



Section 7

Evaluation and Justification of the Proposal

PREAMBLE

This section concludes the assessment of the proposed continued operation (and expansion) of Dowe's Quarry. The residual impacts associated with the Proposal are evaluated through consideration of the residual impacts and the principles of ecologically sustainable development (ESD).

A justification for the Proposal is then provided based on the residual impacts to the biophysical environment, the likely economic and social benefits that would continue to be generated, the consequences of the Proposal not proceeding and assessment against the objects of the EP&A Act.



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7.1 Evaluation of the Project

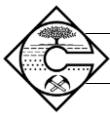
7.1.1 Residual Environmental Risk and Impacts

The Proposal has been designed to avoid or minimise environmental risks and impacts as much as is considered reasonable and feasible. Many aspects of the Proposal have also been planned so that the level of impacts would remain consistent with currently approved activities or would result in only minor changes. These include electing to limit transportation activities to no more than 28 laden loads per day and no more than 120 per week averaged over a 4-week calendar period which is consistent with current traffic levels.

The key residual impact of the Proposal would be the removal of approximately 6.4ha of native vegetation (4.6ha in good condition and 1.8ha in poor condition). The area that would require clearing has been minimised as much as feasible through placement of the internal access road adjacent to existing disturbance and electing to store overburden and fines in the completed extraction area during later stages of development (reducing the space required for stockpiling). Vegetation clearing also has the potential to impact threatened fauna using the vegetation for foraging, roosting or breeding. An ecological assessment of the Proposal undertaken by EcoLogical Australia (2019) has identified the offsetting obligations of the Proposal based on the assessed residual impacts. A preliminary assessment of impacts to threatened fauna that would be required to be offset has indicated that there is the potential for impact to a threatened possum, three species of owl and one species of bat. It is proposed that targeted field surveys in November 2019 will confirm the presence or absence of these species. It is currently planned to offset the impacts of the Proposal by dedicating land to the north of the Quarry and adjacent to Bald Rock National Park under agreement with the National Parks and Wildlife Service. The assessment undertaken by Eco Logical Australia identified that there would be no Serious and Irreversible Impacts from the Proposal. Potential impacts to the Koala, Spotted Quoll and Grey-headed Flying Fox have been considered under the EPBC Act Significant Impact Guidelines 1.1 and confirmed that significant impacts are not expected. Therefore, a referral to the Commonwealth Department of the Environment and Energy for consideration of significant impacts to Matters of National Environment Significance would not be required.

Other residual impacts associated with extractive industries include the generation of noise, dust and traffic on local roads as well as impacts from blasting. The inclusion of mobile crushing activities at the Quarry Site would be likely to increase the generation of noise and dust from the operation. Each of these matters has been assessed with the outcomes indicating that the Quarry would continue to operate in accordance with the non-discretionary standards established the State Environmental Planning Policy (Mining, Petroleum and Extractive Industry) and the relevant NSW guidelines. As noted above, traffic levels under the Proposal would remain consistent with the existing operations and would not result in significant impacts to the local road network. Ongoing payment of contributions in accordance with the *Tenterfield Shire Council Section 94 Development Contributions Plan 2013* for road upgrade and maintenance would be made to the Tenterfield Shire Council to compensate for use of the roads by heavy vehicles.

The Proposal is also likely to result in a range of negligible adverse impacts at surrounding residences and within the Tenterfield community. These would principally relate to visual amenity, transportation activities and socio-economic impacts. However, these adverse impacts would be countered by the positive impacts, including economic benefits from continued operation of the Quarry in the manner proposed.



In summary, there is predicted to be a range of residual impacts from the Proposal, which have been assessed in this document. The outcomes of assessment indicate that impacts would remain consistent with existing operations or within the relevant guideline criteria. Residual impacts to biodiversity values through the removal of native vegetation and potential fauna habitat would be offset in accordance with the NSW Biodiversity Offset Scheme and would provide for the in-perpetuity conservation of an area commensurate with the predicted impact.

