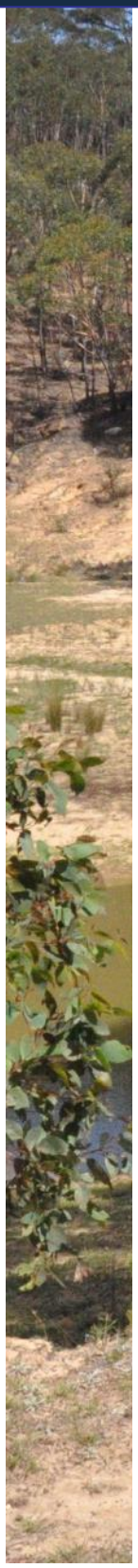
Section 7



Evaluation and Justification of the Proposal

Preamble

This section concludes the assessment of the proposed Sutton Forest Sand Quarry. The Proposal is evaluated based on the residual risks posed and in consideration of ecologically sustainable development (ESD) principles.

A justification for the Proposal is provided based on the predicted residual impacts of the Proposal, and the likely economic and social benefits that would be generated. This section concludes with a review of how each of the Objects of the *Environmental Planning and Assessment Act 1979* are satisfied by the Proposal together with the consequences of the Proposal not proceeding.

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7.1 INTRODUCTION

In order to conclude the EIS, the Proposal is evaluated and justified through consideration of its potential impacts on the environment and potential benefits to the local and wider community.

The evaluation of the Proposal is undertaken by firstly assessing the identified environmental risks posed to the local environment by the proposed activities (**Appendix 4**) and then considering the implementation of the commitments for controls, safeguards or mitigation measures outlined in Section 5 and summarised in Section 6. The Proposal has also been evaluated against the principles of Ecologically Sustainable Development (ESD) in order to provide further guidance as to the acceptability of the Proposal.

Section 7.3, which presents the justification of the Proposal, revisits the predicted residual impacts on the biophysical environment, considers the socio-economic benefits which would be provided and assesses the consequences of not proceeding with the Proposal.

7.2 EVALUATION OF THE PROPOSAL

7.2.1 Design of the Proposal

The Applicant commissioned R.W. Corkery and Co. Pty Limited and a team of specialist consultants to investigate and advise upon the most effective manner in which to mitigate or manage the environmental and social factors that are relevant to the Site. The Applicant has taken an iterative process in designing and reviewing the Proposal to ensure these factors were taken into account in the design of the site layout and in planning operations and to ensure that any residual impacts are within government-specified criteria or goals, accepted industry standards and/or realistic community expectations. The Applicant further modified the quarry design to accommodate identified residual risks as the results of various specialist consultant assessments became available.

Key elements of the Proposal design that have been influenced by environmental or social factors include the following.

- In planning the location and extent of the extraction area and processing and stockpiling area consideration was given to the existing regrowth native vegetation and the ridge on the south of the Site. Vegetation to be cleared in the extraction area would include mostly regrowth native vegetation. This does not reduce the offsetting requirements of the Proposal, but has focused vegetation clearing on the younger, less established vegetation, where possible. The retention of the ridge to the south of the extraction area would provide additional acoustic and visual protection from extraction operations.
- The inclusion of the Quarry Interchange and Quarry Access Road in the proposed location was made following design and assessment of alternate access arrangements at the Sallys Corner Interchange. It was concluded that the proposed arrangements provided for a far less physical disturbance, was safer and removed potential road use conflicts at the Sallys Corner Interchange.

- The design of the Proposal has also taken into account the results of the Aboriginal Cultural Heritage Assessment. The Quarry Access Road alignment was modified to avoid isolated artefacts, while a 100m buffer was included in the Extraction Area to avoid impacts to an Aboriginal shelter containing artwork. The buffer required the Applicant to forego access to sand products originally intended for processing and sale with the associated loss of revenue.
- The location of Long Swamp and the importance of this wetland and associated groundwater dependent ecosystem to the north and west of the Site was recognised from the beginning of the design process. The Applicant designed the extraction area to ensure that the floor remained above the elevation of Long Swamp and Long Swamp Creek so that the groundwater baseflow contribution to Long Swamp Creek and Long Swamp would not be disrupted. In addition, surface water controls would minimise the magnitude of any discharge to Long Swamp Creek as a consequence of the Proposal, ensuring that geomorphic and sedimentation impacts would be avoided, and where these were possible to mitigate these impacts.
- The importance of environmental flows to the local area has also been recognised and as a result all harvestable rights dams have been designed and positioned to collect runoff from within disturbed catchments. This would preserve the hydrologic function in receiving waters by ensuring that, to the greatest extent possible, environmental flows would be retained.
- Water allocations for the Proposal would be sourced from existing entitlements in the relevant Water Sharing Plan (WSP) and thus not place any additional demand on Sydney's drinking water catchment and associated environmental flows.
- The Proposal also includes the construction of the southern, eastern and northeastern barriers that have been included in the design of the Site principally for the purpose of noise attenuation and to limit potential views of the Processing and Stockpiling Area for nearby residences and roads.
- The area of blasting (displayed on **Figure 2.6**) has been developed with consideration of the proximity to the Grotto of the Shrine of Our Lady of Mercy – "Penrose Park". No blasting would occur within 500m of this location.

Where potential residual impacts were identified, management options were considered. Through the implementation of the proposed management and mitigation measures identified in Section 5 and summarized in the Summary of Environmental Management and Monitoring Measures in Section 6, the residual risk rating for the majority of potential environmental impacts has been reduced.

These limiting factors and decisions regarding suitable buffer zones as well as the results of exploration drilling and planning for processing operations and product despatch were considered in the definition of the extraction area and estimates of the recoverable resource.

The definition of the extraction area enabled consideration of the likely demand for sand products and physical capabilities to establish an achievable rate of extraction that would ensure operational impacts such as traffic and transportation levels, noise levels, particulate matter emissions and water management could be managed to remain within or improve upon government-specified criteria or goals, accepted industry standards and/or realistic community expectations.

The Applicant considers that the Proposal, as presented, would result in the development and operation of the Sutton Forest Quarry in an environmentally and socially responsible manner that also satisfies the cost efficiencies required by the Company to ensure the operation remains viable.

7.2.2 Residual Environmental Risk and Impacts

Potential environmental risks and impacts of the proposed activities were identified during planning of the Proposal and risk mitigation included in the design of Site components at the early stages of planning. Environmental risks posed to the local environment were considered based on the implementation of standard safeguards and mitigation measures that are common to the quarrying industry. **Appendix 4** provides a summary of environmental risks and assessed risk levels, incorporating issues raised in the DGRs that were considered by the Applicant to potentially constrain the development and operation of the Proposal.

