likely impacts on landforms and topography, including the long-term geotechnical stability of any new landforms; and
  - an assessment of the compatibility of the development with other land uses in the vicinity of the development, in accordance with the requirements of Clause 12 of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, having regard to the requirements of DPI Agriculture (Attachment 2);
- **Waste** – including estimates of the quantity and nature of the waste streams that would be generated or received by the development and any measures that would be implemented to minimise, manage or dispose of these waste streams, having regard to EPA requirements (Attachment 2);
- **Public Safety** – including an assessment of the likely risks to public safety, paying particular attention to the transport, storage, handling and use of any hazardous or dangerous goods;

	• **Visual** – including an assessment of the likely visual impacts of the development on any surrounding private landowners and key vantage points in the public domain, paying particular attention to impacts on any nearby private residences and road users; • **Social & Economic** – an assessment of the likely social and economic impacts of the development, including consideration of both the significance of the resource and the costs and benefits of the project; and • **Rehabilitation** – including: - a detailed description of the proposed rehabilitation measures that would be undertaken throughout the development and during quarry closure; - a detailed rehabilitation strategy, including justification for the proposed final landform and consideration of the objectives of any relevant strategic land use plans or policies; and - the measures that would be undertaken to ensure sufficient financial resources are available to implement the proposed rehabilitation strategy.
Environmental Planning Instruments	The EIS must take into account all relevant State Government environmental planning instruments, guidelines, policies, and plans. While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies and plans that may be relevant to the environmental assessment of this development. During the preparation of the EIS you must also consult the Department's EIS Guideline – Extractive Industries – Quarries. This guideline is available from the Department of Planning and Environment's Information Centre, 23-33 Bridge Street, Sydney or by calling 1300 305 695. In addition, the EIS must assess the development against the Glen Innes Severn Local Environmental Plan 2012 and any relevant development control plans/strategies.
Consultation	In preparing the EIS for the development, you should consult with relevant local, State or Commonwealth Government authorities, infrastructure and service providers and any surrounding landowners that may be impacted by the development. The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.

ATTACHMENT 1

The following guidelines may assist in the preparation of the Environmental Impact Statement. This list is not exhaustive and not all of these guidelines may be relevant to your proposal.

Many of these documents can be found on the following websites:
http://www.planning.nsw.gov.au
http://www.bookshop.nsw.gov.au
http://www.publications.gov.au

Environmental Planning Instruments, Policies, Guidelines & Plans

Environmental Planning Instruments - General	
	State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
	State Environmental Planning Policy (State and Regional Development) 2011
	State Environmental Planning Policy (Infrastructure) 2007
	Glen Innes Severn Local Environmental Plan 2012
Risk Assessment	
	AS/NZS 4360:2004 Risk Management (Standards Australia)
	HB 203: 203:2006 Environmental Risk Management – Principles & Process (Standards Australia)
Land	
	State Environmental Planning Policy No. 55 – Remediation of Land
	Agricultural Land Classification (DPI)
	Rural Land Capability Mapping (OEH)
	Soil and Landscape Issues in Environmental Impact Assessment (NOW)
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
	Guidelines for Consultants Reporting on Contaminated Sites (EPA)
	Agricultural Issues for Extractive Industry Development (DPI)
Water	
Groundwater	NSW Aquifer Interference Policy 2012 (NOW)
	NSW State Groundwater Policy Framework Document (NOW)
	NSW State Groundwater Quality Protection Policy (NOW)
	NSW State Groundwater Quantity Management Policy (NOW)
	Australian Groundwater Modelling Guidelines 2012 (Commonwealth)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	Guidelines for the Assessment & Management of Groundwater Contamination (EPA)
Surface Water	NSW State Rivers and Estuary Policy (NOW)
	NSW Government Water Quality and River Flow Objectives (EPA)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA)
	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC)
	Managing Urban Stormwater: Treatment Techniques (EPA)
	Managing Urban Stormwater: Source Control (EPA)
	Technical Guidelines: Bunding & Spill Management (EPA)
	A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
	NSW Guidelines for Controlled Activities (NOW)
Flooding	Floodplain Development Manual (OEH)
	Floodplain Risk Management Guideline (OEH)

Biodiversity	
	BioBanking Assessment Methodology (OEH 2014)
	BioBanking Assessment Methodology and Credit Calculator Manual (DECC) 2008
	NSW Guide to Surveying Threatened Plants (OEH 2016)
	Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians (DECC 2009)
	Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DEC 2004)
	Threatened Species Assessment Guideline – The Assessment of Significance (DECC 2007)
	OEH principles for the use of biodiversity offsets in NSW
	NSW State Groundwater Dependent Ecosystem Policy (NOW)
Heritage	
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
	Guide to investigation, assessing and reporting on Aboriginal cultural heritage in NSW (OEH) 2011
	Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DP&E)
	Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH)
	Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (OEH)
	Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (OEH)
	NSW Heritage Manual (OEH)
	Statements of Heritage Impact (OEH)
Noise & Blasting	
	NSW Industrial Noise Policy (EPA)
	Interim Construction Noise Guideline (EPA)
	NSW Road Noise Policy (EPA)
	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC)
Air	
	Protection of the Environment Operations (Clean Air) Regulation 2002
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA)
	Assessment and Management of Odour from Stationary Sources in NSW (DEC)
	National Greenhouse Accounts Factors (Commonwealth)
Transport	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RMS) & relevant Austroads Standards
Public Safety	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous and Offensive Development Application Guidelines – Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Resource	
	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC)
Waste	
	Waste Classification Guidelines (DECC)
	Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes 1999 (EPA)
Rehabilitation	
	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Strategic Framework for Mine Closure (ANZMEC-MCA)

ATTACHMENT 2

AGENCIES' CORRESPONDENCE

OUT16/26483

Date 12/07/2016

Lauren Evans
Planning Officer
Resource Assessments
NSW Department of Planning & Environment
23-33 Bridge Street
Sydney NSW 2000

Email: lauren.evans@planning.nsw.gov.au

Dear Lauren.

SEAR's Request – Wattle Vale Quarry (EAR ID No. 1060)

Thank you for the opportunity to provide Environmental Assessment Requirements for the above proposal as per your email dated 30/6/2016.

DPI Agriculture, a division of Department of Primary Industries (DPI), aims to facilitate the growth of agricultural industries and conserve the resources upon which these industries depend. Extractive industries can be a potential source of land use conflict and hard rock quarries can also benefit rural communities, the opportunity to provide advice is welcomed.

DPI Agriculture supports the guideline "Agricultural Issues for Extractive Industry Development". The proponent is requested that the development carefully considers the issues outlined in the above guide.

Specific issues for this development to specifically consider given the Preliminary Environmental Assessment are listed in Attachment 1. to this letter.

The "Agricultural Issues for Extractive Industry Development" guide is available at the following link - http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0005/367763/Agriculture-issues-for-extractive-industry-development.pdf

Should you require clarification on any of the information contained in this response, please contact Andrew Scott 0427245313.

Yours Sincerely

Liz Rogers
Manager Agricultural Land Use Planning

Attachment: 1. Issues Specific to Wattle Vale Quarry

ISSUE	Detail
Consultation with surrounding rural community to prevent future land use conflict.	Adequate consultation with the surrounding Landholders and community needs to be undertaken. Consultation program needs to consider and avoid key periods for Agricultural activities such as Harvest, Sowing, Sales and Holiday periods. The issues identified during consultation and measures to address these issues needs to be stated.
Weed containment and management	Develop a Weed Management Plans (particularly for any soil stockpiles to be used for future rehabilitation) and adjacent roadsides (to avoid spreading weeds off site)
Pest Management	Develop a Pest Management Plan for the entire holding under control of the development and the proponent which includes collaborative programs with neighbors.
Site Rehabilitation	Commitment to restore disturbed agricultural land to pre-existing productive capability.

Lauren Evans

From: Kaie Falkenberg <kaie.falkenberg@scs.nsw.gov.au>
Sent: Monday, 18 July 2016 8:52 AM
To: Lauren Evans
Cc: Landuse Enquiries
Subject: Fwd: Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements

Good morning Lauren,

Please see below comment from LLS regarding Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements. As per my previous correspondence of last week, this matter was referred to LLS for comment from local office staff.

