Section 6

Evaluation and Justification of the Project

PREAMBLE

This section concludes the assessment of the proposed Dargues Reef Gold Project. The impact of the Project is evaluated by reassessing the risks posed to the local environment by Project activities, following consideration of the controls, safeguards and/or mitigation measures proposed by the Proponent, as well as through consideration against the principles of Ecologically Sustainable Development (ESD). Finally, a justification for the Project is provided based on the residual impacts of the Project, the likely economic and social benefits that would be generated and the consequences locally, regionally and nationally of the Project not going ahead.

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6.1 EVALUATION OF THE PROJECT

6.1.1 Residual Environmental Risk and Impacts

An assessment of the unmitigated environmental risks associated with the Project has previously been presented in **Table 3.10**. Following consideration of the proposed management and mitigation measures described in Section 4, together with the commitments provided in Section 5, an assessment of the mitigated risks associated with the Project was completed for each potential environmental impact based on the likelihood of occurrence and potential environmental consequence. **Table 6.1** reproduces the results of the analysis of unmitigated risk together with the residual or mitigated risks associated with the Project. For ease of reference, **Table 3.7** to **Table 3.9** are reproduced as **Table 6.2** to **Table 6.4**.

It is noted that in some cases no residual risk ranking has been allocated as the assessment recorded in Section 4 has determined that the impact would not occur.

Table 6.1
Analysis of Mitigated Environmental Risk

Page 1 of 7

Risk Source (see Table 3.7)	Potential Impact (Including Scale if applicable)	Unmitigated Risk Ranking	Consequence of Occurrence	Likelihood of Occurrence	Residual Risk Ranking
Groundwater					
Pollution of groundwater due to leaching of contaminants from the TSF	Reduced availability of water for beneficial uses, eg. domestic water supply, environmental flows.	H	3	E	M*
	Detrimental impacts on biota dependent on local surface or groundwater resources.	M	-	-	-
Pollution of groundwater due to hydrocarbon spills	Contamination requiring minor recovery works.	M	2	E	L
	Contamination requiring major recovery works.	H	4	E	H*
Reduction of groundwater levels due to mining and associated drawdown	Reduction in groundwater levels.	H	1	A	H*
	Reduced yields of local groundwater bores (Alluvium Aquifer).	H	-	-	-
	Reduced yields of local groundwater bores (Bedrock Aquifer).	H	1	A	H*
	Adverse impact on or reduced viability of groundwater dependent ecosystems.	M	-	-	-
Dewatering of bedrock aquifer as a result of blasting induced fracturing	Reduced yields of local groundwater bores (Bedrock Aquifer).	M	-	-	-
Reduced volume and/or quality of water recharging surface water flows	Reduced surface flows to Spring Creek and other creek catchments of the Araluen River.	H	1	A	H*
	Degradation of groundwater dependent ecosystems.	M	-	-	-

Table 6.1 (Cont'd)
Analysis of Mitigated Environmental Risk

Risk Source (see Table 3.7)	Potential Impact (Including Scale if applicable)	Unmitigated Risk Ranking	Consequence of Occurrence	Likelihood of Occurrence	Residual Risk Ranking
Surface Water / Flooding / Erosion and Sedimentation					
Reduction in environmental flows	Reduced availability of water to downstream users.	H	2	D	L
	Structural change to, or degradation of downstream vegetation (including GDE's).	M	-	-	-
	Degradation of aquatic habitat.	M	-	-	-
Pollution of downstream waters as a result of discharge of dirty, saline or contaminated water	Isolated and minor discharge of dirty, contaminated or saline water resulting in temporary degradation of water quality in local creeks and tributaries, eg. one-off and discharge of water containing small amount of hydrocarbon contamination.	M	2	D	L
	Continuing discharge of dirty, contaminated or saline water resulting in ongoing degradation of water quality in local creeks and tributaries, eg. frequent discharge of dirty water.	M	-	-	-
	Isolated and major discharge of dirty, contaminated or saline water resulting in temporary but wider spread degradation of water quality, eg. major fuel spill discharged to local creek.	H	3	E	M*
	Repeated major event resulting in long-term and wide spread degradation of water quality, eg. repeated or continued discharge of saline water to the downstream catchment.	H	-	-	-
	Pollution of local waterways resulting in death of flora and fauna.	M	3	E	M*
	Contamination of soil resources and indirect impacts on future land use.	M	-	-	-
Discharge of contaminated water from the TSF leading to:	Contamination of local soils.	L	2	D	L
	Contamination of local waterways.	H	3	E	M*
	Poisoning of native flora and fauna.	H	3	E	M*
	Long-term degradation of landform and reduced potential for future beneficial use.	H	-	-	-
Changes to hydrology of creeks and drainage lines resulting in:	Reduced surface flows within the affected waterway(s) and the Araluen River catchment.	H	-	-	-
	Increased erosion potential resultant from changed alignment of flow.	M	2	D	L
	Reduction in the value of aquatic habitat.	M	-	-	-
Changes to local flood regimes resulting in:	Increased erosion potential within local catchments.	M	2	D	L
	Changes to vegetation community structure and habitat value.	M	-	-	-
	Detrimental impacts on surrounding properties as a result of changes to flooding regime.	M	-	-	-