The following provides a brief summary of key environmental risks (i.e. those given a "medium" risk rating following the adoption of relevant safeguards or mitigation measures) and describes how these have been avoided or mitigated under the Proposal and how the residual impacts would be managed.

- Ongoing truck traffic and possible congestion for road users of the Hume Highway increasing the risk of accidents or inconveniencing road users.

  The assessment of potential traffic impacts as a result of the Proposal (TUP, 2018) concluded that impacts on the Hume Highway to be relatively minor and not expected to result in deterioration in current or future service or safety levels. The range of road improvements to be constructed by the Applicant immediately north of the Penrose Forest Way exit from the Hume Highway would benefit all motorists.

- Ongoing heavy vehicle traffic and vehicle noise/emissions impacting general amenity for residences in the vicinity of the Proposal.

  The assessment of potential traffic impacts as a result of the Proposal (TUP, 2018) identified a number of road and traffic mitigation measures for implementation as part of the Proposal. The assessment found that provided these mitigation measures are implemented, the road and traffic impacts of the Proposal would be satisfactory.

  The assessment of potential road traffic noise impacts concluded that noise-related impacts would satisfy relevant criteria at all privately-owned residences.

- Reduction in base flows/spring flows to local streams, creeks and rivers impacting natural discharge of groundwater to watercourses, potentially degrading riparian or aquatic ecosystems or reducing water availability to downstream water users.

  The assessment of potential groundwater impacts (Cook, 2018) included the development of a calibrated transient groundwater model (Coffey, 2016) to predict and assess potential impacts to base flow and spring discharge of groundwater to local streams, creeks and rivers as a result of the Proposal. The transient groundwater modelling assessment predicted a maximum reduction of 0.052ML/day in baseflow to Long Swamp Creek over the 45 years of extraction. This equates to a base flow reduction for Long Swamp Creek of 2.6% of the calculated average annual base flow which is considered to be a minimal impact and within the range of natural variation in flows for this type of groundwater dependent ecosystem.

  The transient groundwater modelling assessment also predicted that the maximum drawdown at Long Swamp Creek would not exceed 0.1m, which is considered to be within the range of natural variation and within the limits specified under the Aquifer Interference Policy.

- Reduction in environmental flows to Long Swamp creek through on-site capture of water resulting in degradation of riparian or aquatic vegetation/ecosystems.

  The assessment of potential surface water impacts as a result of the Proposal (SEEC, 2018a) predicts a 6ML reduction in mean annual surface water runoff contributions to receiving systems in the Long Swamp Creek catchment as a result of surface water capture and catchment reduction. This reduction represents 0.3% of the total catchment runoff.

- Changes to the prevailing hydrologic regime or discharge of dirty or contaminated water impacting local waterways and potentially impacting the habitat condition and distribution of native flora and fauna.

  The assessment of potential surface water impacts (SEEC, 2018a) and potential impacts on aquatic ecology (Cardno, 2018) as a result of the Proposal identified management strategies to minimise risks to surface runoff from the Site. These strategies include adoption of best-practice guidelines and design standards to prevent pollution of local watercourses and maintain to the greatest extent possible the current discharge regime of local watercourses. In addition, the transport, storage and handling of all chemical products such as fuel, oil and grease would be undertaken in accordance with the relevant codes of practice.

- Noise from fixed or mobile processing plant or product transport operations resulting in detrimental effects to local residents or native fauna.

  The assessment of potential operational noise and road traffic noise impacts as a result of the Proposal (Spectrum, 2018) predicted compliance with all relevant criteria at all privately-owned residences and at the Grotto and international chapels within the Shrine of Our Lady of Mercy – "Penrose Park" during worst case wind and temperature inversion conditions.

- The clearing of native vegetation for the Proposal resulting in a significant impact to local biodiversity values or known threatened species, populations and endangered ecological communities.

  The extraction area would be developed largely in areas previously cleared and containing regrowth vegetation. The ecological assessment has confirmed that the Proposal would result in significant impacts through removal of potential habitat for a number of threatened bird species and other fauna.

  Impacts have been avoided where possible and mitigated were feasible. Residual impacts to native vegetation would be offset through a Biodiversity Offset Strategy that would be finalised and implemented prior to any vegetation clearing for the Proposal.

  In order to minimise disruption to the habitat of native fauna, the alignment of the Quarry Access Road was revised so that disturbance to native vegetation would be minimised.

- Detrimental indirect effects of Proposal impacts, e.g. noise, dust, lighting impacting local biodiversity values or known threatened species, populations and endangered ecological communities.

  Potential impacts due to noise, dust and lighting have been assessed for the Proposal and concluded that noise and dust would remain within the assessment criteria and therefore unlikely to significantly impact flora and fauna, while lighting impacts would be suitably managed to minimise detrimental impacts.

- Dust from operational activities (extraction, processing or product transport) resulting in impacts to nearby residents or businesses.

  Dispersion modelling undertaken for the air quality assessment predicted that during the assessed operational stages, the Proposal would comply with the air quality criteria for TSP, PM_{10}, $PM_{2.5}$ and deposited dust at all residences.

  An assessment of cumulative 24-hour impacts indicates that the Proposal would not result in cumulative impacts above the assessed criteria.

- Greenhouse gas emissions from operational activities (extraction, processing or product transport) resulting in increased release of greenhouse gas to the atmosphere.

  A greenhouse gas assessment indicates that average annual emissions from the Proposal would represent a very small proportion of global greenhouse emissions.

- Loss of soil resources or degradation of soil as a result of inappropriate management that results in impacts to rehabilitation outcomes and productive capacity of the Site.

  The assessment of potential soil impacts as a result of the Proposal (SEEC, 2018b) identified strategies to strip, separate and manage topsoil and subsoil disturbed as a result of the Proposal as well as stockpiling strategies to manage

soil structure. The assessment also identified strategies for soil handling and replacement during rehabilitation activities. In addition, the assessment of soil impacts identified that the soils in the areas affected by the Proposal are land and soil capability Class 5 (severe limitations to agricultural production); the lands are not prime agricultural land. Therefore, the loss of agricultural productive capacity would be limited.

- Erosion of disturbed site topsoil and subsoil resulting in a loss of soil that limits availability of material for rehabilitation and loss of agricultural productive capacity.

  The assessment of potential soil impacts as a result of the Proposal (SEEC, 2018b) identified strategies to manage topsoil and subsoil disturbed as a result of the Proposal. These management measures would include establishing vegetative cover for stabilisation and preventing the loss of the stockpiled material. In addition, the assessment of soil impacts identified that the soils in the areas affected by the Proposal are land and soil capability Class 5 (severe limitations to agricultural production); the lands are not prime agricultural land. Therefore, the loss of agricultural productive capacity would be limited.