Regards,

Kaie Falkenberg | Coordinator Client Services
Lands
Department of Industry
Level 4, 437 Hunter Street | Newcastle NSW 2300
T: 02 4920 5008 | E: kaie.falkenberg@scs.nsw.gov.au
W: www.industry.nsw.gov.au

---------- Forwarded message ----------
From: **Leanne Dunstan** <leanne.dunstan@crownland.nsw.gov.au>
Date: 14 July 2016 at 15:26
Subject: Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements
To: Kaie Falkenberg <kaie.falkenberg@scs.nsw.gov.au>

Hello Kaie,

We have just received the following comments from LLS regarding the Wattle Vale Quarry at Glen Innes. Would you be able to consider these as a late submission please?

Many thanks,
Leanne Dunstan

---------- Forwarded message ----------
From: **Ross Fuller** <ross.fuller@lls.nsw.gov.au>
Date: 14 July 2016 at 15:09
Subject: RE: HPRM: EAR 1060 - Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements
To: tamworth.crownlands@crownland.nsw.gov.au
Cc: Admin NorthernTablelands <admin.northerntablelands@lls.nsw.gov.au>

Hi Leanne,

Thanks for the opportunity to review and comment on this proposed development.

While there is a significant impact on the Travelling Stock Reserve (TSR) from reduced visual amenity and off site pollution (sound, vibration, water, air), I don't forsee any significant impact on the networks operations.

The TSR in question is utilised by stock for travelling and grazing, and by the general public for walking and accessing the lookout.

I have previously been contacted by Dr Paul Stangroom (paul.stangroom@onewindaustralia.com) regarding a request to put an access road along the TSR on the southern side of your project site. I would like to be reassured that there has been some coordination and consideration given to the projects sharing an access site so as to minimise disturbance to the TSR operations and environmental values.

Regards,

Ross Fuller

T: +61 2 6720 8100 | **M:** 0429 909 827

From: Tamworth CrownLands <tamworth.crownlands@crownland.nsw.gov.au>
Date: 8 July 2016 at 2:36:14 PM AEST
To: Admin NorthernTablelands <admin.northerntablelands@lls.nsw.gov.au>
Subject: Fwd: FW: HPRM: EAR 1060 - Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements

Good afternoon,

Please find attached and following information pertaining to a gravel pit development in Glen Innes, which Crown lands has been referenced for review and comment. An initial assessment of the proposal indicates that Travelling Stock Reserves R67474 and R39538 are impacted by the development. As both of these reserves are managed by Local Land Services, the information is forwarded for your review and comment.

Kind regards,

Leanne Dunstan | Senior Natural Resources Management Officer
Department of Primary Industries, Lands

25-27 Fitzroy Street | TAMWORTH NSW 2340
P O Box 2185 | DANGAR NSW 2309

T: 1300 886 235 | F: 02 4925 3517 | E: tamworth.crownlands@crownland.nsw.gov.au

W: www.crownland.nsw.gov.au

-

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

Lauren Evans

From: Kaie Falkenberg <kaie.falkenberg@scs.nsw.gov.au>
Sent: Wednesday, 13 July 2016 10:01 AM
To: Lauren Evans
Cc: Landuse Enquiries
Subject: Fwd: FW: HPRM: EAR 1060 - Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements
Attachments: Form A.pdf; Wattle Vale Quarry_PEA.pdf

Good morning Lauren,

As regards this proposed development, we have no specific Crown land requests for inclusions in the SEARS.

The most likely Crown land to be affected is TSR under the management of Local Land Services. Our local staff have referred the matter to them for their input, with the intention that they will respond to me directly for any comments.

Regards,

Kaie Falkenberg | Coordinator Client Services
Lands
Department of Industry
Level 4, 437 Hunter Street | Newcastle NSW 2300
T: 02 4920 5008 | E: kaie.falkenberg@scs.nsw.gov.au
W: www.industry.nsw.gov.au

---------- Forwarded message ----------
From: <landuse.enquiries@dpi.nsw.gov.au>
Date: 30 June 2016 at 14:42
Subject: FW: HPRM: EAR 1060 - Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements
To: DPI Agriculture <landuse.ag@dpi.nsw.gov.au>, DPI Fisheries <ahp.central@dpi.nsw.gov.au>, DPI Water <water.referrals@dpi.nsw.gov.au>, Kaie Falkenberg <kaie.falkenberg@scs.nsw.gov.au>

Hi all

RM8 Ref: V16/223#55, INW16/31652

Please find below correspondence requesting SEAR's for the above Local Designated Development application for your direct response to Planning, if relevant (**due date 12/07/16)**. It would be appreciated if you could cc me a copy of the response or advise me when completed for my records.

Regards,

Adam Oehlman | Project Support Officer
Planning Policy and Assessment Advice
NSW Department of Primary Industries | Strategy and Policy
Level 11 | 323 Castlereagh St | Sydney NSW 2000
T: +61 2 9934 0805
E: adam.oehlman@dpi.nsw.gov.au

W: www.dpi.nsw.gov.au

From: Lauren Evans [mailto:Lauren.Evans@planning.nsw.gov.au]
Sent: Tuesday, 28 June 2016 1:34 PM
To: Landuse.enquiries@dpi.nsw.gov.au; landuse.minerals@trade.nsw.gov.au; OEH Planning Matters Mailbox; csc@rfs.nsw.gov.au; Development Northern; council@gisc.nsw.gov.au; Water Referrals
Subject: HPRM: EAR 1060 - Wattle Vale Quarry, Glen Innes - Request for Secretary's Environmental Assessment Requirements

Good afternoon,

Proposal – Wattle Vale Quarry, Glen Innes

EAR ID No. 1060

GHD Pty Ltd, on behalf of Glen Innes Severn Council (the Applicant) has requested the requirements of the Secretary of the Department of Planning and Environment for the preparation of an Environmental Impact Statement (EIS) for the above local designated development located in the Glen Innes Severn local government area.

I have attached a copy of the Applicant's request for your reference. Under Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*, the Secretary is requesting your requirements for the EIS. It would be greatly appreciated if we could receive your advice by **Tuesday 12 July 2016**.

If you have any queries, please contact me on the details below.

Regards

Lauren Evans

Planning Officer

Resource Assessments | Planning Services

Department of Planning & Environment

23-33 Bridge Street | GPO Box 39 SYDNEY NSW 2001

T 02 9228 6311 E lauren.evans@planning.nsw.gov.au

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

Department of Primary Industries
Water

Contact Christie Jackson
Phone 02 6763 1426
Email christie.jackson@dpi.nsw.gov.au

Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Email: lauren.evans@planning.nsw.gov.au

Attention: Lauren Evans

Dear Ms Evans,

SEARs 1060 Wattle Vale Quarry, Glen Innes

I refer to your email dated the 28 June 2016 seeking the Department of Primary Industries – Water's (DPI Water) Secretary's Environmental Assessment Requirements (SEARs) for the Environmental Impact Statement (EIS) for the proposed Wattle Vale Quarry.

DPI Water has reviewed the Preliminary Environmental Assessment and our comments are provided as follows.

Further detail is provided in **Attachment A** and should be addressed if considered relevant to the proposed project.

It is recommended that the EIS be required to include:

- Assessment of any volumetric water licensing requirements required for the project, including the identification of an adequate and secure water supply for the life of the project. This includes confirmation that water can be sourced from an appropriately authorised and reliable supply. This should also include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance, including a table outlining inputs, water use, outputs etc.
- A detailed description of surface water management on the site including proposed sediment basins and information on whether the basin will be lined.
- A detailed description of groundwater and surface water resources (both quality and quantity) on the site and adjacent to the site. This should include a description of potential impacts and proposed mitigation measures.
- A detailed assessment against the NSW Aquifer Interference Policy (2012) using DPI Water's assessment framework. Also refer to NSW Aquifer Interference Policy Fact

Sheet 7 available at http://www.water.nsw.gov.au/water-management/law-and-policy/key-policies/aquifer-interference

- Assessment of impacts on related infrastructure, adjacent licensed water users, basic landholder rights and groundwater dependent ecosystems and measures proposed to reduce and mitigate these impacts.
- A description of proposed surface and groundwater monitoring activities and methodologies. DPI Water may require a number of monitoring bores across the site to monitor potential impacts to groundwater.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- The EIS will need to identify all riparian areas on the site including any creeks, rivers, drainage lines etc and outline any impacts the development may have on these areas, outline the intended management of these areas, including monitoring and mitigation measures, or any works proposed for these areas. All watercourses and drainage lines in the area should be clearly located on a plan in the EIS.