7.1.2 Ecologically Sustainable Development

Sustainable practices by industry, all levels of government and the community are recognised to be globally important for future prosperity and well-being. The principles of Ecologically Sustainable Development (ESD) are based upon meeting the needs of the current generation while conserving our ecosystems for the benefit of future generations. In order to achieve sustainable development, recognition needs to be placed upon the integration of both short-term and long-term environmental, economic, social and equitable objectives.

Throughout the planning and design of ongoing operations and the proposed extension of Dowe's Quarry, the Applicant has endeavoured to address each of the sustainable development principles. The following subsections draw together the features of the Proposal that reflect the four principles of sustainable development, namely:

- the precautionary principle;
- the principle of intergenerational equity;
- the principle of the conservation of biodiversity and ecological integrity; and
- the principle for the improved valuation, pricing and incentive mechanisms.

7.1.2.1 The Precautionary Principle

Preparation of the EIS has involved comprehensive technical assessment to examine the existing environment, predict possible impacts and recommend controls and mitigation measures in order to ensure that the level of impact is understood and so that the Proposal may be designed to ensure that it satisfies statutory requirements and reasonable community expectations. This ensured that an appropriate level of research and baseline investigations and environmental evaluation was included in the assessment. The controls, safeguards and mitigation measures presented in the EIS have been planned with a comprehensive knowledge of the existing environment and the potential risk of environmental degradation posed by Proposal activities. In doing this, an anticipatory approach was taken to potential impacts and where data was not available a predictive assessment was completed using a conservative approach to likely scenarios and impacts.

An example of where a precautionary approach has been taken is in the presentation of residual impacts for native fauna that would require offset. Field surveys for all species were not able to be completed prior to finalising the EIS and therefore, in the absence of evidence otherwise, the presence of these species has been assumed and offsetting requirements for these species have been assessed and presented in the Biodiversity Development Assessment Report and this EIS. The presence or absence of these species will be confirmed during the appropriate survey period for each species (completed by November 2019).



In addition, the assessments of traffic, noise and dust impacts of the Proposal have considered the potential worst case for operations in presented predicted impacts to ensure that design and operational controls account for this scenario. Overall, the impacts of the operation would be lower than those predicted in the assessments and reflect expected peaks and troughs in demand from clients.

7.1.2.2 Intergenerational Equity

Intergenerational equity embraces value concepts of justice and fairness so that the basic needs of all sectors of society are met and there is a fair distribution of costs and benefits to the community. This provides for both inter-generational (between generations) and intra-generational (within generations) equity considerations. Equity within generations requires that the economic and social benefits of the development be distributed appropriately among all members of the community. Equity between generations requires that the non-material well-being or “quality of life” of existing and future residents of the local community would be maintained throughout and beyond the life of the Proposal.

Both elements of social equity are addressed through the design of the Proposal such that the Applicant may continue the significant contribution to the local economy which would provide for future investment and development in Tenterfield and surrounds. Consideration of potential impacts to cultural heritage through assessment of potential impacts to Aboriginal heritage and historic heritage has confirmed that the Proposal would not impact the cultural record of the local area. Finally, the conservation of land in perpetuity under offsetting arrangements would conserve the natural environment for future generations to experience.

Finally, rehabilitation of the Quarry Site at closure would provide for use of the land by future generations, whether it as a conserved area or used for agriculture.

7.1.2.3 Conservation of Biological Diversity and Ecological Integrity

The protection of biodiversity and maintenance of ecological processes and systems are central goals of sustainability. It is important that developments do not threaten the integrity of the ecological system as a whole or the conservation of threatened species in the short- or long-term.

The Biodiversity Development Assessment Report has addressed the potential impacts to the natural environment including for both flora and fauna. Establishment of an offset for residual impacts to native vegetation and fauna habitat would conserve the biological diversity and ecological integrity of this area. In designing the Proposal, the Applicant has considered the minimisation of disturbance to areas of native vegetation and re-establishment of areas of native vegetation to ensure these values are maintained, where possible. The implementation of weed eradication and feral animal management programs would further assist in addressing the principle of sustainable development.



7.1.2.4 Improved Valuation and Pricing of Environmental Resources

The issues that form the basis of this principle relate to the acceptance that the polluter pays, all resources are appropriately valued, cost-effective environmental stewardship is adopted and the adoption of user-pays principles based upon the full life cycle of the costs.