- Modifications to the visual character of the locality that reduces visual amenity of the local setting for residents or visitors.

  Views towards the Site would be predominantly obscured by topographic features and existing vegetation or through the proposed construction of visual screening in the form of vegetated amenity barriers. The upper benches of the extraction area would become visible at Residence 2 by the end of Stage 2, however this would on occur until rehabilitation of these faces is undertaken. Security and operational lighting would be directed away from the direction of surrounding residences and managed through a Lighting Management Plan.

- Unsuitable rehabilitation outcomes for the final landform resulting in reduced amenity and land use capability.

  The Applicant's objectives for rehabilitation are centred upon the progressive shaping and revegetation of areas of disturbance through the creation of a final landform, a suitable substrate and a vegetative cover suitable for the proposed long-term land uses. Specific timing, locations and methods of rehabilitation would be documented in the Landscape and Rehabilitation Management Plan, which would be updated as required during the life of the Quarry. The timing for rehabilitation implementation would be dependent on progressive development and be reported in the Annual Review for the operation.

- Initiation of bush fire due to on-site activities.

  The bush fire hazard assessment indicates that although the Site is within 100m of existing vegetation, buildings and processing equipment would have a suitable Asset Protection Zone considered acceptable in accordance with the guideline document Planning for Bush Fire Protection (RFS, 2006 and RFS, 2010)

- Reduced amenity of the local setting due to the proximity of the Proposal to neighbouring properties.

  The assessment of potential impacts as a result of Proposal-related changes to local traffic, noise, air quality, visual amenity and water resources indicate that the Proposal would not have significant impacts for the closest privately-owned and non-project related residences.

  The groundwater assessment has concluded that there would be no change to groundwater access and groundwater quality as a result of the Proposal. Therefore, those community members that rely on groundwater for their livelihood would not be affected and the local community can continue to draw water for domestic uses.

  It is acknowledged that residents and visitors to the Shine of Our Lady of Mercy – "Penrose Park" may be more sensitive to amenity changes given the nature of religious activities at this location. Amenity for these neighbours and for other nearby residents has been taken into consideration in the design of the Proposal and in developing management and mitigation measures. The amenity concerns of the community are likely to require that impacts are experienced before they can be accepted. Ongoing consultation, monitoring, reporting and compliance auditing would be important for the Applicant to demonstrate that impacts are as predicted and to build trust in the community.

- Perceived or actual reduction in land values in the local area as a result of the Proposal.

  It is difficult to estimate the influence that any stigma associated with the presence of the Proposal would have on property values for nearby residents and to differentiate these from market influences, trends in living arrangements and other factors. The presence of the nearby Penrose Quarry and the approved Green Valley Quarry have not resulted in identifiable impacts to property values in the area.

The risks associated with all potential environmental impacts are considered low to moderate and therefore, while these may result in impacts deemed unacceptable to some stakeholders, the development and operation of the Proposal, with the implementation of appropriate management plans, are overall considered acceptable.

7.2.3 Ecologically Sustainable Development Principles

7.2.3.1 Introduction

Sustainable practices by industry, all levels of government and the community are recognised to be important for the future prosperity and well-being of the world. The principles of Ecologically Sustainable Development (ESD) that have been recognised for over two decades were 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 design of the Proposal, the Applicant has endeavoured to address each of the sustainable development principles. The following sub-sections draw together the features of the Proposal that reflect the four principles of ESD, namely:

- the precautionary principle;
- the principle of social equity;
- the principle of the conservation of biodiversity and ecological integrity; and
- the principle for the improved valuation and pricing of environmental resources.

7.2.3.2 The Precautionary Principle

In order to satisfy the principles of ESD, emphasis must be placed on anticipation and prevention of environmental damage, rather than reacting to it. During the planning phase for the Proposal, and throughout the preparation of the *Environmental Impact Statement*, the Applicant has engaged specialist consultants to examine the existing environment, predict possible impacts and recommend controls, safeguards and/or mitigation measures in order to ensure that the level of impact satisfies statutory requirements or reasonable community expectations. Throughout the development of the Proposal, the Applicant and its consultants have adopted an anticipatory approach to impacts, particularly to the ecological values of the Site and its surrounds by undertaking an analysis of the risks posed by activities of the Proposal, an appropriate level of research and baseline investigations, environmental evaluation and development of an appropriate biodiversity offset strategy. The controls, safeguards and/or mitigation measures have therefore been planned with a comprehensive knowledge of the existing environment and the potential risk of environmental degradation posed by Proposal activities.

The proposed environmental safeguards, controls and mitigation measures that would be implemented are summarised in Section 6.

Examples of matters relating to the precautionary principle that were considered during the various stages of the Proposal are listed below.

Site Selection

The Applicant's selection of the proposed extraction area within the property and design of the Site components was undertaken to incorporate the following.

- The extraction area was designed to incorporate land that was cleared for agricultural activities in 1979.
- The extraction area is well shielded visually and sufficiently distant from surrounding residences.
- The subject land is privately-owned.
- The selection of the location for access and the Quarry Interchange and Quarry Access Road to avoid the potential risk of conflict between road users at the Sallys Corner Interchange and Quarry-related traffic.

- The sensitivity of the Grotto at the Shrine of Our Lady of Mercy – "Penrose Park" to blast vibration.
- The identified rock shelter to the west of the property of high Aboriginal cultural heritage significance.
- Other sites of Aboriginal cultural heritage significance and native vegetation within the Site have been avoided as much as practical.
- The maximum depth of extraction has been selected to remain above that of the Long Swamp Creek channel bed to minimise impacts upon baseflows within the creek.

Objectives of the Proposal

The Proposal has been designed with the principal objective to develop and operate the proposed Quarry in a safe and environmentally responsible manner, which meets the requirements of local and State government agencies, accepted industry standards and wherever possible, reasonable community expectations and those of the landowner. The Applicant recognises that only through comprehensive environmental assessment and an environmentally responsible approach to the design and operation of the Proposal can the risk of harm to the environment be minimised. Demonstration of this approach is provided both by the identification and prioritisation of issues (Section 3) for which a risk analysis formed an important component, and the implementation of proposed environmental safeguards, controls and mitigation measures (summarised in Section 6).

Design of Proposal Components

Several design aspects of the Proposal were modified during the planning stage in order to ensure the requirements of local and State government agencies, accepted industry standards and wherever possible, landowner and reasonable community expectations were met. These included the general alignment of the Quarry Access Road which has been modified to avoid sites of Aboriginal cultural heritage significance and native vegetation and amendment to the depth of extraction to minimise impacts on the existing hydrogeological regime and restrictions to blast activity to minimise impacts at sensitive receivers.