  It is important appropriate buffers are provided adjacent to all watercourses and drainage lines affected by the development.

  Design and construction of works within 40 metres of watercourses are to be in accordance with the Office of Water's "Guidelines for Controlled Activities".

- The NSW Farm Dams Policy must be addressed in the EIS and the proposal needs to satisfy the Harvestable Rights Order published in accordance with section 54 of the *Water Management Act 2000*. Any current or additional dams, storages, detention basins constructed as part of the development will need to be in accordance with this policy or be otherwise appropriately approved and volumes of water taken in excess of Harvestable Rights need to be licenced.

- The EIS must address erosion and sediment control measures on the site during the construction and operations. It is important any riparian areas adjacent to the site are not affected by the proposed development.

- Consideration of all relevant State and Federal policies and guidelines.

- A statement of where each element of the SEARs is addressed in the EIS (i.e. in the form of a table).

If you require clarification on any of the above please contact me on (02) 6763 1426 at the Tamworth office.

Yours sincerely,

Christie Jackson
Water Regulation Officer

4/7/2016

ATTACHMENT A

DPI Water General Assessment Requirements for general projects

The following detailed assessment requirements are provided to assist in adequately addressing the assessment requirements for this proposal.

For further information visit the DPI Water website, www.water.nsw.gov.au

Key Relevant Legislative Instruments
This section provides a basic summary to aid proponents in the development of an Environmental Impact Statement (EIS), and should not be considered a complete list or comprehensive summary of relevant legislative instruments that may apply to the regulation of water resources for a project.

The EIS should take into account the objects and regulatory requirements of the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (*WMA 2000*), and associated regulations and instruments, as applicable.

Water Management Act 2000 (WMA 2000)
Key points:

- Volumetric licensing in areas covered by water sharing plans
- Works within 40m of waterfront land
- SSD & SSI projects are exempt from requiring water supply work approvals and controlled activity approvals as a result of the *Environmental Planning & Assessment Act 1979 (EP&A Act)*.
- No exemptions for volumetric licensing apply as a result of the *EP&A Act*.
- Basic landholder rights, including harvestable rights dams
- Aquifer interference activity approval and flood management work approval provisions have not yet commenced and are regulated by the *Water Act 1912*
- Maximum penalties of $2.2 million plus $264,000 for each day an offence continues apply under the *WMA 2000*

Water Act 1912 (WA 1912)
Key points:

- Volumetric licensing in areas where no water sharing plan applies
- Monitoring bores
- Aquifer interference activities that are not regulated as a water supply work under the *WMA 2000*.
- Flood management works
- No exemptions apply to licences or permits under the *WA 1912* as a result of the *EP&A Act*.
- Regulation of water bore driller licensing.

Water Management (General) Regulation 2011
Key points:

- Provides various exemptions for volumetric licensing and activity approvals

- Provides further detail on requirements for dealings and applications.

Water Sharing Plans – these are considered regulations under the *WMA 2000*

Access Licence Dealing Principles Order 2004

Harvestable Rights Orders

Water Sharing Plans

It is important that the proponent understands and describes the ground and surface water sharing plans, water sources, and management zones that apply to the project. The relevant water sharing plans can be determined spatially at www.ourwater.nsw.gov.au. Multiple water sharing plans may apply and these must all be described.

The *Water Act 1912* applies to all water sources not yet covered by a commenced water sharing plan.

The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plan including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection (including groundwater dependent ecosystems), water quality and surface-groundwater connectivity.
- Provide a description of any site water use (amount of water to be taken from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP, including:
    - Sufficient market depth to acquire the necessary entitlements for each water source.
    - Ability to carry out a "dealing" to transfer the water to relevant location under the rules of the WSP.
    - Daily and long-term access rules.
    - Account management and carryover provisions.
    - Provide a detailed and consolidated site water balance.

Further detail on licensing requirements is provided below.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- NSW Guidelines for Controlled Activities on Waterfront Land (DPI, 2012)
- NSW Aquifer Interference Policy (DPI Water, 2012)

- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (DPI Water, 2012)
- Australian Groundwater Modelling Guidelines (NWC, 2012)
- NSW State Rivers and Estuary Policy (1993)
- NSW Wetlands Policy (2010)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Water Extraction Monitoring Policy (2007)

DPI Water policies can be accessed at the following links:
http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx

http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/default.aspx

An assessment framework for the NSW Aquifer Interference Policy can be found online at: http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the project in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site – such as evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc.).
- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages
- Details on the location, purpose, size and capacity of any new proposed dams/storages.
- Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10% of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

For more information on Harvestable Right dams, including a calculator, visit: http://www.water.nsw.gov.au/Water-licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff

Dam Safety

Where new or modified dams are proposed, or where new development will occur below an existing dam, the NSW Dams Safety Committee should be consulted in relation to any safety issues that may arise. Conditions of approval may be recommended to ensure safety in relation to any new or existing dams.

See www.damsafety.nsw.gov.au for further information.

Surface Water Assessment

The predictive assessment of the impact of the proposed project on surface water sources should include the following:

- Identification of all surface water features including watercourses, wetlands and floodplains transected by or adjacent to the proposed project.
- Identification of all surface water sources as described by the relevant water sharing plan.
- Detailed description of dependent ecosystems and existing surface water users within the area, including basic landholder rights to water and adjacent/downstream licensed water users.
- Description of all works and surface infrastructure that will intercept, store, convey, or otherwise interact with surface water resources.
- Assessment of predicted impacts on the following:
    - flow of surface water, sediment movement, channel stability, and hydraulic regime,
    - water quality,
    - flood regime,
    - dependent ecosystems,
    - existing surface water users, and

- planned environmental water and water sharing arrangements prescribed in the relevant water sharing plans.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources.

Where it is considered unlikely that groundwater will be intercepted or impacted (for example by infiltration), a brief site assessment and justification for the minimal impacts may be sufficient, accompanied by suitable contingency measures in place in the event that groundwater is intercepted, and appropriate measures to ensure that groundwater is not contaminated.

Where groundwater is expected to be intercepted or impacted, the following requirements should be used to assist the groundwater assessment for the proposal.

- The known or predicted highest groundwater table at the site.
- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Bore construction information is to be supplied to DPI Water by submitting a "Form A" template. DPI Water will supply "GW" registration numbers (and licence/approval numbers if required) which must be used as consistent and unique bore identifiers for all future reporting.
- A description of the watertable and groundwater pressure configuration, flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Sufficient baseline monitoring for groundwater quantity and quality for all aquifers and GDEs to establish a baseline incorporating typical temporal and spatial variations.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.
- An assessment of groundwater quality, its beneficial use classification and prediction of any impacts on groundwater quality.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.
- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).
- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identify any potential impacts on GDEs as a result of the proposal including:
  - the effect of the proposal on the recharge to groundwater systems;
  - the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
  - the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Watercourses, Wetlands and Riparian Land

The EIS should address the potential impacts of the project on all watercourses likely to be affected by the project, existing riparian vegetation and the rehabilitation of riparian land. It is recommended the EIS provides details on all watercourses potentially affected by the proposal, including:

- Scaled plans showing the location of:
  - wetlands/swamps, watercourses and top of bank;
  - riparian corridor widths to be established along the creeks;
  - existing riparian vegetation surrounding the watercourses (identify any areas to be protected and any riparian vegetation proposed to be removed);
  - the site boundary, the footprint of the proposal in relation to the watercourses and riparian areas; and
  - proposed location of any asset protection zones.
- Photographs of the watercourses/wetlands and a map showing the point from which the photos were taken.
- A detailed description of all potential impacts on the watercourses/riparian land.

- A detailed description of all potential impacts on the wetlands, including potential impacts to the wetlands hydrologic regime; groundwater recharge; habitat and any species that depend on the wetlands.
- A description of the design features and measures to be incorporated to mitigate potential impacts.
- Geomorphic and hydrological assessment of water courses including details of stream order (Strahler System), river style and energy regimes both in channel and on adjacent floodplains.