Consideration of this principle is demonstrated through the thorough assessment undertaken for the Proposal and commitment to ongoing management of the Quarry Site to limit residual environmental risks and impacts. The commitment to offset impacts to native vegetation and fauna habitat demonstrates that the Applicant is taking responsibility for the environmental impact of the Proposal. This principle is further demonstrated by the road upgrade and maintenance contributions that would continue to be made in accordance with the *Tenterfield Shire Council Section 94 Development Contributions Plan 2013*.

7.2 Justification of the Project

7.2.1 Introduction

In assessing whether the development and operation of the Proposal is justified, consideration has been given both to biophysical and socio-economic factors including the predicted residual impacts on the local and wider environment and the potential benefits of the Proposal. This section also considers the consequences of the Proposal not proceeding.

7.2.2 Biophysical Considerations

Traffic and Transport

Assessment of potential traffic-related impacts has determined that under the Proposal the Quarry would continue to operate with manageable impacts to the local road network. Traffic operations for the Proposal have been planned to maintain the maximum daily traffic levels (28 laden loads per day) and the weekly maximum traffic levels (120 laden loads per week averaged over four calendar weeks). A range of safety risks and evidence of road degradation along the transport route were identified by Constructive Solutions (2019) with road upgrade and maintenance contributions that would continue to be made in accordance with the *Tenterfield Shire Council Section 94 Development Contributions Plan 2013* to be dedicated to these issues where Council considers it appropriate.

Air Quality

The results of the air quality assessment undertaken by Northstar (2019) based on consideration of two operational scenarios (Stage 1 and Stage 2) has concluded that the Proposal is predicted to comply with all impact assessment criteria for annual average concentrations of TSP, PM_{2.5}, PM₁₀ and deposited dust. The assessment of 24-hour average PM_{2.5} and 24-hour average PM₁₀ applying a Level 2 Contemporaneous Assessment has indicated that there would be no additional exceedances of the assessment criteria as a result of the Proposal.

The GHG assessment undertaken for the Proposal concluded that average Scope 1 emissions from the Proposal would represent approximately 0.00016 % of Australian and 0.00065 % of NSW GHG emissions which represents a very minor proportion of global GHG emissions.



Noise and Vibration

Operational noise attributable to activities within the Quarry Site and road traffic noise generated by product transport would be well within nominated limits and would have minimal impact on sensitive receivers. Blast noise would continue to be heard at surrounding residences, albeit predicted levels (and ground vibration) would be well within nominated limits.

Water Resources

The Proposal includes the use of existing and proposed sediment basins and collection drains to manage potentially sediment-laden runoff. The dams would be designed to accommodate predicted runoff resulting from a 90th percentile 5-day rainfall event. On the basis of the proposed ongoing water management structures, the Applicant would continue to manage surface water runoff to limit the potential for sediment-laden runoff to leave the Quarry Site.

Water use at the Quarry Site would be limited to that required for dust suppression on unsealed roads and the processing plant with water to be sourced from water captured in sediment dams.

Given the elevation of the Quarry Site and likely confined nature of the underlying fractured rock aquifer, it is not considered that the Proposal would impact groundwater resources.

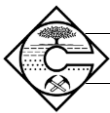
Biodiversity

Assessment of potential impacts to biodiversity values within the proposed Quarry Site considered the residual impacts to native vegetation and potential fauna habitat. It was concluded that biodiversity offset credits would be required for residual impacts to Plant Community Type (PCT) 568 - Broad-leaved Stringybark shrub/grass open forest of the New England Tableland Bioregion. Uncertainty regarding the presence of five species of native fauna that would require offsetting has resulted in assessment of offset requirements assuming that the land may be potential habitat for these species. The following species have been considered for offsetting.

- Eastern Pygmy Possum
- Eastern Cave Bat
- Barking Owl
- Powerful Owl
- Masked Owl

The presence/absence of these species will be confirmed through field surveys to be undertaken in November 2019.