Table 6.1 (Cont'd)
Analysis of Mitigated Environmental Risk

Risk Source (see Table 3.7)	Potential Impact (Including Scale if applicable)	Unmitigated Risk Ranking	Consequence of Occurrence	Likelihood of Occurrence	Residual Risk Ranking
Surface Water / Flooding / Erosion and Sedimentation					
Soil erosion (due to the erosive actions of water)	Erosion of disturbed areas on the Project Site.	M	-	-	-
	Erosion of rehabilitated areas and/or final landform of the Project Site.	H	2	D	L
Increased sediment load in drains and/or waterways	One-off discharge of dirty water from the Project Site.	M	2	D	L
	Regular discharge of dirty water from the Project Site.	H	3	E	M*
Soil Resources					
Reduction in soil quality and availability.	Insufficient soil quantities for rehabilitation.	L	2	E	L
	Reduced soil quality.	M	2	D	L
Increased erosion or erosion potential of soils.		M	-	-	-
Flora and Fauna (Biodiversity)					
Removal of native vegetation due to clearing activities, leading to:	Loss of, or alteration to, existing habitats.	H	2	D	L
	Direct adverse impact on threatened species, populations or endangered ecological communities.	H	3	-	-
Disturbance to threatened species, populations and communities	Local or regional reduction in distribution of threatened species, populations or endangered ecological communities.	H	4	-	-
	Possible local extinction of threatened species, populations or endangered ecological communities.	H	4	-	-
Disturbance to fauna and fauna habitat as a result of ongoing operations, eg. dust.	Local or regional reduction in distribution of threatened species, populations or endangered ecological communities.	M	3	-	-
Pooling of contaminated water on the TSF	Poisoning of native fauna.	L	2	E	L
Aboriginal Heritage					
Removal or destruction of known (or currently unidentified) Aboriginal sites and/or artefacts	Destruction of impacted site.	H	3	-	-
	Cumulative reduction of the in-situ archaeological record.	M	3	-	-
Non-Aboriginal Heritage					
Loss or destruction of items of heritage significance		H	1	B	L

Table 6.1 (Cont'd)
Analysis of Mitigated Environmental Risk

Risk Source (see Table 3.7)	Potential Impact (Including Scale if applicable)	Unmitigated Risk Ranking	Consequence of Occurrence	Likelihood of Occurrence	Residual Risk Ranking
Noise					
Increased noise levels resulting from operation of mobile equipment, crushing and screening equipment and product transportation.	Occasional minor exceedance of noise criteria (1-2dB(A)).	H	1	D	L
	Regular minor exceedance of noise criteria (1-2dB(A)).	H	2	D	L
	Occasional marginal exceedance of noise criteria (3-5dB(A)).	H	3	E	M*
	Regular marginal exceedance of noise criteria (3-5dB(A)).	H	3	-	-
	Occasional major exceedance of noise criteria (>5dB(A)).	E	4	-	-
	Regular major exceedance of noise criteria (>5dB(A)).	H	3	-	-
	Maximum noise levels resulting in sleep disturbance.	H	3	E	M*
	Increased noise levels associated with the Project leading to impacts on the native fauna assemblage.	M	2	E	L
Blasting / Vibration					
Increased levels of vibration from mine blasting resulting in:	Structural damage to buildings and structures.	L	2	-	-
	Nuisance/amenity impacts on surrounding landowners / residents.	M	3	E	M*
Fracture induced dewatering of bedrock aquifer(s).	Reduced yield / availability of water from affected groundwater bores.	M	3	-	-
Air Pollution – Dust, Odour, Other					
Dust generation resulting in potential nuisance dust impacts	Deposited dust levels occasionally (for one or two months every year) above DECCW guideline and affecting only adjacent landholders.	M	2	E	L
	Deposited dust levels regularly (for >5 months per year) above DECCW guideline and affecting landholders some distance from the Project Site.	H	3	-	-
Dust generation resulting in potential health impacts	PM_{10} levels occasionally above the Project goal and restricted in distribution.	M	2	E	L
	PM_{10} levels regularly above the Project goal and affecting landholders some distance from Project Site.	H	3	-	-
Dust generation resulting in impacts on biota	Deposited dust levels attributable to the Project resulting in stress to adjoining vegetation and reduced quality of fauna habitat.	L	2	E	L

Table 6.1 (Cont'd)
Analysis of Mitigated Environmental Risk

Risk Source (see Table 3.7)	Potential Impact (Including Scale if applicable)	Unmitigated Risk Ranking	Consequence of Occurrence	Likelihood of Occurrence	Residual Risk Ranking
Air Pollution – Dust, Odour, Other					
Greenhouse Gas Emissions	Small increase (<0.05%) in greenhouse gas emissions (compared to 2007 NSW baseline emissions).	M	1	B	M#
	Moderate increase (>0.05%, <0.1%) in greenhouse gas emissions (compared to 2007 NSW baseline emissions).	M	2	-	-
	Significant increase (>0.1%) in greenhouse gas emissions (compared to 2007 NSW baseline emissions).	M	3	-	-
Traffic and Transport					
Construction of new entrance to the Project Site	Impacts associated with road construction (noise, dust, ecology, heritage etc.).	See "*air pollution*", "*flora and fauna*", "*noise*" and "*Aboriginal heritage*" above			
	Temporary inconvenience to commuters if stopped for road works.	L	1	C	L
Increased traffic levels (in particular heavy vehicles) due to movement of workforce and contractors	Increased traffic congestion.	L	2	D	L
	Road pavement deterioration.	M	1	C	L
	Elevated risk of accident/incident on local roads.	See below			
	• Minor accident - no injury.	L	1	D	L
	• Minor accident - minor injury.	M	3	E	M*
	• Major accident - moderate injuries requiring hospitalisation.	H	4	E	H*
	• Severe accident - severe injuries or death injury.	H	4	E	H*
Visual Amenity					
Changes in visual characteristics of the Project Site	Temporary disturbance to landform.	H	1	A	H#
	Marginally identifiable change to landscape following rehabilitation and final landform creation.	M	2	D	L
	Highly identifiable change to landscape following rehabilitation and final landform creation.	M	2	E	L
	Permanent disturbance to landform.	H	2	D	L
Impacts of night lighting	Decreased visual amenity.	M	1	D	L
	Elevated risk of traffic incident.	M	3	-	-
Rehabilitation / Final Landform / Final Land Use					
Temporary or permanent changes to the landform of the Project Site	Reduced amenity of the final landform resultant from vegetation clearing and altered topography.	L	2	D	L
	Final landform and land use that is not compatible with activities/lifestyle of local community.	M	3	E	M*