Landform rehabilitation

Where significant modification to landform is proposed, the EIS must include:

- Justification of the proposed final landform with regard to its impact on local and regional surface and groundwater systems;
- A detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape;
- Outline of proposed construction and restoration of topography and surface drainage features if affected by the project; and
- An outline of the measures to be put in place to ensure that sufficient resources are available to implement the proposed rehabilitation.

Consultation and general enquiries

General licensing enquiries can be made to Advisory Services: water.enquiries@dpi.nsw.gov.au, 1800 353 104.

End
Attachment A

Department of Industry
Resources & Energy

7th July 2016

Lauren Evans
Planning Officer
Resource Assessments & Planning Services
Department of Planning & Environment
GPO Box 39
Sydney NSW 2001

Emailed: lauren.evans@planning.nsw.gov.au

Your Reference: SEAR ID No.1060
Our Reference: OUT/25804

Dear Ms Evans,

Re: Request for Secretary's Environmental Assessment Requirements (SEAR 1060) Proposal – Wattle Vale Quarry, Glen Innes Severn LGA

Thank you for the opportunity to provide advice on the subject proposal.

This is a response from NSW Department of Industry – Division of Resources & Energy (DRE), incorporating advice from the Agriculture and Fisheries Branches. Specific Fisheries or Forests issues arising may be provided in separate correspondence.

The building and construction industries in NSW require ongoing replacement of supplies as sources are exhausted. The development of new quarries, subject to environmental assessment, helps to ensure a continued supply of material for a range of building and construction uses in NSW. The resource in the subject area represents a regionally important source of hard rock aggregate for the Glen Innes Severn area, including potential construction material for the Glen Innes Wind Farm to be positioned to the south of the subject area.

Mineral Resources Issues
Hard rock aggregate (basalt) is not a prescribed mineral under the *Mining Act 1992*. Therefore, DRE has no statutory role in authorising or regulating the extraction of this commodity, apart from its role under the *Work Health & Safety Act 2011* and associated regulations and the *Mine Health and Safety Act 2004* and associated regulations, for ensuring the safe operation of mines and quarries.

All environmental reports (EISs or similar) accompanying Development Applications for extractive industry lodged under the *Environmental Planning & Assessment Act 1979* should include a resource assessment **(as detailed in Attachment A)** which:

- **Documents the size and quality of the resource and demonstrates that both have been adequately assessed; and**
- **Documents the methods used to assess the resource and its suitability for the intended applications.**

Applications to modify, expand, extend or intensify an existing consent that has already been adequately reported using the above protocol in publicly available documents, may restrict detailed documentation to the additional resources to be used, if accompanied by a summary of past resource assessments and of past production.

DRE collects data on the quantity and value of construction materials produced annually throughout the State. Forms are sent to all operating quarries at the end of each financial year for this purpose. The statistical data thus collected is of great value to Government and industry in planning and resource management, particularly as a basis for analysing trends in production and for estimating future demand for particular commodities or in particular regions. In order to assist in the collection of construction material production data, the proponent should be required to provide annual production data for the subject site to DRE as a condition of any new or amended development consent.

Queries regarding the above information, and future requests for advice in relation to this matter, should be directed to the DRE – Geological Survey of New South Wales Land Use team at landuse.minerals@industry.nsw.gov.au

Agricultural Issues for Extractive Industries (Quarries)

The relevant agricultural issues to consider when preparing and also when assessing extractive industry proposals are set out in the Departments' Guideline: *Agricultural issues for Extractive Industries* available on our website; http://www.dpi.nsw.gov.au/agriculture/resources/lup/development-assessment. The guideline also documents recommended project design and mitigatory responses.

The guideline is part of a series designed to help consent authorities identify potential agricultural impacts, and assess whether such proposals can avoid conflict with existing agricultural developments; and protect valuable food and fibre production resources. The guidelines can similarly help consultants and proponents and are available from the Department of Primary Industries land use planning web portal: http://www.dpi.nsw.gov.au/agriculture/resources/lup/development-assessment .

Fisheries Issues

General issues are summarised in **Attachment B**.

Yours sincerely

Cressida Gilmore
Manager - Land Use

Encl. Attachments "A to B"

ATTACHMENT A

NSW Department of Industry
RESOURCES & ENERGY DIVISION

ENVIRONMENTAL and WORK HEALTH & SAFETY ASSESSMENT REQUIREMENTS FOR CONSTRUCTION MATERIAL QUARRY PROPOSALS

It is in the best interests of both the proponent and the community to fully assess the resources which are to be extracted. This means that a thorough geological assessment should be undertaken to determine the nature, quality and extent of the resource. Failure to undertake such an assessment could lead to operational problems and possibly even failure of the proposal.

The following issues need to be addressed when preparing an environmental assessment (EA) or environmental impact statement (EIS) for a proposed construction materials (extractive materials) quarry:

Resource Assessment

1. A summary of the regional and local geology including information on the stratigraphic unit or units within which the resource is located.

2. The amount of material to be extracted and the method or methods used to determine the size of the resource (e.g. drilling, trenching, geophysical methods). Plans and cross-sections summarising this data, at a standard scale, showing location of drillholes and/or trenches, and the area proposed for extraction, should be included in the EA or EIS. Relevant supporting documentation such as drill logs should be included or appended. Major resource proposals should be subject to extensive drilling programs to identify the nature and extent of the resource.

3. Characteristics of the material or materials to be produced:
   a) For structural clay/shale extraction proposals, ceramic properties such as plasticity, drying characteristics (e.g. dry green strength, linear drying shrinkage), and firing characteristics (e.g. shrinkage, water absorption, fired colour) should be described.
   b) For sand extraction proposals, properties such as composition, grainsize, grading, clay content and contaminants should be indicated. The inclusion of indicative grading curves for all anticipated products as well as the overall deposit is recommended.
   c) For hard rock aggregate proposals, information should be provided on properties such as grainsize and mineralogy, nature and extent of weathering or alteration, and amount and type of deleterious minerals, if any.

d) For other proposals, properties relevant to the range of intended uses for the particular material should be indicated.

Details of tests carried out to determine the characteristics of the material should be included or appended. Such tests should be undertaken by NATA registered testing laboratories.

4. An assessment of the quality of the material and its suitability for the anticipated range of applications should be given.

5. The amount of material anticipated to be produced annually should be indicated. If the proposal includes a staged extraction sequence, details of the staging sequence needs to be provided. The intended life of the operation should be indicated.

6. If the proposal is an extension to an existing operation, details of history and past production should be provided.

7. An assessment of alternative sources to the proposal and the availability of these sources. The impact of not proceeding with the proposal should be addressed.

8. Justification for the proposal in terms of the local and, if appropriate, the regional context.

9. Information on the location and size of markets to be supplied from the site.

10. Route(s) used to transport quarry products to market.

11. Disposal of waste products and the location and size of stockpiles.

12. Assessment of noise, vibration, dust and visual impacts, and proposed measures to minimise these impacts.

13. Proposed rehabilitation procedures during, and after completion of, extraction operations, and proposed final use of site.

14. Assessment of the ecological sustainability of the proposal.

Health and Safety Issues

In relation to the health & safety of mining and quarrying operations, the following issues should be addressed:

1. All operations are to comply with the following Acts & Regulations
   a. *Work Health & Safety Act 2011*
   b. *Work Health & Safety Regulations 2011*
   c. *Mine Health & Safety Act 2004*
   d. *Mine Health & Safety Regulations 2007*

2. The mine holder must nominate the mine operator in writing on the prescribed form to the Chief Inspector as required by the *Mine Health & Safety Act 2004* Section 22 prior to the commencement of extraction.

3. The operator of the mine must appoint a production manager as required by the *Mine Health & Safety Regulation 2007* Clause 16 and the operator must notify the Chief Inspector of the appointment in writing as required by the *Mine Health & Safety Regulation 2007* Clause 18 prior to the commencement of extraction.

4. Any blasting operations carried out by the mine operator must comply with the *Explosives Act 2003* and the *Explosives Regulations 2005*.