Integration of Safeguards and Procedures

The framework for ongoing environmental management, operational performance and rehabilitation of the Site would be provided through the development consent and licences for the Proposal. An annual report would be prepared which would report on the progress of the operation and provide an opportunity to review the effectiveness of the environmental management strategies adopted.

Additionally, the following actions would be undertaken throughout the life of the Proposal.

- The Site would be managed in accordance with the commitments listed in Section 6.
- A range of on-site specific environmental procedures would be adopted to achieve consistency with specified outcomes and to avoid serious damage.

- All on-site procedures would be regularly reviewed, particularly in light of monitoring results and any feedback received.
- Surface water, groundwater, noise, deposited dust and particulate matter levels would be monitored at locations potentially most affected by the Proposal in order to ensure the continued compliance of the operation with goals outlined in this document. Condition assessment and monitoring of the downstream environment in Long Swamp Creek would be conducted to establish baseline conditions in the system and continually assess the condition of the system throughout the life of the Proposal.
- A Water Management Plan would be adopted to minimise any impact on water quality, water levels or quantity arising from Site activities. Areas not required for extraction or associated activities would remain vegetated to assist in minimising erosion and reducing the suspended sediment load in surface water flowing through the Site.
- Topsoil and subsoil would be stripped, stockpiled and re-spread on the basis of the quality of the soil, and planned final land use of different areas of the final landform.
- Once areas are completed, rehabilitation activities including final shaping, earthworks and revegetation would commence.
- The operation would be subject to the annual reporting requirements of DPE and the EPA as well as regular environmental management auditing. All documents and reporting would be publicly available from the Applicant's website.

Rehabilitation and Subsequent Land Use

Long term adverse impacts on the local environment would be avoided through the design to progressively rehabilitate disturbed areas at the Site to potentially provide for future grazing and nature conservation at the end of Quarry life. The areas rehabilitated with native vegetation would supplement the proposed on-site biodiversity offset area. The final landform would provide a number of beneficial attributes for the proposed land uses. These include:

- large areas of comparatively flat land for grazing;
- conservation areas and wildlife corridors; and
- the storage of surface water in site dams.

The Applicant proposes to rehabilitate the land after the completion of quarrying to enable a range of land uses to be adopted, which could include agricultural uses such as grazing and/or ongoing nature conservation.

Areas of the final landform not amenable to agricultural or agri-forestry pursuits such as the final faces and benches within the extraction area, would be revegetated with native tree, shrub and grass species. Trees would also be planted around the water storage dams retained in the final landform to create a natural shelter for grazing stock that may be carried on the final landform.

Conclusion

The precautionary principle has been considered and adopted during all stages of the design and assessment of the Proposal. The approach adopted, i.e. initial assessment, consultation, specialist investigations and safeguard design, provides a high degree of certainty that the Proposal would not result in any major unforeseen impacts.

7.2.3.3 Social Equity

Social 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. Social equity includes 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 itself, the implementation of operational safeguards to mitigate any short-term or long-term environmental impacts, and the proposed rehabilitation of the areas directly disturbed. Examples of matters relating to social equity that are relevant to the various stages of the proposed development are as follows.

Identification of Proposal Objectives

The Applicant's principal objectives for the Proposal centre upon:

- securing access to sand resources that would ensure the continued provision of a range of high quality construction materials to the Sydney Metropolitan Area, Southern Highlands, South Coast and Canberra construction markets at a reasonable price;
- maintaining the level of production from the Proposal up to a maximum 860 000tpa to meet the supply demands;
- progressively rehabilitating disturbed areas to provide for future agricultural pursuits and nature conservation at the completion of operations;
- increasing local employment levels; and
- maximising the recovery of the natural resource.

Site Selection

The selection of the site for the Proposal reflects a concern for social equity in that it provides for the production of sought after building and construction raw materials whilst impacting on as few people as possible. This is particularly evident when compared to the other possible locations for sand extraction on the Southern Highlands, which are located in closer proximity to residential zones. Occurrence of friable sandstone and maintaining long term topographic protection as a means to control the propagation of noise and limit the visibility of disturbed

areas from local vantage points and the Hume Highway were pivotal to the Site selection. An estimated 34 million tonnes of friable sandstone has been defined within the proposed extraction area capable of yielding approximately 29 million tonnes of high quality sand products with negligible overburden within the proposed extraction area.

Design of Proposal Components

The Proposal has been designed to maintain inter-generational equity, i.e. in recognition that the removal of the sand resource is a short term land use, and to ensure components of the existing biological, social and economic environment available to existing generations would also be available to future generations.

The design of the Proposal components would be achieved by:

- planning and removing the sand resource in a manner that maximises the quality and quantity of materials removed;
- undertaking all activities in an environmentally responsible manner that enables compliance with all relevant statutory requirements;
- operating the Quarry in consultation with the landowner, surrounding residents and the wider community throughout the life of the Proposal;
- monitoring and reviewing the environmental performance of all activities; and
- developing a preliminary biodiversity offset strategy that would be established to compensate for the proposed disturbance to native vegetation and fauna habitat and to safeguard the nearby populations of threatened flora and fauna species and provide a higher level of protection and management to these threatened species.

The Proposal has also been designed with the objective to ensure the continued viability of surrounding land uses throughout and beyond the life of the Proposal.

Integration of Safeguards and Procedures

The Applicant would continue to consult with the local community and maintain a pro-active approach to issues of interest. This dialogue would also include a system to record, manage and respond to any complaints relating to the operation.

Conclusion

The principle of social equity has been addressed throughout the Site selection and design of the Proposal. The proposed Sutton Forest Sand Quarry would contribute significantly to the economic activity of the local and regional community through the generation of employment, and increased demand for local goods and services and flow-on effects. As such, the benefits of the Proposal would be distributed throughout the local community. The Proposal was also designed such that elements of the existing environment available to this generation, including water and local biodiversity would continue to be available to future generations. The Applicant would adopt a pro-active approach in identifying and addressing any concerns identified by the local community.

7.2.3.4 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. Details of how the Proposal has been designed to achieve compliance with these principles are set out below.