Table 6.1 (Cont'd)
Analysis of Mitigated Environmental Risk

Risk Source (see Table 3.7)	Potential Impact (Including Scale if applicable)	Unmitigated Risk Ranking	Consequence of Occurrence	Likelihood of Occurrence	Residual Risk Ranking
Waste Management					
Production of contaminating or polluting materials, eg. waste oils, saline water, tailings, general rubbish	Contamination of surface water.	M	3	E	M*
	Contamination of groundwater.	M	3	E	M*
	Contamination of soil resources.	L	2	-	-
Acid Mine Drainage from mineralised waste rock	Contamination of local water and/or soil resources by leaking or spilt residue.	M	3	-	-
Management of rubbish	Reduced visual amenity.	L	2	-	-
	Adverse impacts on local waterways and aquatic habitats.	L	2	-	-
Land Contamination					
Exposure of previously contaminated materials	Contamination of soil resources.	L	2	E	L
	Contamination of surface water.	L	2	E	L
Bushfire					
Initiation of fire leading to impacts on the Project Site	Minor disturbance to Project Site lands and equipment resulting in temporary suspension of operations.	L	2	E	L
	Major damage to Project Site lands and equipment resulting in long-term or complete suspension of operations.	M	3	E	M*
	Impacts on health and safety of project personnel.	M	3	E	M*
Initiation of fire leading to impacts outside the Project Site	Minor disturbance to lands external to the Project Site.	M	3	E	M*
	Major disturbance to lands external to the Project Site.	H	4	E	H*
	Impacts on health and safety of local land owners, residents and the general public.	H	4	E	H*
Socio-Economic Impacts					
Alteration of social activities or employment	Improved economic activity and related social impacts attributable to reduced unemployment.	Net benefit			
Reduction in availability of skilled labour	Reduced availability of labour for other businesses and industries.	M	2	C	M*
Increased pressure on local infrastructure	Increased cost of housing and rental accommodation locally.	H	3	C	M*
	Increased costs of services.	M	2	D	L

Table 6.1 (Cont'd)
Analysis of Mitigated Environmental Risk

Risk Source (see Table 3.7)	Potential Impact (Including Scale if applicable)	Unmitigated Risk Ranking	Consequence of Occurrence	Likelihood of Occurrence	Residual Risk Ranking
Waste Management					
Perceived or real impacts on local amenity of neighbouring properties	Reduced quality of life (actual or perceived).	M	3	D	M*
	Reduced property values.	M	3	D	M*
Note 1: * - indicates the lowest possible risk ranking given the likelihood of occurrence category of E: Rare # - indicated the lowest possible risk ranking given the consequence of occurrence category of 1: Insignificant					
Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic **Likelihood of Occurrence**: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare **Risk Rating**: E = Extreme; H = High; M = Moderate; L = Low					

Table 6.2
Qualitative Consequence Rating

Level	Descriptor	Description
5	Catastrophic	• Massive and permanent detrimental impacts on the environment. • Very large area of impact. • Massive remediation costs. • Reportable to government agencies. • Large fines and prosecution resulting in potential closure of operation. • Severe injuries or death.
4	Major	• Extensive and/or permanent detrimental impacts on the environment. • Large area of impact. • Very large remediation costs. • Reportable to government agencies. • Possible prosecution and fine. • Serious injuries requiring medical treatment.
3	Moderate	• Substantial temporary or minor long term adverse impact to the environment. • Moderately large area of impact. • Moderate remediation costs. • Reportable to government agencies. • Further action may be requested by government agency. • Injuries requiring medical treatment.
2	Minor	• Minor detrimental impact on the environment. • Affects a small area. • Minimal remediation costs. • Reportable to internal management only. • No operational constraints posed. • Minor injuries which would require basic first aid treatment.
1	Insignificant	• Negligible and temporary detrimental impact on the environment. • Affects an isolated area. • No remediation costs. • Reportable to internal management only. • No operational constraints posed. • No injuries or health impacts.
Source: modified after HB 203:2006 (Standards Australia, 2006) - Table 4(B)		

Table 6.3
Qualitative Likelihood Rating

Level	Descriptor	Description
A	Almost Certain	Is expected to occur in most circumstances.
B	Likely	Will probably occur in most circumstances.
C	Possible	Could occur.
D	Unlikely	Could occur but not expected.
E	Rare	Occurs only in exceptional circumstances.
Source: HB 203:2006 (Standards Australia, 2006) - Table 4(A)		

Table 6.4
Risk Rating Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (Almost Certain)	H	H	E	E	E
B (Likely)	M	H	H	E	E
C (Possible)	L	M	H	E	E
D (Unlikely)	L	L	M	H	E
E (Rare)	L	L	M	H	H
Note: Rating modified after HB 203:2006 (Standards Australia, 2006) - Table 4(C)					

Through the implementation of the proposed controls, safeguards and mitigation measures summarised in Section 4, the risk ranking for the majority of potential environmental impacts has been reduced to either a moderate or low risk ranking. In a number of cases, a moderate (or high) risk ranking is the lowest possible ranking even though the consequence is assessed as 'insignificant' (if the potential for occurrence is considered 'likely' or 'almost certain'), or the potential occurrence is assessed to be 'rare' (if the consequence is considered to be 'moderate' or greater).

In some cases, a ranking is no longer provided as the relevant assessment recorded in Section 4 determined the likelihood to be so low, the consequence so insignificant, or the operation of the Project to have no influence on the overall risk to the surrounding environment.

Further consideration is given to the potential impacts which retain a "high" risk ranking as follows.

- Contamination of groundwater or surface water associated with a hydrocarbon spill.

  The Proponent would ensure that all hydrocarbons within the Project Site would be stored, transported and used in accordance with the relevant Australia standard or industry best practice. This would include appropriate bunding and containment structures. In addition the Proponent would concrete seal areas where the greatest potential for hydrocarbon spills exist, namely in the vicinity of workshops and refuelling areas. However, while the likelihood of unanticipated spills would be very low (likelihood ranking of E or rare), the consequence would remain Major to Moderate (consequence rankings of 2 and 4 respectively). As a result, a high risk ranking continues to apply.

- Reduced groundwater yields in surrounding bores.

  As noted in Section 4.4.5.5, the Groundwater Assessment determined that two bores would be adversely impacted by the Project. The Proponent proposes to negotiate an appropriate arrangement with the owner of each bore to ensure that their rights in relation to those bores are not adversely impacted. However, the bores would still be impacted irrespective of the arrangement negotiated. As a result, a high risk ranking continues to apply.

- Reduced groundwater flows to creeks within and surrounding the Project Site.