Mineral Ownership

The *Mining Act 1992* applies to those commodities prescribed by the regulations of the Act (Schedule 2, *Mining Regulation 2003*). Most construction materials are not prescribed minerals under the *Mining Act 1992*. In general terms, this means these materials are owned by the Crown where they occur on Crown land and by the landowner in the case of freehold land. A Mining Title is not required for their extraction although a Crown Lands licence is required where they occur on Crown land.

Construction materials such as s*and (other than marine aggregate), loam, river gravel, and coarse aggregate materials such as basalt, sandstone, and granite* are not prescribed minerals under the *Mining Act 1992*. Therefore, NSW Department of Industry has no statutory responsibility for authorising or regulating the extraction of these commodities, apart from its role under the *Mine Health and Safety Act 2004* with respect to the safe operation of mines and quarries. However, the Department is the principal government authority responsible for assessing the State's resources of construction materials and for advising State and local government on their planning and management.

Some commodities, notably *structural clay (ie clay for brick, tile and pipe manufacture), dimension stone (except for sandstone), quartzite, kaolin, limestone and marine aggregate* are prescribed minerals under the *Mining Act 1992*. Minerals which are prescribed as minerals under the terms of the Mining Act may, in some cases belong either to the Crown or to the landowner, depending on a number of factors including the date on which the mineral was proclaimed and the date of alienation of the land. The proponent needs to determine whether the material is privately owned or Crown mineral (publicly owned). If it is privately owned, then either a notification under Section 8 of the *Mining Act 1992* or, alternatively, a mining lease or mineral claim would be required. If it is a Crown mineral, an application for a mining lease or mineral claim will have to be lodged.

If you are unsure whether a mining title is required for your proposal you should contact NSW Department of Industry, Resources & Energy Division.

Department of Industry
Resources & Energy

ATTACHMENT B

Primary Industries Division - Aquatic Habitat Protection Requirements

Matters to be Addressed

Definitions

The definitions given below are relevant to these requirements:

Fish means any part of marine, estuarine or freshwater fish or other aquatic animal life at any stage of their life history (whether alive or dead). This includes aquatic molluscs, crustaceans, echinoderms, worms, aquatic insect larvae and other macroinvertebrates .

Marine vegetation means any species of plant that at any time in its life must inhabit water (other than fresh water).

Waters refers to all waters including tidal waters as well as flowing streams, irregularly flowing streams, gullies, rivers, lakes, coastal lagoons, wetlands and other forms of natural or man made water bodies on both private and public land.

1. General Requirements

- Area which may be affected either directly or indirectly by the development or activity should be identified and shown on an appropriately scaled map (1:25000) and aerial photographs.
- All waterbodies and waterways within the proposed area of development are to be identified.
- Description and maps of aquatic vegetation, snags, gravel beds and any other protected, threatened or dominant habitats should be presented. Description should include area, density and species composition.
- A survey of fish species should be carried out and results included. Existing data should be used only if collected less than 5 years previously.
- Identification of recognised recreational and commercial fishing grounds, aquaculture farms and/or other waterways users.
- Details of the location of all component parts of the proposal, including any auxiliary infrastructure, timetable for construction of the proposal with details of various phases of construction
- Aspects of the management of the proposal, both during construction and after completion, which relate to impact minimisation and site rehabilitation eg Environment Management Plans, Rehabilitation Plans, Compensatory offsets
- For each freshwater body identified on the plan, the plan should include, either by annotation or by an accompanying table, hydrological and stream morphology information such as: flow characteristics, including any seasonal variations, bed substrate, and bed width
- For each marine or estuarine area identified on the plan, the plan should include, either by annotation or by an accompanying table, hydrological and stream morphology information such as: tidal characteristics, bed substrate, and depth contours

DREDGING AND RECLAMATION ACTIVITIES

- Purpose of works
- Type(s) and distribution of marine vegetation in the vicinity of the proposed works
- Method of dredging to be used

- Timing and Duration of works
- Dimension of area of works including levels and volume of material to be extracted or placed as fill
- Nature of sediment to be dredged, including Acid Sulphate Soil, contaminated soils etc
- Method of marking area subject to works
- Environmental safeguards to be used during and after works
- Measures for minimising harm to fish habitat under the proposal
- Spoil type and source location for reclamation activities
- Method of disposal of dredge material
- Location and duration of spoil stockpiling, if planned

ACTIVITIES THAT DAMAGE MARINE VEGETATION

- Type of marine vegetation to be harmed
- Map and density distribution of marine vegetation
- Reasons for harming marine vegetation
- Methods of harming marine vegetation
- Construction details
- Duration of works/activities
- Measures for minimising harm to marine vegetation under the proposal and details of compensatory habitat development to replace lost vegetation.
- Method and location of transplanting activities or disposal of marine vegetation

ACTIVITIES THAT BLOCK FISH PASSAGE

- Type of activity eg works in a stream that change flow or morphological characteristics of the stream, including culvert and causeway construction, sediment and erosion control measures, stormwater diversion structures.
- Length of time fish passage is to be restricted, whether permanent or temporary
- Timing of proposed restriction. Should be timed to avoid interfering with migratory movements of fish.
- Remediation or compensatory works to offset any impacts

THREATENED SPECIES

- Threatened aquatic species assessment (Section 5c, EP&A Act 1979). This must be addressed even if there are no Threatened Species present on the site.
- Seven Part Test

FISHING AND AQUACULTURE

- Outline and document commercial, recreational and indigenous fishing activities that may be affected by the activity, including regular commercial fishing grounds, popular recreational fishing sites, recognised indigenous harvesting sites.
- Will the activity interfere with or cause an impact on the continuing operation and viability of nearby aquaculture or mariculture ventures.

2. Initial Assessment

A list of threatened species, endangered populations and endangered ecological communities must be provided. In determining these species, consideration must be given to the habitat types present within the study area, recent records of threatened species in the locality and the known distributions of these species.

In describing the locality in the vicinity of the proposal, discussion must be provided in regard to the previous land and water uses and the effect of these on the proposed site. Relevant historical events may include land clearing, agricultural activities, water

abstraction/diversion, dredging, de-snagging, reclamation, siltation, commercial and recreational activities.

A description of habitat including such components as stream morphology, in-stream and riparian vegetation, water quality and flow characteristics, bed morphology, vegetation (both aquatic and adjacent terrestrial), water quality and tide/flow characteristics must be given. The condition of the habitat within the area must be described and discussed, including the presence and prevalence of introduced species. A description of the habitat requirements of threatened species likely to occur in the study area must be provided.

In defining the proposal area, discussion must be provided in regard to possible indirect effects of the proposal on species/habitats in the area surrounding the subject site: for example, through altered hydrological regimes, soil erosion or pollution. The study area must extend downstream and/or upstream as far as is necessary to take all potential impacts into account.

Please Note: Persons undertaking aquatic surveys may be required to hold or obtain appropriate permits or licences under relevant legislation. For example:

Fisheries Management Act 1994
- Permit to take fish or marine vegetation for research or other authorised purposes (Section 37)
- Licence to harm threatened (aquatic) species, and/or damage the habitat of a threatened species (Section 220ZW).

Animal Research Act 1985:
- Animal Research Authority to undertake fauna surveys.

It is recommend that, prior to any field survey activities taking place, those persons proposing to undertake those activities give consideration to their obligation to obtain appropriate permits or licences which may be required in the specific context of the proposed survey activities.

3. Assessment of Likely Impacts

The EIS must:
- describe and discuss significant habitat areas within the study area;
- outline the habitat requirements of threatened species likely to occur in the study area;
- indicate the location, nature and extent of habitat removal or modification which may result from the proposed action;
- discuss the potential impact of the modification or removal of habitat;
- identify and discuss any potential for the proposal to introduce barriers to the movement of fish species; and
- describe and discuss any other potential impacts of the proposal on fish species or their habitat.

For all species likely to have their lifecycle patterns disrupted by the proposal to the extent that individuals will cease to occupy any location within the subject site, the EIS must describe and discuss other locally occurring populations of such species. The relative significance of this location for these species in the general locality must be discussed in terms of the extent, security and viability of remaining habitat in the locality.

4. Ameliorative Measures

The EIS must consider how the proposal has been or may be modified and managed to conserve fisheries habitat on the subject site and in the study area.