Identification of Proposal Objectives

The Applicant is committed to undertake all activities in an environmentally responsible manner and recognises the need to ensure that changes to natural components of the environment do not significantly adversely affect biological diversity or ecological integrity. As such, the Proposal has been designed to:

- avoid, as far as practicable, impacts on threatened flora and fauna through the design of the sequencing and depth of the eight extraction stages to prevent impacts to the nature of the existing hydrogeological regime and GDEs;
- maximise the proposed areas of disturbance within areas previously cleared – approximately 55% of the proposed area of disturbance is cleared land and/or regrowth vegetation;
- minimise the potential impacts on threatened flora and fauna (and native vegetation and fauna habitats generally) and where residual impacts remain, account for those impacts through the development and implementation of the biodiversity offset strategy;
- mitigate impacts upon potential habitat for local fauna through the progressive rehabilitation of disturbed areas; and
- provide for nature conservation and future agricultural pursuits or potentially other land uses at the completion of operations and the preparation and implementation of a Landscape and Rehabilitation Management Plan for the Site.

Design of Proposal Components

The Applicant, on advice from the specialist consultancies commissioned to assist with the design and to assess most of the impact of the Proposal, has provided for the conservation of biological diversity and ecological integrity through the following design elements.

- Water management structures have been designed and would be constructed to ensure that only water meeting specified water quality criteria leaves the Site and enters Long Swamp Creek and eventually Paddys River or the Wollondilly River sub-catchment of the Hawkesbury - Nepean River catchment.
- Amenity barriers would be constructed, landscaped and vegetated in the identified locations to provide mitigation for visibility impacts as well as to reduce the propagation of noise generated by the operation of the Proposal.
- All overburden and soil would be managed within the extraction area footprints, thus requiring no additional disturbance on the Site.

- The residual impacts to native vegetation and fauna habitat would be accounted for by the establishment of a biodiversity offset which would conserve native vegetation in perpetuity.
- The maximum depth of extraction has been selected to remain above that of the Long Swamp Creek channel bed to maintain an acceptable level of baseflow to the GDEs.

Integration of Safeguards and Procedures

Management and preservation of biodiversity values within the Site would be guided by a Landscape and Rehabilitation Management Plan that would be provided to DPE for approval prior to the commencement of operations. The Plan would include protocols for the following activities.

- Soil stripping and stockpiling.
- Vegetation clearing protocols.
- Clearing, handling and placement of hollow-bearing trees.
- Weed management.
- Bush fire management.
- Threatened species management.
- Management of the Biodiversity Offset Area(s), once secured.
- Progressive and final rehabilitation of the Site

Residual impacts to native vegetation would be offset through implementing the proposed Biodiversity Offset Strategy.

Progressive rehabilitation of the Site would include the establishment of native vegetation on the southern barrier and Fines Storage Area 1 which would eventually be incorporated into the biodiversity offset area.

Rehabilitation and Subsequent Land Use

The final landform would be rehabilitated to include a mix of agricultural uses and native vegetation, which would be incorporated into long-term conservation through the biodiversity offset strategy.

Conclusion

The Proposal addresses the principle of conservation of biological diversity and ecological integrity through the minimisation of disturbance to areas of native vegetation, and conservation of the proposed biodiversity offset area(s). Should threatened species be identified within those areas of the Site to be disturbed, these would be relocated or managed appropriately. Weed eradication and feral animal control programs would be implemented as appropriate and would further assist in addressing the principle of sustainable development.

7.2.3.5 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 principle based upon the full life cycle of the costs. A reflection of these issues on the Proposal is set out below.

Identification of Proposal Objectives

The Applicant's principal objective is to operate the Proposal in a profitable, safe and environmentally responsible manner, which demonstrates that an appropriate value has been placed on elements of the existing environment.

Design of Proposal Components and Integration of Safeguards and Procedures

The extent of research, planning and design of environmental safeguards, mitigation measures and offset strategies to prevent irreversible damage to environmental resources, other than the sand to be extracted, is evidence of the value placed by the Applicant on these resources.

Rehabilitation and Subsequent Land Use

The design of the final landform to integrate ongoing agricultural uses, conservation areas and wildlife corridors, and the storage of surface water in site dams illustrates the value placed by the Applicant on both the commercial and ecological elements of the Site.

Conclusion

The value placed by the Applicant on environmental resources is evident in the identification of Proposal objectives, extent of site-specific research, planning and environmental safeguards and measures to be implemented to prevent irreversible damage to the environment on and surrounding the Site. The operation of the sand quarry is a commercial undertaking and it would enable the Applicant to undertake all environmentally-related tasks and meet all commitments in all approvals, licences and permits and those made to the landowners and local community.

7.2.3.6 Conclusion

The approach taken in planning the Proposal has been multi-disciplinary, involved consultation (where possible) with potentially affected local residents and various government agencies and emphasis on the application of safeguards to minimise potential environmental, social and economic impacts. The design of the Proposal has addressed each of the sustainable development principles, and on balance, it is concluded that the proposed Sutton Forest Sand Quarry is consistent with the principles of ecological sustainable development.

7.3 JUSTIFICATION OF THE PROPOSAL

7.3.1 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. When considering the predicted residual impacts, a review of the proposed controls, safeguards and

mitigation measures was also undertaken to determine the emphasis placed on impact minimisation and the incorporation of the principles of ESD. This section also considers the consequences of the Proposal not proceeding.

7.3.2 Biophysical Considerations

The Proposal would have a range of impacts on the biophysical environment. Section 5 of this document identified the potential residual biophysical impacts of the Proposal, following the adoption of a number of design and operational procedures, mitigation measures and/or offset strategies. Assuming the commitments made by the Applicant in Section 6 are adhered to, these residual impacts are summarised as follows.

Topography

As a result of the proposed sand extraction and backfilling/replacement of materials within the final landform, the Proposal would result in the long-term localised modification of the topography within the Site. The proposed long-term final landform has been designed assuming the use of materials originating on site e.g. overburden, silt, oversize and soil and imported VENM/ENM.

Transportation

During the busiest periods, the Proposal would generate up to 166 loads per day (332 truck movements) for the transport of quarry products. An additional 6 trucks per day (12 truck movements) are anticipated for the provision of fuel and maintenance whilst 28 light vehicle trips per day (56 vehicle movements) would occur and these would be associated with staff and visitors to the Site.

The increases in total traffic and heavy vehicles using the Hume Highway would be comparatively small, especially as the Hume Highway has a theoretical capacity in each direction of travel (i.e. each carriageway) of 3 600 equivalent passenger car units per hour. The increase in the number of heavy vehicles due to the Proposal (at times of maximum truck movement) is calculated to be in the order of 6% in both the southbound and northbound directions.

The proposed road improvements and operational safeguards that would be implemented by the Applicant would ensure that the existing high safety standards on the Hume Highway adjacent to the Site would be maintained.

In conclusion, the Proposal's impacts on the Hume Highway are considered to be relatively minor and are not expected to result in deterioration in current or future safety levels on the Hume Highway.