  As noted in Section 4.4.5.4, the Groundwater Assessment determined that the Project would, result in reduced flows to creeks within the Moruya Catchment of up to approximately 2.1L/s or 62ML/year, with recovery to pre-mining discharge levels following cessation of mining activities within 2 years of the ceasation of dewatering activities. As indicated in Section 2.10.2.6, the Proponent has committed to release approximately 2.1L/s at the confluence of Majors and Spring Creeks, downstream of the limit of anticipated groundwater impacts. However, this measure would compensate for the lost flows, not prevent the losses from occurring. As a result, a high risk ranking continues to apply.

- Major or severe accident resultant from road transport from the Project Site.

  While every precaution has been and would be taken by the Proponent in relation to the design of traffic management and education of its workforce, the potential consequence of a major or severe accident is such that a high risk ranking would continue to apply.

- Temporary disturbance to the existing landform and marginally identifiable change to the landscape.

  While the potential consequence of the impact is considered insignificant, because it is considered almost certain to occur, the high risk ranking applies. However, the Proponent contends that the changes would be reasonable and that progressive and final rehabilitation operations would ensure that the proposed final landform would be safe, stable, self-sustaining and non-polluting. In addition, the visual amenity assessment presented in Section 4.11 concluded that the visual impact of the final landform would not be significant.

- Impacts associated with bushfire either initiated on the Project Site or on lands external to the Project Site.

  While bushfire is considered to have a potentially rare occurrence, the consequence could be major and as such a high risk ranking applies despite the incorporation of Project safeguards which would minimise the potential for fire on the Project Site.

The risks associated with the majority of possible environmental impacts are considered moderate or less and therefore, while these may result in impacts deemed unacceptable to some stakeholders, the development and operation of the Project, with the implementation of appropriate management plans, are overall considered acceptable.

6.1.2 Ecologically Sustainable Development

6.1.2.1 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 Project, the Proponent has endeavoured to address each of the sustainable development principles. The following sub-sections draw together the features of the Project that reflect the four principles of sustainable development, 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.

6.1.2.2 The Precautionary Principle

In order to satisfy this principle, emphasis must be placed on anticipation and prevention of environmental damage, rather than reacting to it. During the planning phase for the Project and throughout the preparation of the *Environmental Assessment*, the Proponent 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 Project, the Proponent and its consultant team have adopted an anticipatory approach to impacts, particularly issues that could impact on local land uses and amenity (water resources, noise, dust, visibility, etc), by undertaking an analysis of the risks posed by proposed activities, including an appropriate level of research and baseline investigations and environmental evaluation. The controls, safeguards and/or management and mitigation measures have therefore been planned with a comprehensive knowledge of the existing environment and the potential risk of environmental degradation posed by Project-related activities.

The implementation of the environmental safeguards, controls and mitigation measures has been formalised by the Proponent as the Draft Statement of Commitments presented as Section 5.

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

Project Objectives

The principal objective of the Project is the design and operation of a gold mine in a manner that minimises surface disturbance and impact on the environment and surrounding residents. Other Project objectives illustrating consideration of the Precautionary Principle include:

- ensuring compliance with environmental criteria;
- meeting reasonable community expectations; and
- achieving all relevant statutory requirements through appropriate design, management and mitigation measures.

Project Design Components

A number of design features were incorporated during the initial design stage in recognition of the Precautionary Principle. In addition, subsequent modifications were made in response to issues identified during the specialist consultant investigations undertaken as part of the environmental assessment phase. These design features and modifications included the following.

- The Dargues Reef Gold Project has been developed as an underground mine (as opposed to an open cut mining operation), to minimise surface disturbance and potential impacts on local ecology, water resources and visual amenity.
- The backfilling of underground stopes using waste rock removed during initial mine development would minimise the requirement to stockpile waste rock at surface. This would reduce the total disturbance footprint of the Project.
- The tailings to be generated by the Project is considered to be benign and unlikely to be detrimental to local water resources. However, in recognition of the importance of local surface and groundwater resources to surrounding land users and biota, and to eliminate the potential for contamination of these resources by leachate from the tailings storage facility, the Proponent has committed to lining the tailings storage facility with either clay or an artificial liner in order to achieve a permeability of 1×10^{-9}m/day or less.
- The box cut and mine infrastructure have been located away from native vegetation to minimise the amount of vegetation that would be disturbed during the life of the Project.

Management and Operational Safeguards

The framework for ongoing environmental management, operational performance and rehabilitation of the Mine Site would be provided through the project approval and would be managed in accordance with the Mining, Rehabilitation and Environmental Management Process of Industry and Investment NSW, both of which would involve the input from relevant State and local government agencies. The *Mining Operations Plan* (or *Rehabilitation and Environmental Management Plan*) would contain a range of site specific environmental procedures to achieve consistency with specified outcomes and to control identified risks. This document would be updated periodically. In addition, the *Annual Environmental Management Report* would document the progress of the Project and provide an opportunity to review the effectiveness of the environmental management strategies adopted. Finally, the following management and operational safeguards would be implemented in accordance with the precepts of the precautionary principle.

- Surface water management structures would be constructed and maintained to ensure that potentially sediment-laden water does not flow from the Project Site.
- Surface water management structures relevant to a specific element of surface infrastructure or disturbance would be constructed prior to the commencement of the surface disturbance activities relevant to the structure(s).
- Water collected during mining of the Dargues Reef Mine would preferentially be used for mining-related purposes, minimising the surface water and groundwater to be drawn from other sources.
- Specific noise attenuation controls would be implemented. These would include:
  - enclosure of the crusher within a noise attenuated structure;
  - construction of a bund wall of at least 5m in height around the southern and western perimeter of the ROM pad; and
  - operation of the ventilation fan at least 10m below surface level.
- Dust suppression would be undertaken by the Proponent.
- Areas of remnant native vegetation, as well as those areas to be revegetated, would be fenced and access limited to minimise the potential for inadvertent disturbance.
- Areas not required for mining-related activities would not be disturbed to assist in minimising erosion and reducing the suspended sediment load in surface water flowing through the Project Site.
- Soil material would be stripped, stockpiled and re-spread.
- Surface water, groundwater, noise and dust levels would be monitored at locations potentially most affected by the Project in order to ensure the continued compliance with the goals outlined in this document.
- All on-site procedures would be regularly reviewed, particularly in light of monitoring results.