In discussing alternatives to the proposal, and the measures proposed to mitigate any effects of the proposal, consideration must be given to developing long term management strategies to protect areas within the study area which are of particular importance for fish species. This may include proposals to restore or improve habitat.

Any proposed pre-construction monitoring plans or on-going monitoring of the effectiveness of the mitigation measures must be outlined in detail, including the objectives of the monitoring program, method of monitoring, reporting framework, duration and frequency.

In the event of a request for concurrence or consultation of the Secretary of NSW Department of Industry, one (1) copy of the EIS should be provided to NSW Department of Industry in order for the request to be processed.

It should be noted that NSW Department of Industry has no regulatory or statutory role to review draft EISs unless they are accompanied by or are requested as part of a licence application under Part 7A of the FM Act. However, NSW Department of Industry is available to provide advice to consent and determining authorities regarding Fisheries' opinion as to whether the requirements have been met if requested, pending the availability of resources and other statutory priorities.

Useful Information
To help you in the preparation of an EIS, the publication "*Guidelines for the Assessment of Aquatic Ecology in EIA"* (Draft 1998) produced by the Department for Urban Affairs and Planning may prove useful in outlining appropriate procedures and methodologies for conducting aquatic surveys.

Should you require any further information on these requirements please contact the Aquatic Habitat Protection Office at Port Stephens on 4916 3931.

The Planning Officer
GPO Box 39
SYDNEY NSW 2001
Email: lauren.evans@planning.nsw.gov.au **BY EMAIL**

Attention: Lauren Evans

Notice Number	1542742
File Number	SF16/30794
Date	22-Jul-2016

RE: EAR ID 1060 - PROPOSED HARD ROCK QUARRY - 1296 GWYDIR HIGHWAY GLEN INNES

I refer to your request for the Environment Protection Authority's (EPA) requirements for an environmental impact assessment (EIS) in regard to the proposal received by EPA on 19 July 2016.

The EPA has considered the details of the proposal detailed in the Form A application, and a Preliminary Environmental Assessment (PEA) prepared by the applicant's consultant GHD Pty Ltd, and has identified the information it requires to issue its general terms of approval in Attachment A. In summary, the EPA's key information requirements for the proposal include an adequate assessment of:

1. Air quality impacts on nearby sensitive receivers;
2. Noise impacts on nearby sensitive receivers; and
3. Surface water and groundwater impacts.

In carrying out the assessment, the proponent should refer to the relevant guidelines identified in Attachment B, and any relevant industry codes of practice and best practice management guidelines.

The EPA notes the identification of potential environmental issues in the PEA, and the range of impact assessments relating to key environmental issues including soils and water, air quality, noise and vibration, and hazards and risks associated with the proposed development.

Please note that this response does not address biodiversity or Aboriginal cultural heritage issues, which are the responsibility of the Office of Environment and Heritage.

The Proponent should be made aware that any commitments made in the PEA and EIS may be formalised as approval conditions and may also be placed as formal licence conditions.

Email: armidale@epa.nsw.gov.au
PO Box 494 Armidale NSW 2350
85 Faulkner St Armidale NSW 2350
Tel: (02) 6773 7000 Fax: (02) 6772 2236
ABN 43 692 285 758
www.epa.nsw.gov.au

The Proponent should be made aware that, consistent with provisions under Part 9.4 of the *Protection of the Environment Operations Act 1997* the EPA may require the provision of a financial assurance and/or assurances. The amount and form of the assurance(s) would be determined by the EPA and required as a condition of an Environment Protection Licence (EPL).

In addition, as a requirement of an EPL, the Proponent is required to prepare, test and implement a Pollution Incident Response Management Plan and/or Plans in accordance with Section 153A of the Act.

Yours sincerely

.....

Robert O'Hern

Head Regional Operation Unit

North - Armidale

(by Delegation)

ATTACHMENT A: EIS REQUIREMENTS FOR A PROPOSED HARD ROCK (AGGREGATE) QUARRY, WATTLE VALE, GLEN INNES NSW

1 Environmental impacts of the project

1.1 Impacts related to the following environmental issues need to be assessed, quantified and reported on:

- Air Issues
  - Air quality
- Noise and vibration
- Waste including hazardous materials and radiation
  - General waste – disposal options
  - Hazardous materials and radiation
- Water and Soils
  - Soils - general
  - Water quality - catchment description, water balance
  - Contaminated land

The Environmental Impact Statement (EIS) should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A list of guidelines is provided in Attachment B.

2 Licensing requirements

2.1 On the basis of the information submitted to date, the proposal constitutes one or more scheduled activities as defined in Schedule 1 of the *Protection of the Environment Operations Act 1997* (the Act) and will therefore require an Environment Protection Licence (EPL) if approval is granted. The EIS should address the requirements of Section 45 of the Act, determining the extent of each impact and providing sufficient information to enable the EPA to determine appropriate limits for the EPL.

2.2 Should project approval be granted, the proponent will need to make a separate application to the EPA for an EPL for the proposed facility prior to undertaking any on site works, including scheduled development works. Additional information is available through the *EPA Guide to Licensing* document (www.epa.nsw.gov.au/licensing/licenceguide.htm).

SPECIFIC ISSUES

3 Air issues

The EIS should include an air quality impact assessment (AQIA) and should comprise the following:

3.1. An assessment of the risk associated with potential discharges of fugitive and point source emissions for all stages of the proposal. Assessment of risk relates to environmental harm, risk to human heath and amenity.

3.2. Justification of the level of assessment undertaken on the basis of risk factors, including but not limited to:

- the location of the proposal;
- characteristics of the receiving environment; and
- the type and quantity of pollutants emitted.

3.3. A description of the receiving environment in detail. The proposal must be contextualised within the receiving environment (local, regional and inter-regional as appropriate). The description must include but need not be limited to:
- meteorology and climate;
- topography;
- surrounding land-use; receptors; and
- ambient air quality.

3.4. Inclusion of a detailed description of the proposal. All processes that could result in air emissions must be identified and described. Sufficient detail to accurately communicate the characteristics and quantity of all emissions must be provided.

3.5. Inclusion of a consideration of 'worst case' emission scenarios and impacts at proposed emission limits.

3.6. Accounting for cumulative impacts associated with existing emission sources as well as any currently approved developments linked to the receiving environment.

3.7. Inclusion of air dispersion modelling where there is a risk of adverse air quality impacts, or where there is sufficient uncertainty to warrant a rigorous numerical impact assessment. Air dispersion modelling must be conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* http://www.epa.nsw.gov.au/resources/air/ammodelling05361.pdf.

3.8. A demonstration of the proposal's ability to comply with the relevant regulatory framework, specifically the *Protection of the Environment Operations (POEO) Act (1997)* and the *POEO (Clean Air) Regulation (2010)*. Particular consideration should be given to section 129 of the POEO Act concerning control of "offensive odour" if relevant to potentially odorous activities at the site.

3.9. Details of emission control techniques/practices that will be employed by the proponent.

4 Noise and Vibration

In relation to noise, the following matters should be addressed (where relevant) as part of the Environmental Assessment.

General

4.1. Construction noise associated with the proposed development should be assessed using the *Interim Construction Noise Guideline (*DECC, 2009). http://www.epa.nsw.gov.au/noise/constructnoise.htm

4.2. Vibration from all activities (including construction and operation) to be undertaken on the premises should be assessed using the guidelines contained in the *Assessing Vibration: a technical guideline* (DEC, 2006). http://www.epa.nsw.gov.au/noise/vibrationguide.htm

4.3. If blasting is required during the construction or operational stages of the proposed development, blast impacts should be demonstrated to be capable of complying with the guidelines contained in

Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC, 1990). http://www.epa.nsw.gov.au/noise/blasting.htm

Industry

4.4. Operational noise from all industrial activities (including private haul roads and private railway lines) to be undertaken on the premises should be assessed using the guidelines contained in the *NSW Industrial Noise Policy* (EPA, 2000) and *Industrial Noise Policy Application Notes.* http://www.epa.nsw.gov.au/noise/industrial.htm

Road

4.5. Noise on public roads from increased road traffic generated by land use developments should be assessed using the guidelines contained in the *Environmental Criteria for Road Traffic Noise* (EPA, 1999). http://www.epa.nsw.gov.au/noise/traffic.htm

5 Waste, chemicals and hazardous materials and radiation

5.1. Identify, characterise and classify all waste that will be generated onsite through excavation, demolition or construction activities, including the proposed quantities of the waste.
Note: All waste must be classified in accordance with the *EPA's Waste Classification Guidelines*.