It has been concluded that potential direct (residual) impacts would be suitably offset and potential indirect impacts would be managed through the continued implementation of measures to avoid or mitigate potential risks. There would be no serious and irreversible impacts or impacts to Matters of National Environmental Significance as a result of the Proposal.



Cultural Heritage

No Aboriginal sites or potential archaeological deposits were identified within the Quarry Site and the Proposal would not impact listed historic heritage sites in the vicinity of the Quarry Site or along the transport route. As a result, it has been concluded that the Proposal would not impact the archaeological record and would therefore not have any cultural heritage-related impacts.

Soil and Land Resources

Assuming the implementation of appropriate soil management measures, the residual impacts associated with soil removal, handling, storage and re-use would be negligible. In addition, the Proposal would not alter the productive use of surrounding land.

7.2.3 Economic and Social Considerations

The principal social and economic impacts of the Proposal would relate to the continued operation of Dowe's Quarry. As such, the potential social impacts would generally be similar to those currently experienced by surrounding property owners and the community of Tenterfield and the Tenterfield Shire. Potential adverse social impacts relate to a possible loss of amenity for neighbours living in the vicinity of the Quarry Site. It is noted that whilst the Proposal includes the introduction of on-site processing, the impacts to the existing air quality and noise environments have been assessed to be minimal. In addition, social impacts may result from the increased quantity of fragmented and/or crushed quartzose rock transported from the Quarry Site and the continued back-loading of fines from the Sunnyside Plant. Assessment of these impacts determined that residual impacts after the implementation of operational controls and mitigation measures would be relatively minor. As a result, it is not anticipated that there would be a significant change in the current level of social impact.

The ongoing provision of employment for local persons underpin the economic benefits of the Quarry through revenue sourced predominantly from outside the LGA and distributed throughout the community through local spending and wages all of which would contribute to economic growth within the LGA and support local businesses and services. The Applicant's estimated annual expenditure of \$4 million to \$5 million in the Tenterfield Shire would have considerable direct and indirect economic benefits.

7.2.4 Consequences of not Proceeding with the Project

The consequences of not continuing operations at Dowe's Quarry relate principally to the lost opportunity to access the quartzose rock that would be extracted by the Applicant and used as a supply of raw materials principally used in production of a range of decorative aggregate and landscaping products but would also provide a supply of fine materials for the production of roadbase and for fill material. Material from the Quarry is highly valued throughout Northern New South Wales and South-East Queensland, with revenue sourced mostly outside the Tenterfield LGA and therefore bringing this investment into the region. Given that the demand for these products would remain, it would be expected that alternative greenfield sources of quartzose would be required, which would almost certainly result in much greater impacts to the biophysical environment than the incremental impacts addressed for the Proposal. The ongoing extraction activities at Dowe's Quarry would also impact the production capability of the Sunnyside Plant potentially reducing the viability of this enterprise.



In addition, the Proposal would provide for the ongoing long-term employment of eight employees who would either work at the Quarry Site or transport the raw materials and/or crushed rock products. The Proposal would further support ongoing operations at the Sunnyside Plant which provides employment for a further 20 people. Overall, it is anticipated that the Applicant would spend between \$4 million to \$5 million each year on wages, machinery servicing, consumables and all other purchases, the bulk of which would be spent within the Tenterfield Shire LGA.

Should the Proposal not proceed, the minor impacts on the local biophysical environment would not eventuate.

It is considered that the benefits of continuing (and extending) the operations of Dowe's Quarry therefore outweigh the minor impacts on the environment that would result. The nominated consequences of not proceeding with the Proposal also weigh heavily in favour of continuing the operation of the Quarry.

7.2.5 Objects of the Environmental Planning and Assessment Act 1979

Table 7.1 provides a short description of how the Proposal and this EIS have addressed and satisfy the objects of the EP&A Act.