Rehabilitation and Subsequent Land Use

Long term adverse impacts on the environment would be avoided through:

- creation of a safe, stable, vegetated, non-polluting final landform;
- progressive rehabilitation, including shaping of the final landform, spreading of soil and reseeding or replanting with endemic, locally sourced species; and
- a final land use of agriculture, nature conservation and other land uses to be determined in conjunction with the surrounding community and the relevant government agencies.

Conclusion

The Precautionary Principle has been considered during all stages of the design and assessment of the Project. The approach adopted, ie. risk analysis, initial assessment, consultation, specialist investigations and safeguard design, provides a high degree of certainty that the Project would not result in any major unforeseen impacts.

6.1.2.3 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 Project.

Both elements of social equity are addressed through the design of the Project 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 listed below.

Identification of Project Objectives

As noted above, the principal objective of the Project is the design and operation of a gold mine in a manner that minimises surface disturbance and impact on the environment and surrounding residents.

The Project would also be developed with the objective of maximising the social and economic benefits to the nearby Majors Creek community and within the Palerang LGA more generally through:

- provision of employment, including a commitment to employee training (whilst not adversely affecting the ability of other employers within the region to maintain suitably qualified staff);

- assistance in and contribution to the planning and development of community based projects;
- contribution to the maintenance of the roads to be used by the Proponent generated traffic; and
- development of a purchasing policy specifying the local purchase of project-related consumables such as fuel, oil, cleaning products etc where practicable.

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

Design of Project Components

The Project has been designed to maintain inter-generational equity, ie. in recognition that the mining and processing of the gold 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.

- Underground mining has been proposed, as opposed to open cut mining, to minimise disturbance to land which has an ongoing value to local agriculture.
- A Biodiversity Strategy would be established to compensate for any disturbance to native vegetation and fauna habitat, to safeguard the populations of threatened flora and fauna species' and provide a higher level of protection and management to these threatened species.
- Reductions in base flows to Spring and Majors Creeks would to be mitigated by the release of compensatory flows from Project Site dams equivalent to the base flow reduction.
- The availability of groundwater to surrounding landholders, although not predicted to be significantly affected by the Project, would be monitored throughout the life of the Project and compensatory measures taken in the event reductions in the availability (yield) are identified.
- The rehabilitation of the Project Site has been designed to provide a visually acceptable landform available for a recommencement of an agricultural land use.

Integration of Safeguards and Procedures

The Proponent recognises that all members of the local community should benefit appropriately from the Project, either directly or indirectly. In order to ensure a realistic distribution of benefits, the Proponent 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.

Several issues, some Project-related and others of a more general nature, have been identified as having possible inter-generational effects. The following describes these issues and the approach to be taken by the Proponent to ensure potential for adverse inter-generation impacts are minimised.

- Tailings Management. The tailings storage facility has been designed to ensure it remains structurally sound, retains all tailings and leachate and can be rehabilitated to provide for future agricultural land use. Ongoing monitoring would be undertaken to confirm no leakage of leachate into local groundwater or surface water drainages, with this monitoring undertaken for the life of the Project and for as long as required by the responsible government agency (currently I&I NSW). These measures will ensure that the proposed tailings management does not adversely impact on the environment and land users of future generations.
- Weed Management. The spread of weeds is recognised as an issue for the local area. While this issue is largely independent of the Project, the Proponent recognises that poor land management on the Project Site could exacerbate the problem. Conversely, the proposed implementation of appropriate weed control on Proponent owned land would assist in overall weed management of the local area. The Proponent notes that it has undertaken extensive weed management programs within the northern section of the Project Site and that weed have largely been removed. In addition, the Proponent proposes to continue to implement such programs within the newly acquired southern section of the Project Site. Any such works would be undertaken in consultation with the local Weeds Officer of Palerang Shire Council or I&I NSW.
- Land Use. The proposed rehabilitation objectives and measures described in Section 2.14.2 have been designed to ensure that the Project Site lands are available for future use for agricultural or nature conservation purposes and do not restrict the ongoing agricultural activities on surrounding lands.

Rehabilitation and Subsequent Land Use

The proposed final landform would provide for the current land uses, namely agricultural or nature conservation.

Conclusion

The principle of social equity has been addressed through the consideration of how the Project could benefit the local and regional communities, the design of particular elements of the Project and the integration of operational safeguards and management measures that would maximise community involvement in reviews of operations, as well as ensure that gains made in the short-term do not result in adverse impacts on the environment or the local community post-completion of the Project.

Notably, the Project would contribute significantly to the economic activity of the local and regional community through the generation of employment, increased demand for local goods and services, direct community contributions and flow-on effects. These benefits of the Project, which are considered in more detail in Section 6.2.3, would be distributed throughout the local community. The Project has also been 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 Proponent would adopt a pro-active approach in identifying and addressing any concerns identified by the local community.

6.1.2.4 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 Project has been designed to achieve compliance with these principles are set out below.

Identification of Project Objectives

The Proponent 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 Project has been designed to:

- avoid, as far as practicable, impacts on threatened flora and fauna through the minimisation of surface activities and use of previously cleared land for the construction of surface infrastructure;
- minimise the potential impacts on threatened flora and fauna (and native vegetation and fauna habitats generally) through the development and implementation of the Biodiversity Strategy; and
- maintain surface and base flows within Majors Creek.

Design of Project Components

The Proponent, on advice from the specialist consultancies commissioned to assist with the design and to assess the impact of the Project, has provided for the conservation of biological diversity and ecological integrity through the following design elements. As far as practical, the Proponent has followed Step 4 of the guideline document "*Draft Guidelines for Threatened Species Assessment"* (DEC/DPI, 2005), ie. "*avoid, mitigate and then offset*".

Impact Avoidance

- By developing the Project as an underground mine, the area of surface disturbance, and therefore potential impact on threatened flora and fauna, has been minimised.
- Impacts on threatened flora and fauna have been further avoided through the location of surface infrastructure away from areas of native vegetation.
- All waste rock would eventually be used as backfill underground, ie. there would be no areas required for the permanent stockpiling of waste rock.