5.2. Identify, characterise and classify all waste that is proposed to be disposed of to an offsite location, including proposed quantities of the waste and the disposal locations for the waste. This includes waste that is intended for re-use or recycling.
Note: All waste must be classified in accordance with the *EPA's Classification Guidelines*.

5.3. Include a commitment to retaining all sampling and classification results for the life of the project to demonstrate compliance with *EPA's Waste Classification Guidelines*.

5.4. Provide details of how waste will be handled and managed onsite to minimise pollution, including:

a) Stockpile location and management
- Labelling of stockpiles for identification, ensuring that all waste is clearly identified and stockpiled separately from other types of material (especially the separation of any contaminated and non-contaminated waste).
- Proposed height limits for all waste to reduce the potential for dust and odour.
- Procedures for minimising the movement of waste around the site and double handling.
- Measures to minimise leaching from stockpiles into the surrounding environment, such as sediment fencing, geofabric liners etc.

b) Erosion, sediment and leachate control including measures to be implemented to minimise erosion, leachate and sediment mobilisation at the site during works. The EIS should show the location of each measure to be implemented. The Proponent should consider measures such as:
- Sediment traps
- Diversion banks
- Sediment fences
- Bunds
- Geofabric liners
- Other control measures as appropriate

5.5. The Proponent should also provide details of:
- how leachate from stockpiled waste material will be kept separate from stormwater runoff;
- treatment of leachate through a wastewater treatment plant (if applicable); and
- any proposed transport and disposal of leachate off-site.

5.6. Provide details of how the waste will be handled and managed during transport to a lawful facility. If the waste possesses hazardous characteristics, the Proponent must provide details of how the waste will be treated or immobilised to render it suitable for transport and disposal.

5.7. Include details of all procedures and protocols to be implemented to ensure that any waste leaving the site is transported and disposed of lawfully and does not pose a risk to human health or the environment.

5.8. Include a statement demonstrating that the Proponent is aware of the EPA's requirements with respect to notification and tracking of waste.

5.9. Include a statement demonstrating that the Proponent is aware of the relevant legislative requirements for disposal of the waste, including any relevant Resource Recovery Exemptions, as gazetted by the EPA from time to time.

5.10. Outline contingency plans for any event that affects operations at the site that may result in environmental harm, including: excessive stockpiling of waste, volume of leachate generated exceeds the storage capacity available on-site etc.

6 Water and soils

6.1 Soils

The EIS should include:

6.1.1. An assessment of potential impacts on soil and land resources should be undertaken, being guided by *Soil and Landscape Issues in Environmental Impact Assessment* (DLWC 2000). The nature and extent of any significant impacts should be identified. Particular attention should be given to:

a. Soil erosion and sediment transport - in accordance with *Managing urban stormwater: soils and construction* Volume 1 (Landcom 2004) and Volume 2 (2A Installation of services; 2B Waste landfills; 2C Unsealed roads; 2D Main Road Construction; 2E Mines and Quarries) (DECC 2008).

b. Mass movement (landslides) – in accordance with *Landslide risk management* guidelines presented in Australian Geomechanics Society (2007).

c. Urban and regional salinity – guidance given in the Local Government Salinity Initiative booklets which includes *Site Investigations for Urban Salinity* (DLWC, 2002).

6.1.2. A description of the mitigation and management options that will be used to prevent, control, abate or minimise identified soil and land resource impacts associated with the project. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented. Where required, add any specific assessment requirements relevant to the project.

6.2 Water

Describe Proposal

6.2.1. Describe the proposal including position of any intakes and discharges, volumes, water quality and frequency of all water discharges.

6.2.2. Demonstrate that all practical options to avoid discharge have been implemented and environmental impact minimised where discharge is necessary.

6.2.3. Where relevant include a water balance for the development including water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Background Conditions

6.3.1. Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal.

Proponents are generally only expected to source available data and information. However, proponents of relatively large and/or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could also include, for example:

- water chemistry
- a description of receiving water processes, circulation and mixing characteristics and hydrodynamic regimes
- lake or estuary flushing characteristics
- sensitive ecosystems or species conservation values
- specific human uses (e.g. fishing, proximity to recreation areas)
- a description of any impacts from existing industry or activities on water quality
- a description of the condition of the local catchment e.g. erosion, soils, vegetation cover, etc.
- an outline of baseline groundwater information, including, for example, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
- historic river flow data

6.3.1. State the Water Quality Objectives for the receiving waters relevant to the proposal. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (http://www.environment.nsw.gov.au/ieo/index.htm). Where groundwater may be impacted the assessment should identify appropriate groundwater environmental values.

6.3.2. State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC (2000) Guidelines for Fresh and Marine Water Quality (http://www.environment.gov.au/water/policy-programs/nwqms/).

6.3.3. State any locally specific objectives, criteria or targets which have been endorsed by the NSW Government.

Impact Assessment

6.4.1. Describe the nature and degree of impact that any proposed discharges will have on the receiving environment.

Depending on the nature, scale and/or risk of the proposal, this could include specific requirements to consider impacts on, for example:

- water circulation, current patterns, water chemistry and other appropriate characteristics such as clarity, temperature, nutrient and toxicants

- changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, and groundwater)
- disturbance of acid sulphate soils and potential acid sulfate soils
- stream bank stability and impacts on macro invertebrates

Depending on the nature, scale and/or risk of the proposal, modelling, monitoring, or both, may need to be undertaken to assess the potential impact of discharges on the receiving environment. If modelling is required to assess the potential impact of any discharge(s), this could include, for example:

- a range of scenarios that encompass any variations in discharge quality and quantity as well as the relevant range of environmental conditions of the receiving waters. The scenarios could describe a set of worst-case conditions and typical conditions to ensure that both acute and chronic impacts are assessed,
- assumptions used in the modelling, including identification and discussion of the limitations and assumptions to ensure full consideration of all factors, including uncertainty in predictions.

6.4.2. Assess impacts against the relevant ambient water quality outcomes.

Demonstrate how the proposal will be designed and operated to:

- protect the Water Quality Objectives for receiving waters where they are currently being achieved; and
- contribute towards achievement of the Water Quality Objectives over time where they are not currently being achieved.

6.4.3. Where a discharge is proposed that includes a mixing zone, the proposal should demonstrate how wastewater discharged to waterways will ensure the ANZECC (2000) water quality criteria for relevant chemical and non-chemical parameters are met at the edge of the initial mixing zone of the discharge, and that any impacts in the initial mixing zone are demonstrated to be reversible.

6.4.4. Assess impacts on groundwater and groundwater dependent ecosystems.

6.4.5. Describe how stormwater and runoff will be managed during construction and operational stages.

Monitoring

6.5.1. Describe how predicted impacts will be monitored and assessed over time.

For relatively large and/or high risk developments, proponents should develop a water quality and aquatic ecosystem monitoring program to monitor the responses for each component or process that affects the Water Quality Objectives that includes, for example:

- adequate data for evaluating compliance with water quality standards and/or Water Quality Objectives,
- measurement of pollutants identified or expected to be present in any discharge.

Water quality monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutant in NSW* (http://www.epa.nsw.gov.au/resources/legislation/approvedmethods-water.pdf).