Groundwater Resources

The Site is located on the southwestern edge of the Sydney Basin where the main stratigraphic units also form the major hydrogeological units, namely the Hawkesbury Sandstone (aquifer) which is underlain by the less permeable Berry Formation (aquitard).

The potential local and regional impacts of the Proposal on the groundwater environment, local groundwater users, local surface water systems and GDEs have been assessed with the aid of a calibrated transient groundwater flow model (Coffey, 2016). The model was developed to run predictive simulations covering 45 years of extraction followed by 20 years of recovery in order to assess four potential impacts associated with the Proposal, namely the:

- local and regional groundwater system;
- local groundwater users;
- local creek flow; and
- groundwater dependent ecosystems (GDEs).

The results of the predictive simulations of the groundwater model were as follows.

- The Maximum modelled drawdown of the water table at the end of extraction operations (Year 45) at the four closest private bores is less than 0.5m. This drawdown is well within the drawdown limit set in the NSW Aquifer Interference Policy of <2m.
- The long-term average groundwater discharge from the backfill in the extraction area is calculated as 0.002ML/day, however this would most likely be consumed by evapotranspiration.
- The maximum reduction of 0.052ML/day in baseflow to Long Swamp Creek and Long Swamp over the 45 years of extraction. This equates to a base flow reduction for Long Swamp Creek and Long Swamp of 2.6% of the calculated average annual base flow which is considered to be a minimal impact and within the range of natural variation in flows for this type of GDE.
- maximum drawdown of the regional water table at the eastern end of Long Swamp of less than 0.1m at the end of Stage 5 - Year 28 and Stage 7 – Year 45. This amount of drawdown is not considered significant as it is within the range of natural variation.
- A supplementary water supply (if required) could be sourced from Bore GW 104765 which would not result in any additional impacts on the groundwater system.
- Water access licences would be required to account for the average 51ML/year groundwater inflow into the extraction area predicted by the groundwater model. Additional water allocations have been secured by the Applicant.

The Groundwater Impact Assessment (Cook, 2018) has concluded that impacts upon the groundwater resources as a consequence of the Proposal would be small.

Surface Water Resources

The Proposal could potentially impact surface water flow rates, surface water flow volumes and the quality of surface water leaving the Site directly or indirectly.

SEEC (2018a) undertook a comprehensive assessment of the runoff volumes and water quality in the affected catchments as well as a review of the Proposal's harvestable rights and an assessment of the ability for surface water resources to meet Site water demand.

The assessment identified that water supplied under harvestable rights would be insufficient to meet Site water demand and that alternate supplies would need to be secured by the Applicant.

During the site establishment and construction and operational stages, any surface water impacts would be managed through the adoption of best-practice guidelines and mitigation measures to minimise the risk that surface runoff from the Site might cause undue pollution of local watercourses.

Noise and Blasting

An assessment of the Proposal-related operational noise was modelled for three different stages of the Proposal, namely Stage 0, Stage 2 and Stage 4 of extraction operations and under two adverse weather conditions (a temperature inversion and a gentle westerly wind). The assessment confirmed that the range of design and operational safeguards would be sufficient to avoid any noise exceedances at any surrounding residences for each of the assessed scenarios. The Proposal would also satisfy the impact assessment criteria for maximum noise levels and road traffic noise at all privately-owned residences.

Potential impacts relating to the proposed intermittent blasting activities considered the potential ground vibration and airblast overpressure at three representative residential locations as well as at the Grotto at the nearby Shrine of Our Lady of Mercy – "Penrose Park", at an Aboriginal rock shelter and nearby natural gas and water pipelines. This assessment confirmed that the blast design and proposed blast locations would ensure all blast-related impacts would be well within human comfort and building structure protection criteria. No blasting is proposed within 0.5km of the Grotto on the Shrine of Our Lady of Mercy – "Penrose Park".

A noise monitoring program would be undertaken to confirm the predictions made in the assessment and ensure ongoing compliance with the relevant noise criteria. All blast events would be monitored at the Grotto of the Shrine of Our Lady of Mercy – "Penrose Park" to ensure compliance and inform blast design in an adaptive management process.

Flora and Fauna

The flora and fauna assessment has identified three individuals of the threatened flora species (*Phyllota humifusa*) listed in the TSC Act (now BC Act) and EPBC Act, one flora species of conservation concern and nine threatened fauna species within areas proposed to be disturbed under the Proposal.

As the Proposal is State Significant Development, residual impacts to biodiversity need to be offset (residual impacts are those that cannot be avoided or suitably mitigated). To ensure that impacts to threatened flora and fauna are comprehensively described, an assessment of the significance of proposed impacts in accordance with Section 7.3 of the BC Act was undertaken by KMA (2018). The assessment concluded that while impacts to individual species would not be significant, the removal of 63.2ha of native vegetation would present a significant impact. The preliminary Biodiversity Offset Strategy described the options readily available and the ability of the Applicant to satisfy offsetting obligations resulting from the residual biodiversity impacts of the Proposal.

The Site lies within a regional wildlife corridor identified in the Illawarra Regional Environmental Plan No. 1. The mitigation and offsetting proposals are designed in such a way that the Proposal would not significantly interrupt this corridor in the long term.

An assessment of potential impacts to groundwater dependent ecosystems has concluded that vegetation within Long Swamp Creek and the nearby Long Swamp would not be significantly impacted by the Proposal.

In addition, the Proposal would not impact identified Koala populations or significantly alter established wildlife corridors in the LGA and greater Illawarra region.

The Proposal would also not significantly impact matters on national environmental significance to the extent that a referral to the DoEE would be necessary.

Heritage

An Aboriginal Cultural Heritage Assessment undertaken by Landskape (2018) identified nine sites of Aboriginal cultural heritage significance and determined that the artefact scatters within three sites would be salvaged and artefacts within another site would be partially salvaged under the Proposal. A rock shelter located to the west of the Site was assessed to be of high significance. This site has been avoided through modification of the extraction area to permit a 100m buffer around this site.

The preparation of an Aboriginal Cultural Heritage Management Plan would ensure that Aboriginal cultural heritage sites and values would be protected in accordance with the requirements of OEH.

An investigation was also conducted to identify any structures, places or relics of European significance in the vicinity of the Site. No items were identified within the Site, however one potential heritage item, “Bridgewater Lodge” house (c. late 19th century) is located to the east of the Site. “Bridgewater Lodge” is not listed on any heritage registers but may be of some heritage value as an early surviving residence of the area. It is not anticipated that there would be any impacts to “Bridgewater Lodge” as a result of the Proposal.