Impact Mitigation

- Water management structures have been designed and would be constructed to ensure that only water of appropriate quality leaves the Project Site.
- Soil would be stripped and managed in stockpiles for eventual respreading over the final landform. These stockpiles would be designed and managed to minimise any reduction in the biological activity within the soils and prevent erosion and sedimentation from these structures.
- The construction of internal roads and access routes would minimise disturbance to native vegetation.
- Progressive rehabilitation of the Project Site would provide for the re-establishment of native and pasture vegetation.
- Effective weed control would be undertaken to reduce the spread of weeds over the Project Site and surrounding land.

Impact Offsetting

- Compensatory releases of water from the Project Site are proposed to offset the predicted reductions in base flows to Spring and Majors Creeks.
- The limited areas of disturbance to native vegetation and fauna habitats associated with the Project would be compensated by the establishment of a Biodiversity Strategy which would include development of a Property Vegetation Plan under the *Native Vegetation Act 2003*. That plan would specify the land management practices that would be implemented in perpetuity, including appropriate control of grazing and use of fertilisers.

Integration of Management and Mitigation Measures

The Proponent would implement the following Management and Mitigation Measures to maximise the conservation of biological diversity and ecological integrity within and surrounding the Project Site.

- No native vegetation with a height of more than 3m would be removed.
- Rehabilitation of the Project Site would include the establishment of endemic vegetation, including grassland species.
- Weed eradication programs would continue to be implemented, as required.

Rehabilitation and Subsequent Land Use

The final landform has been designed to provide for future use of the Project Site lands for agricultural activity or nature conservation.

Conclusion

The Project addresses the principle of conservation of biological diversity and ecological integrity through the minimisation of disturbance to areas of native vegetation, and conservation of greater areas of native vegetation than are disturbed. Should threatened species be identified within those areas of the Project Site to be disturbed, these would be relocated or managed appropriately in consultation with DECCW or a suitably qualified professional. Weed eradication programs would continue to be implemented as appropriate and would further assist in addressing the Conservation of Biological Diversity and Ecological Integrity principle of sustainable development.

6.1.2.5 Improved Valuation and Pricing of Environmental Resources

The issues that form the basis of this principle relate to the acceptance that:

- the polluter pays;
- when 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 Project is set out below.

Identification of Project Objectives

The Proponent's principal objective of the Project is the design and operation of a gold mine in a manner that minimises surface disturbance and impact on the environment and surrounding residents. This objective demonstrates that an appropriate value has been placed on elements of the existing environment.

Design of Project 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 gold to be mined, is evidence of the value placed by the Proponent on these resources.

Rehabilitation and Subsequent Land Use

The design of the final landform to integrate ongoing agricultural activities and nature conservation with the re-establishment and conservation of native vegetation illustrates the value placed by the Proponent on both the commercial and ecological elements of the Project Site.

Conclusion

The value placed by the Proponent on environmental resources is evident in the identification of Project 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 Project Site. It is planned that the income received from the sale of the gold would be sufficient to enable the Proponent to achieve an acceptable profit level whilst undertaking all environmentally-related tasks and meeting all commitments in all approvals, licences and permits and those made to the local community.

6.1.2.6 Conclusion

The approach taken in planning the Project has been multi-disciplinary, involved consultation with community representative groups, 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 Project has addressed each of the sustainable development principles, and on balance, it is concluded that the proposed Dargues Reef Gold Project achieves a sustainable outcome for the local and wider environment.

6.2 JUSTIFICATION OF THE PROJECT

6.2.1 Introduction

In assessing whether the development and operation of the Project is justified, consideration has been given both to the predicted residual impacts on the local and wider environment and the potential benefits the Project would have for the Proponent, surrounding land owners and residents, the Majors Creek community, the community within the Palerang LGA, NSW and Australia. When considering the predicted residual impacts, a review of the proposed controls, safeguards and mitigation measures prepared by the Proponent 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 Project not proceeding.

6.2.2 Biophysical Considerations

The Project would have a range of impacts on the biophysical environment. Section 4 of this document identifies the potential residual biophysical impacts of the Project, following the adoption of a number of design and operational procedures, mitigation measures and/or offset strategies. Assuming the commitments made by the Proponent in Section 5 implemented, these residual impacts are summarised as follows.

Topography

Given the Project is to be developed as an underground mine, the impact on the local topography would be restricted to the following.

- The box cut would be retained, however, appropriate bunding, fencing and signage would be erected to prevent any unauthorised access.

- The completed tailings storage facility would in-fill a gully that prior to the Project formed a first order tributary to Spring Creek. A free-draining structure, with embankment slopes of approximately 1:3 (V:H) or less, would replace this gully in the final landform.

- Minor changes to the pre-mining landform would be created following the shaping and profiling of the processing plant and office area following the removal of all infrastructure.

The final landform would, however, largely replicate that of the pre-mining topography and would be suitable for the intended final land use of agricultural activities or nature conservation.

Noise and Blasting

The Project has been designed with consideration given to minimising noise impacts on surrounding residences and noise modelling has predicted that with the implementation of noise controls (including the enclosure of the crusher, construction of 5m high noise bunds around the western and southern perimeter of the ROM pad and operation of the ventilation fan at least 10m below ground level), site construction and operational noise levels would comply with the nominated criteria.

Noise modelling also demonstrates that the Project would, with the implementation of the nominated controls and safeguards, comply with the noise criteria for maximum night-time sleep disturbance noise levels and traffic noise.

By applying the accepted formulae for predicting air overpressure and ground vibration generated by blasting, the Proponent would be able to initiate a blast at surface with a maximum instantaneous charge of 105kg without exceeding the air overpressure or peak ground vibration criteria at the closes residence.

Flora and Fauna

Disturbance of vegetation within the Project Site would be restricted to:

- 0.1ha of Ribbon Gum – Snow Gum grassy open forest.
- 0.1ha of fragmented Ribbon Gum – Snow Gum grassy open forest.
- 0.1ha of woody weeds.
- 0.2ha of exotic vegetation comprising planted wind breaks.
- 0.2ha of native grassland.
- 23.7ha of native-dominated pasture.

Notably, the remnant native vegetation represented by Ribbon Gum Forest, Fragmented Ribbon Gum Forest, Regenerating Wattles and River Peppermint Open Forest, would remain undisturbed.

The potential impact of the Project on all threatened species, populations and communities identified on, or considered as having the potential to occur within the Project Site was assessed. In all cases, it was determined that the Project would not have a significant impact such that viable local populations of species or communities are likely to be placed at risk of extinction.