ATTACHMENT B: GUIDANCE MATERIAL

Title	Web address
Relevant Legislation	
Contaminated Land Management Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+140+1997+cd+0+N
Environmentally Hazardous Chemicals Act 1985	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Licensing	
Guide to Licensing	www.epa.nsw.gov.au/licensing/licenceguide.htm
Air Issues	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2005)	http://www.epa.nsw.gov.au/resources/air/ammodelling05361.pdf
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N
Noise and Vibration	
Interim Construction Noise Guideline (DECC, 2009)	http://www.epa.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.epa.nsw.gov.au/noise/vibrationguide.htm
Industrial Noise Policy Application Notes	http://www.epa.nsw.gov.au/noise/applicnotesindustnoise.htm
Environmental Criteria for Road Traffic Noise (EPA, 1999)	http://www.epa.nsw.gov.au/resources/noise/roadnoise.pdf
Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007)	http://www.epa.nsw.gov.au/noise/railinfranoise.htm
Environmental assessment requirements for rail traffic-generating developments	http://www.epa.nsw.gov.au/noise/railnoise.htm

Waste, Chemicals and Hazardous Materials and Radiation	
Waste	
Environmental Guidelines: Solid Waste Landfills (EPA, 1996)	http://www.epa.nsw.gov.au/resources/waste/envguidlns/solidlandfill.pdf
Draft Environmental Guidelines - Industrial Waste Landfilling (April 1998)	http://www.epa.nsw.gov.au/resources/waste/envguidlns/industrialfill.pdf
Waste Classification Guidelines (DECC, 2009)	http://www.epa.nsw.gov.au/waste/envguidlns/index.htm
Resource recovery exemption	http://www.epa.nsw.gov.au/waste/RRecoveryExemptions.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.epa.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
Water and Soils	
Acid sulphate soils	
Coastal acid sulfate soils guidance material	http://www.environment.nsw.gov.au/acidsulfatesoil/
Acid Sulfate Soils Planning Maps	http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm
Contaminated Sites Assessment and Remediation	
Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.planning.nsw.gov.au/assessingdev/pdf/gu_contam.pdf
Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (DEC, 2006)	http://www.epa.nsw.gov.au/resources/clm/auditorglines06121.pdf
Sampling Design Guidelines (EPA, 1995)	Available by request from EPA's Environment Line
National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.scew.gov.au/nepms/assessment-site-contamination

Soils – general	
Managing land and soil	http://www.environment.nsw.gov.au/soils/landandsoil.htm
Managing urban stormwater for the protection of soils	http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://www.australiangeomechanics.org/resources/downloads/
Site Investigations for Urban Salinity (DLWC, 2002)	http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	Contact the EPA on 131555
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

NSW GOVERNMENT | Office of Environment & Heritage

Our Ref: DOC16/317257
Your Ref: Proposed Wattle Vale Quarry EAR No 1060

Ms Lauren Evans
Planning Officer - Resource Assessment/Planning Services
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Dear Ms Evans

Re: Request for OEH Secretary's Environmental Assessment Requirements (SEARs) – Proposed Wattle Vale Quarry Glen Innes SEARs No. 1060.

Thank you for your letter dated 28 June 2016 about the Proposed Wattle Vale Quarry Glen Innes SEARs N° 1060 seeking comments from the Office of Environment and Heritage (OEH). I appreciate the opportunity to provide input.

We note that the project will be assessed in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Environmental Impact Statement (EIS) EARs provided by the OEH are limited to Aboriginal cultural heritage, biodiversity, OEH estate, historic heritage, acid sulphate soils, flooding, stormwater and coastal erosion.

The proponent should ensure that the EIS will be sufficiently comprehensive to enable unambiguous assessment of all direct and indirect impacts of the proposal. The EIS should include an assessment of the potential impacts on biodiversity, including threatened species, populations, ecological communities, or their habitats likely to occur on or near the subject site, as well as Aboriginal cultural heritage values and flooding. We consider that this information is necessary for a comprehensive EIS for the proposal.

In particular, the EIS should describe:

1. The following threatened species that have been recorded in proximity to the subject site:
    a. Spotted Harrier (*Circus assimilis);*
    b. Tusked frog (*Adelotus brevis)* and
    c. Austral Toadflax (*Thesium austral)*

    The EIS should provide an assessment to determine if such species are likely to use/exist on the subject site and any potential impacts (direct and indirect) of the development of the quarry on these species.

2. Any high conservation value biodiversity attributes, including:

    a. Ribbon gum/Mountain white gum/Snow gum Endangered Ecological Community (EEC) and/or White box/Yellow box/Blakely's red gum Woodland EEC.

Locked Bag 914, Coffs Harbour NSW 2450
Federation House, Level 8, 24 Moonee Street
Coffs Harbour NSW
Tel: (02) 6659 8200 Fax: (02) 6659 8281
ABN 30 841 387 271
www.environment.nsw.gov.au

b. Scattered trees (possibly both living and dead) that contain hollows.

3. The existence of Aboriginal sites, given there are recorded sites in the locality within 3 kilometres of the quarry. We would expect an Aboriginal cultural heritage assessment to reflect the requirements detailed in the SEARS and that all supporting evidence of consultation undertaken with Aboriginal knowledge holders is provided in the EIS. Consideration should be given to the sensitivity and significance of these areas to the Aboriginal Elders and knowledge holders and any relationship that may exist between these sites and any Aboriginal cultural heritage (ACH) values of the quarry area and any potential impacts (direct and indirect) of the development of the quarry on ACH.

The full list of our requirements that may need to be addressed in the EIS is provided in **Attachment 1**. In preparing the EIS, the proponent should refer to the relevant guidance material listed in **Attachment 2.**

If you have any further questions about this issue, Mr Clyde Treadwell, Conservation Planning Officer, Regional Operations, OEH, can be contacted on 6659 8288 or at clyde.treadwell@environment.nsw.gov.au. Please note that Clyde works Tuesday to Friday each week.

Yours sincerely

12 July 2016

ROSALIE NEVE
A/Senior Team Leader Planning, North East Region
Regional Operations

Contact officer: Clyde Treadwell 6659 8288

Enclosure: OEH Recommended SEARs – Wattle Vale Quarry Glen Innes SEARs No. 1060

Attachment 1

OEH's Recommended Secretary's Environmental Assessment Requirements (SEARs) for Preparation of an Environmental Impact Statement

Proposed Wattle Vale Quarry

Glen Innes

SEARs N° 1060

This page has been deliberately left blank.

TABLE OF CONTENTS

A. The Proposal

Glen Innes Severn Council (Council) proposes to construct and operate a new hard rock quarry to extract up to 300,000 tonnes per annum over 30 years from two extraction areas, with a total disturbance footprint of approximately 14 hectares.

The quarry will predominately supply materials for use in public road construction and maintenance but will also provide a resource as required for the construction of nearby windfarm projects.

The quarry is proposed to be established on the *Wattle Vale* property, which is owned by Council and is approximately 200 hectares in size, located 13 km west of Glen Innes.

The Environmental Impact Statement (EIS) should identify the environmental objectives for the proposal and clearly describe the proposal. These environmental objectives will guide decisions on environmental controls and management throughout the life of the proposal.

The objectives of the proposal should be clearly stated and refer to:

1. the size and type of the proposal and its operation;
2. all anticipated environment impacts, both direct and indirect, including level of vegetation / habitat clearing
3. the anticipated level of performance in meeting required environmental standards;
4. threatened species, populations, ecological communities and their habitats impacted upon;
5. the staging and timing of the proposal; and
6. the proposal's relationship to any other proposal.

The EIS should fully identify all of the processes and activities intended for the site and during the life of the proposal, including details of:

7. the location of the proposal and details of the surrounding environment;
8. the proposed layout of the site;
9. appropriate land use zoning;
10. ownership details of any residence and/or land likely to be affected by the proposal;
11. maps/diagrams showing the location of residences and properties likely to be affected and other industrial developments, conservation areas, wetlands, etc. in the locality that may be affected by the proposal;
12. all equipment proposed for use at the site;
13. chemicals, including fuel, used on the site and proposed methods for the transportation, storage, use and emergency management;

14. waste generation, storage and disposal;

15. a plan showing the distribution of any threatened flora or fauna species and the vegetation communities on or adjacent to the subject site, and the extent of vegetation proposed to be cleared should be provided; and

16. methods to mitigate any expected environmental impacts of the proposal.

B. Environmental Impacts of the Proposal

Impacts related to the following environmental issues need to be assessed, quantified and reported on:

- Aboriginal cultural heritage
- Biodiversity
- OEH Estate (land reserved or acquired under the *National Parks and Wildlife Act 1974*)
- Historic heritage
- Acid Sulfate Soils
- Flooding, Stormwater and Coastal Erosion
- Cumulative Impacts

The EIS should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is at **Attachment 2**.