Table 7.1
Objects of the EP&A Act

Page 1 of 2

Object	EIS Coverage
The objects of this Act are as follows:	
a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	It is considered that the Proposal would provide for the orderly and professional ongoing operation of the Quarry. Through targeted investment in equipment and vehicles, the Applicant would improve the efficiency of output from the Quarry while ensuring that environmental impacts remain acceptable.
b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	Final decisions on whether the Proposal is acceptable will be made by the Northern Regional Planning Panel. However, as described in Section 7.1, the Applicant has undertaken detailed technical assessment to understand residual risks and impacts for the Proposal and to plan to avoid, minimise or mitigate these impacts as much as is reasonable and feasible. The principles of ecological sustainable development have been considered in the development of the Proposal (see Section 7.1.2)
c) to promote the orderly and economic use and development of land,	The ongoing development of the Quarry would maintain the existing orderly development of an existing site and through doing so avoid the need for the Applicant to seek alternate sources of the quartzose resource. Development for the purpose of an extractive industry is considered a beneficial use of the land on which the Quarry is located.



Table 7.1 (Cont'd)
Objects of the EP&A Act

Page 2 of 2

Object	EIS Coverage
d) to promote the delivery and maintenance of affordable housing,	While not directly relatable to the Proposal, it is considered that the sale of fines or overburden as fill material under concrete slabs may provide a local source of this material and have a beneficial impact of housing development in the locality.
e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	Consideration of residual impacts to biodiversity values has been undertaken in accordance with the <i>Biodiversity Conservation Act 2016</i> . Direct disturbance of native vegetation and potential naïve fauna habitat has been minimised as much as possible to reduce the need for impact to biodiversity values.
f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	The Proposal would not reduce the availability of any matters or sites of cultural heritage value for the general public.
g) to promote good design and amenity of the built environment,	The Quarry has been designed to be developed such that a ridge of remnant vegetation would be retained that limits potential views of the operation. The proposed backfilling of the extraction area with overburden and fines in later stages of the operation would represent an example of best practice design and management for extractive industry operations.
h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	This is not relevant for the Proposal as the only building at the Quarry would be a demountable office and crib room.
i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	The assessment requirements addressed in this EIS include feedback from Council and relevant State government agencies. The Proposal would be determined by the Northern Regional Planning Panel. Referral of the Project to the Commonwealth Department of the Environment and Energy would not be required.
j) to provide increased opportunity for community participation in environmental planning and assessment.	The Applicant has and would continue to operate an 'open door policy' for community involvement in the operation. In addition, members of the local community that have concerns or complaints should feel comfortable in approaching Quarry personnel and know that that they would be provided with feedback on the issues raised.

7.3 Conclusion

The Proposal has been designed to permit the ongoing efficient extraction of an important quartzose resource located within the Quarry Site, while ensuring that potential environmental impacts would continue to be mitigated and managed in a manner that is consistent with the requirements of the NSW government and reasonable community expectations. Strategic investment in equipment, including that involved in transportation, is intended to permit an increase to the existing approved annual extraction rate, while limiting additional environmental impacts. Traffic levels would remain generally consistent with peaks experienced for current operations.

**DARRYL MCCARTHY CONSTRUCTIONS PTY LTD***Expansion of the Dowe's Quarry via Tenterfield*

Assuming the implementation of management measures summarised in Section 6, operations under the Proposal would generally remain consistent with the existing operation. The inclusion of processing activities at the Quarry would change the noise and dust generated by operations but predicted impacts from these activities would remain within statutory and guideline levels designed to protect local amenity. As a result, the experience of the operation for the general community such as amenity impacts from dust and noise or through transportation operations would remain at acceptable levels.

Water management structures at the Quarry would continue to provide for suitable storage of potentially sediment-laden runoff and reduce the risk of dirty water leaving the Quarry Site. On-site impacts to native vegetation and potential fauna habitat have been assessed and predicted residual impacts would be offset to provide for in-perpetuity conservation through the dedication of land to Bald Rock National Park. There would be no Serious and Irreversible Impacts associated with the Proposal and assessment of potential impacts to Matters of National Environmental Significance has concluded there would not be a significant impact that would require referral the Commonwealth Department of the Environment and Energy, including for the Koala.

The ongoing operation of the Quarry would provide for the continued production of an important source of decorative and landscaping aggregate used throughout South-East Queensland and Northern New South Wales. The economic benefits of the operation provide an important stimulus to the local economy in the Tenterfield Shire LGA.



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