Air Quality

Dispersion modelling was used to assess the impact that dust emissions from the Proposal would have on local air quality. The modelling was undertaken to present the effects of the Proposal alone, with background dust levels considered. Cumulative impacts with other nearby quarries were also considered.

The result of the air quality assessment undertaken by PE (2018) concluded that the Proposal is predicted to comply with all impact assessment criteria for each relevant averaging period for TSP, PM_{10} and deposited dust. The modelling predictions for $PM_{2.5}$ were also below the NEPM standards at all surrounding residences.

The assessment of Greenhouse Gas Emissions has concluded that the Proposal would represent a minor impact when considered alongside national and global emission levels.

Soils and Land Capability

The soils across the Site were found to be relatively stable but naturally poorly structured with mostly low to moderate erodibility, although prone to wind erosion. Soils were found to be non-saline but strongly acidic and highly infertile.

Under the NSW Land and Soil Capability Assessment Scheme (OEH, 2012) the pre-development Land and Soil Capability Classification for the majority of the Site has been assessed as Class 5 (SEEC, 2018b). This category is unlikely to change following rehabilitation activities, and hence would limit the potential of the rehabilitated land for agricultural use.

Visibility

Views towards the Site from the majority of privately-owned residences surrounding the Site would be obscured be topographic features and/or vegetation that would therefore not be impacted by the Proposal. Glimpses of the Site from the north would be limited and as the residences to the north of the Site are at least 1.3km from the operational areas, it is anticipated that changes to visual amenity at these residences would not significantly change overall amenity at these locations.

Views of the Site from one residence, situated east of the Site would largely be obscured by the northeastern amenity barrier and the retained eastern face of the processing and stockpiling area. Furthermore, it is predicted that views of disturbed areas from this residence would only occur after Stage 2 of development and only until the visible areas can be rehabilitated.

7.3.3 Social and Economic Considerations

The proposed Sutton Forest Sand Quarry has, to the extent feasible, been designed to minimise the social and economic cost of the Proposal on the local community.

The Proposal provides for the extraction, processing and despatch of sand products recognised to be in short and diminishing supply within the Sydney hinterland. The need for sand resources and importance of the construction industry, not only in the local area but in the broader region, is recognised by the community. The Proposal would assist in generating local employment and improving the local economy, while drawing revenue to local businesses in the area. The economic benefits of a Proposal of this size are experienced locally and for the State of NSW.

Access to groundwater has an important social and economic component that is reflected in community concerns about livelihood and groundwater contribution to Long Swamp Creek. Traffic levels, noise and dust are also important to the community, especially considering the proximity of the Hume Highway.

Through the implementation of a range of management and mitigation measures, the Applicant would keep the community informed of progress, provide avenues for complaints or concerns to be expressed and engage positively with the local community. Feedback via monitoring, reporting and compliance auditing would provide a degree of accountability to these commitments.

The Applicant has made a range of commitments over-and-above requirements to satisfy standard environmental management criteria in order to minimise conflicts between the public and private use of the Shrine of Our Lady of Mercy – "Penrose Park" and the operation of the Quarry. Ongoing consultation with the Pauline Fathers would play an important role in further mitigating impacts at this location.

It is acknowledged that there would be changes to the local setting and residual impacts as a result of the Proposal. A range of potential social impacts have been identified and measures proposed to minimise or mitigate these changes. It is considered unlikely that the Proposal would significantly change the existing amenity experienced by the community and visitors alike and that the economic benefits would be significant to the local and regional economy.

The proposed Sutton Forest Sand Quarry has, to the extent feasible, been designed to minimise the social and economic cost of the Proposal on the local community. The Proposal provides for the extraction, processing and despatch of sand products recognised to be in short and diminishing supply within the Sydney hinterland, Illawarra, and Canberra district.

Through the implementation of a range of management and mitigation measures the Applicant would keep the community informed of progress, provide avenues for complaints or concerns to be expressed and engage positively with the local community.

The benefits of the Proposal principally relate to the generation of local employment and the spending in the local community as a result of wage payments and spending on consumables and servicing. The Applicant would also pay significant taxes to both State and Federal governments.

Conclusion

The overall environmental impact assessment process has assisted the Applicant to design a Proposal that would have a range of acceptable residual impacts on the local environment and provide for the long term enhancement of native bushland to the benefit of local and regional fauna/flora and the overall environment. Potential impacts to local amenity have been assessed and would be mitigated and managed through the measures summarised in Section 6.

It is acknowledged that there would be changes to the local environment and residual impacts as a result of the Proposal. The assessment of these impacts has concluded that they would be consistent with operations of this nature and would satisfy regulatory requirements.

On balance it is concluded that the benefits of the Proposal would outweigh the costs and that the Proposal would provide access to an in-demand resource in a cost effective and environmentally responsible manner and would provide an overall benefit to the local, regional and NSW communities.

7.3.4 Objects of the Environmental Planning & Assessment Act 1979

As noted in Section 1.1, development consent is being sought under the EP&A Act and the Proposal must therefore satisfy the objects of the Act. **Table 7.1** identifies the objects of the EP&A Act and confirms that each has been satisfied by the Proposal and this EIS.

Table 7.1
Objects of the EP&A Act

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;	Sections 5.10 and 5.12 confirm that the Site has limitations for agricultural land uses and confirms the Proposal would have negligible impact on agricultural resources and production. The Site does not contain forestry or mineral resources and therefore no specific management measures for these have been developed. Sections 5.2 and 5.3 confirm that water resources on and beneath the Site would be suitably managed within the Site and impacts to the surrounding environment would be minimal given the implementation of best practice management within the Site. Sections 5.5 and 5.6 confirm 'natural areas' on the Site and surrounds have been avoided where practical and management of these resources would mitigate impacts within the Site while residual impacts would be offset through an approved Biodiversity Offset Strategy. Section 5.14 considers the social and economic costs and benefits associated with the Proposal and demonstrates that given the implementation of proposed management measures and operational safeguards proposed by the Applicant, the social and economic welfare of the surrounding community would not be adversely affected by the Proposal.
b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment	Section 7.2.3 reviews and confirms the Proposal would be undertaken in accordance with the principles of ecologically sustainable development which embrace relevant economic/environmental and social considerations.
c) to promote the orderly and economic use and development of land,	The Proposal has been designed to extract sand products at a rate expected to satisfy demand while permitting for progressive rehabilitation of the Site. Section 5.14 confirms, with reference to local and regional economic statistics and strategies that the Proposal would on the whole provide a net benefit to the local and regional economy and community.
d) to promote the delivery and maintenance of affordable housing	The Proposal would not contribute to any additional pressure on local housing.
e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats	Sections 5.5 and 5.6 demonstrate the significant effort taken by the Applicant to avoid and minimise the impact of the Proposal on local and regional biodiversity. Section 5.4 demonstrates that residual impacts to native vegetation and fauna habitat would be offset in accordance with the guidelines and policies of the relevant NSW agencies responsible for management of biodiversity.
f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)	Section 5.7 outlines the Applicant's efforts to avoid disturbance of a number of Aboriginal sites located during the surveys of the Site. For the one site of high cultural significance (a rock shelter), the Applicant would not undertake any activities within 100m of the site. For the four sites that would be fully or partly disturbed, the Applicant would ensure the artefacts from these sites are fully or partially salvaged.