Groundwater Resources

The Project would result in the following groundwater-related impacts.

- Inflow to the Dargues Reef Mine of between approximately 7.2L/s and 10.0L/s or approximately 227ML/year to 315.36ML/year.
- Reduced groundwater discharge to Spring Creek of up to approximately 0.3L/s or 9.4ML/y.
- Reduced net groundwater discharge to Majors Creek of up to approximately 1.8L/s or 56.8ML/year.
- Reduced groundwater discharge to the Shoalhaven Catchment of approximately 14.5ML/year.
- The standing water level in two bores would be lowered by up to 7.5m. Two other bores would be at the anticipated limit of groundwater drawdown.
- Groundwater levels would largely recover within 12 months of the end of mining operations and would completely recover within 3 years.

To compensate for the proposed loss of groundwater flows within Majors and Spring Creeks, the Proponent would ensure that approximately 2.1L/s or 66ML/year of water from the harvestable rights dams would be discharged at the confluence of Majors and Spring Creeks from the commencement of mining operations until 2 years after the cessation of mining operations. In addition, appropriate negotiated arrangements would be implemented in relation to the bores that would experience reduced standing water levels. As a result, the Project would not result in any significant groundwater-related impacts.

Surface Water Resources

The surface water assessment determined that the volume of water discharged from the Project Site to the Majors Creek catchment would not vary significantly from current flows. No more than the Proponent's harvestable right would be captured as surface runoff, with the predicted reduction in base flows associated with groundwater discharge to Spring and Majors Creek (2.1L/s combined) replaced by compensatory releases of water equivalent to this base flow reduction.

The proposed design and management of the tailings storage facility would ensure that no leachate permeates through the walls or floor of the structure and enters surface water drainage. This would be monitored for the life of the Project and beyond until such time as the regulatory authority responsible for site rehabilitation (currently I&I NSW) releases the rehabilitation bond to be held over the Project Site.

Assuming the construction and maintenance of the proposed water control structures, the Project would not have any significant adverse impact on local water quality.

Aboriginal Heritage

Five sites of Aboriginal heritage significance were identified within the Project Site. Of these, four sites were located outside of the initial disturbance footprint. A fifth site was located in close proximity to the downstream toe of the tailings storage facility embankment. In order to ensure in-situ conservation of this site, the Proponent redesigned the facility slightly to ensure a minimum 20m buffer between the recorded location of the artefact and toe of the embankment. A fence would be erected around this site to avoid inadvertent damage.

The proposed management of this site has been presented to the registered Aboriginal community stakeholders. Those stakeholders who have responded have indicated their satisfaction with the assessment and management measures and willingness to continue to be consulted in the event that further artefacts are identified.

European Heritage

A number of artefacts were identified within the Project Site, the majority of which reflect prior mining operations within and surrounding Project Site. While the Project Site does have clear evidence of mine workings, that evidence has been extensively disrupted and overprinted by prior and subsequent activities. As a result the identified artefacts could not be clearly associated with any particular activity or time period and, as such, do not have the attributes that warrant an assessment of heritage significance.

Not withstanding this, with the exception of a number of water races within the footprint of the tailings storage facility and the processing area (of which extensive examples of such races would remain and which are not considered to be significant), the proposed activities would not disturb the identified historic artefacts.

Bushfire

An assessment of the vegetation type and slopes of the Project Site and immediate surrounds was completed. The proposed safeguards and operational controls proposed for the Project would:

- minimise the risk of a fire being initiated on the Project Site; and
- reduce the risk associated with a bushfire event to people and assets on the Project Site.

Transportation

The Proponent proposes to construct a new intersection which will incorporate BAL and BAR treatments for the left turn and right turn into the Project Site. The intersection would provide for safe intersection sight distance requirements for the posted speed limit which would be maintained through clearing of vegetation as necessary.

A comparison of measured traffic volumes for an average weekday with the predicted traffic levels when traffic generated by the Project is included illustrates the following.

- The increase in traffic volume as a result of the Project would be minimal, namely between 3.1% and 5.6% on all roads except Majors Creek Road. The higher proportional increase in total traffic volume on Majors Creek Road (11.3%) is accounted for by the relatively low traffic volumes carried by that road.

- The proportional increase in heavy vehicles using the road network would increase by only 1% on all roads except Majors Creek Road. The higher proportional increase in heavy vehicle traffic on Majors Creek Road (5%) is accounted for by the relatively low traffic volumes carried by that road.
- The maximum proposed increase in hourly traffic movements (10vph) would not have any measurable impact on intersection capacity and or vehicle delay.

The additional heavy vehicle movements generated by the Project may contribute to pavement deterioration on parts of the local road network. Acknowledging this, the Proponent has committed to contributing to the ongoing maintenance of Majors Creek Road through the establishment of an initial contribution and ongoing Section 94 contributions with Palerang Shire Council. The Proponent has committed to entering into a road maintenance agreement with Palerang Council whereby a number of (existing) road deficiencies would be progressively upgraded to improve the condition and safety of Majors Creek Road.

Air Quality

The air quality assessment concluded that the potential impact on air quality at surrounding residences would be minor and would not exceed the recommended air quality goals. Specifically, the air quality modelling determined that:

- incremental monthly dust deposition rates are predicted to not exceed 0.2g/m^2/month at all assessment locations, well below the 2.0g/m^2/month goal;
- the maximum predicted concentration of TSP attributable to the Project at any residential receiver is 1.3µg/m^3 with a cumulative concentration of approximately 54µg/m^3, well below the NHMRC goal of 90µg/m^3;
- the annual average PM_{10} concentration are predicted to be less than the site specific goal 30µg/m^3 at all assessment locations; and
- the highest predicted maximum 24-hour average PM_{10} concentration generated by the Project alone is 9µg/m^3, and therefore on all but extreme condition days, eg. when bushfires or dust storms are occurring, cumulative emissions would comply with the 50µg/m^3 criterion.

For the life of the Project, it has been estimated that approximately 0.24Mt CO_2-e would be released annually, corresponding to an approximate annual contribution of <0.03% against baseline 2007 NSW emissions.