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

Object	EIS Coverage
g) to promote good design and amenity of the built environment	The proposed Quarry is not being developed in a manner where the amenity of the build environment is relevant. The Quarry has, however, been planned to incorporate a range of components either excavated or constructed that will achieve a good design to contribute to minimising environmental impacts.
h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants	All structures, etc. within the Quarry will be correctly installed in accordance with the required standards which are underpinned by the objective of creating a safe work place for the entire workforce on site.
i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State	Section 3.3 reviews the relevant federal, State, regional and local environmental planning regulations, plans and strategies.
j) to provide increased opportunity for community participation in environmental planning and assessment.	The Applicant has demonstrated through its consultation strategy (see Section 3.2.) a transparent approach to information distribution and consideration of community concerns. The Applicant intends to adopt a proactive approach with the local community.

7.3.5 Consequences of not Proceeding with the Proposal

The consequences of not proceeding with the Proposal include the following.

i) The opportunity to establish a long term supply of sand products for Sydney, Illawarra, Southern Highlands and Canberra would be foregone. This would place additional pressure on existing resources and ultimately may lead to pressure to increase production at those sites. It is recognised that existing sand extraction sites that provide sand to the above markets have approved upper limits of extraction often less than 0.5 million tonnes per year. Their extraction limit is often governed by the need to restrict truck movements from the quarries due to sub-optimal roads used by trucks travelling to and from those quarries.

   The proposed Sutton Forest Sand Quarry, with its direct access to and from the Hume Highway, provides an opportunity for the supply of sand at a rate approaching the maximum level of the larger producing sand quarries supplying sand to these markets.

ii) Sourcing other greenfield quarry locations, possibly in less appropriate locations within the Southern Highlands and at greater distances from markets. All potential sites for sand quarries have constraints that could limit the extent of their development. The Applicant considers that the constraints for its Proposal are indeed manageable. The Project Site is in one ownership and the activity areas are sufficiently distant from residences. Furthermore, the Proposal has been designed to limit impacts upon the groundwater resources of the area and importantly has direct access onto the Hume Highway.

iii) Commercial arrangements with potential customers would be foregone. One of the joint venture partners for the Proposal, Mr Pat Hallinan, has through his involvement with the Hi Quality Group, has been developing markets and attracting customers for sand through the increased production at its Menangle Quarry, albeit at levels considerably less than at the proposed Quarry. These customers are largely independent concrete manufacturers and sand/soil retail facilities. In the event the Proposal does not proceed, the value of the customer base would be diminished.

It is also noted that Hi Quality Group has three sand and soil outlets that throughout the wider Sydney metropolitan area have well established customers that would not benefit from the increased production base arising from this Proposal.

iv) The opportunity to increase employment opportunities in the local area would be foregone. This would also impact on the economic activity of the local community and the Wingecarribee LGA. The Applicant has already established that there are a number of persons in the Wingecarribee LGA that would prefer to work at a local quarry rather than travel considerable distances to their current quarries. Furthermore, the Applicant has also established that the workforce in the Wingecarribee LGA has the required skills and/or capability (with training) to undertake all the required tasks at the proposed quarry.

v) The long-term conservation of remnant native vegetation through the proposed Biodiversity Offset Strategy would be foregone. Throughout the planning of the Proposal, the Applicant recognised that, although the proposed disturbance was centred on an area previously cleared, that a biodiversity offset would be required and accordingly purchased an approximately 200ha property to the west of the Site. The vegetation on that land, together with the area of native vegetation to be retained within the Site, would provide the necessary offset for the land to be cleared throughout the life of the proposed quarry.

In the event the Proposal does not proceed, the owner of the land on which the Project Site is located would be able to undertake vegetation clearing most likely in the area previously cleared which would diminish the ecological values in that area. Furthermore, the Applicant would place the purchased property southwest of the Site back onto the open market with the potential for the new owner to extend clearing on that property.

The Applicant's Proposal would result in approximately 300ha of native vegetation retained in perpetuity, a factor that would not be guaranteed if the Proposal does not proceed.

vi) Payments for elevated rates (to Council), State and federal taxes and affected landowners within the Site would be foregone. Following the approval on the proposed quarry, the rates for Lot 4 DP 253435 would increase by a factor of 5.069 times. The land is currently considered as "farmland" with rates payable based upon 0.0025142 in the dollar whereas following the commencement of the Proposal, the land would be considered as "mining" with rates payable based upon 0.0127440 in the dollar.

vii) The various adverse impacts identified throughout Section 5 of this document would not occur. It is considered that the level of predicted impacts arising from the Proposal are acceptable given the extent of safeguards integrated within the various aspects of the Proposal and the Applicant's approach to communicating with neighbouring landowners to discuss individual issues relating to the development and operation of the Quarry.

The benefits of proceeding with the proposed Sutton Forest Sand Quarry are considered to outweigh the predicted impacts on the environment that would result if the Proposal is approved. The consequences of not proceeding with the Proposal also weigh heavily in favour of proceeding with the Proposal.

7.4 CONCLUSION

The Proposal has been designed to address the issues raised by the community and all levels of government, as well as the principles of ecologically sustainable development. The Proposal provides for the extraction of the identified sand resource and general operation of the Quarry in a cost efficient and environmentally responsible manner. The Proposal also incorporates the progressive rehabilitation of the Site in order to provide for productive agricultural activities and ongoing native vegetation conservation upon completion of quarrying activities.

In light of the assessments presented throughout the EIS, it is concluded that the proposed Sutton Forest Sand Quarry would satisfy all relevant statutory goals and criteria, environmental objectives and reasonable community expectations.

This document and the range of specialist consultant studies undertaken have identified that the Proposal should proceed because it would:

- contribute towards satisfying the demand for construction materials, particularly within the Sydney metropolitan region and the Southern Highlands;
- have a minimal and manageable impact on the biophysical environment;
- satisfy sustainable development principles;
- provide for continuing and future use of the Site for agricultural use and nature conservation; and
- result in a net benefit for the local community, Wingecarribee Shire and the State of NSW.

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