Visual Amenity

The existing visual amenity surrounding the Project Site is typical of rural areas with views of native vegetation, cleared areas, agricultural operations and surrounding buildings.

The Proponent would implement the following measures to minimise potential visual amenity-related impacts.

- Construction and revegetate a 5m high bund on the southern and western margins of the temporary waste rock emplacement.

- Construction plant and infrastructure from non-reflective, neutral-coloured material.
- Appropriate installation and placement of lights.

The visual amenity assessment determined that those sections of the Project Site that would be disturbed by the Project would only be visible from the south and southeast of the Project Site and that only distant views would be possible. As a result, there would be no significant visual amenity-related impacts associated with the Project.

Soils and Land Capability

The management of the soil resource have been designed to ensure their proper handling and to provide the maximum opportunity for its re-use in the successful rehabilitation of the Project Site. As such, the impact associated with topsoil/subsoil removal, storage and re-use is anticipated to be minimal.

6.2.3 Socio-economic Considerations

While the impacts summarised in Section 6.2 have been assessed to comply with nominated criteria or to meet accepted environmental standards, the cumulative effect of these minor impacts may have some adverse effect on the amenity of the local setting.

Importantly, the Project would provide several economic benefits to the local and regional socio-economic setting, including the following.

- Direct full-time employment for approximately 100 full-time equivalent positions during the site establishment and approximately 80 full-time equivalent positions during the operational phase of the Project.
- Employees would preferably be sourced from within the Palerang local government area (LGA) and even if drawn from further afield, would be encouraged to reside locally.

Increased employment opportunities associated with the Project would have additional flow-on benefits including:

- the provision of new employment would provide an impetus to other local businesses;
- contribution of $3 million to $7 million per year to the local and regional economy through wages and purchases of local goods and services; and
- support of local community services and projects.

The Project would provide for the continued diversification of development / industry in the LGA which would lead to increased training and employment opportunities for the residents of the LGA.

The socio-economic benefits of the Project would also flow through to the economies of NSW and Australia. It is anticipated that the Project would contribute:

- approximately $10 million to $31 million per year to the State and national economy through purchases of goods and services within NSW and Australia; and
- approximately $1 million to $8 million per year to the local, State and national governments through the payment of rates, taxes and royalties.

It is acknowledged that while impacts on the biophysical environment have been assessed as complying with nominated criteria or meeting accepted environmental standards, the cumulative effect of these minor impacts may have some adverse effect on the socio-economic setting. This is often expressed as a reduction in the amenity of the local area.

An objective assessment of this impact on local amenity is difficult as what one person may consider as acceptable, may not be to another person (and vice versa). However, based on experience obtained from the assessment of similar mining developments, it is noted that the perceived impact of a project on local amenity is generally far greater than the actual impact. With respect to the Project, where all biophysical impacts are assessed as complying with nominated criteria or standards, it is considered unlikely for impacts on local amenity to be unacceptable to a reasonable person.

It is further noted that the Proponent remains accountable for managing the Project in a manner that complies with the nominated environmental criteria and meets reasonable community expectations. A comprehensive monitoring program would be established to demonstrate compliance with environmental criteria, and liaison with both official and unofficial community representation would continue to address community concerns as they arise.

6.2.4 Planning Considerations

6.2.4.1 Introduction

This section considers the permissibility of the Project and compliance with the relevant Environmental Planning Instruments.

6.2.4.2 Permissibility

As noted in Section 3.2.3.4, mining is permissible within the Project Site by virtue of its location within Zone 1(a) (General Rural) of the Tallaganda LEP which identifies mining as being permissible with consent.

6.2.4.3 Environmental Planning Considerations

State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007

The SEPP specifies matters requiring consideration in the assessment of any mining, petroleum production and extractive industry development, as defined in NSW legislation. **Table 3.4** presents a summary of each element requiring consideration and a reference to the section in the *Environmental Assessment* where this is addressed.

State Environmental Planning Policy No. 33 (SEPP 33) – Hazardous and Offensive Developments

Based on the risk screening method of DUAP (1997), neither the storage nor transport of the hazardous materials to be stored on the Project Site would result in the Project being considered a hazardous, offensive or potentially hazardous under SEPP 33.

State Environmental Planning Policy No. 44 (SEPP 44) – Koala Habitat Protection

SEPP 44 has been addressed by the fauna consultant to the Project (Gaia, 2010 - see *Specialist Consultant Studies Compendium* - Part 2). By applying the SEPP 44 definition, the Project Site consists of Potential Koala Habitat but because it does not show signs of use by any Koalas, it does not qualify as Core Koala Habitat. No further assessment is required given the unlikely occurrence of Koala's on the Project Site.

Drinking Water Catchments Regional Environmental Plan No 1 (DWC REP 1)

While numerical modelling undertaken as part of a groundwater assessment indicates some reduction in groundwater discharge in the Shoalhaven Catchment (approximately 0.4L/s), this is unlikely to impact on drinking water quality within the catchment and as such does not require further assessment. **Table 3.5** presents a summary of each element requiring consideration and a reference to the section in the *Environmental Assessment* where this is addressed.

6.2.5 Consequences of not Proceeding with the Project

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

- The recoverable gold resource would not be mined. Such an outcome would be contrary to the objective of I&I NSW and the Proponent to maximise resource utilisation.
- The opportunity to create up to 100 construction and 80 operational full-time jobs would be foregone.
- The disposable wages for the full-time and part-time workforce would be foregone (estimated to be between $3 million and $7 million annually), a substantial proportion of which would be spent in the local community and the Palerang LGA.

- The opportunity to re-establish an industry historically associated with the region would be foregone, along with the training opportunities proposed by the Proponent. This loss of training opportunities would also reduce the ability of the local communities to retain younger people who generally are lost from regional communities to pursue opportunities elsewhere.
- Between $1 million and $8 million in rates, taxes and royalties would be foregone to the local, State and national governments annually.
- Between $10 million and $31 million annually in purchases of goods and services within NSW and Australia would be foregone.
- The minor impacts on the local biophysical environment would not eventuate.

It is considered that the benefits of proceeding with the Project therefore far outweigh the minor impacts on the environment that would result.

6.3 CONCLUSION

The proposed Dargues Reef Gold Project has been designed, as far as practicable, to address the issues of concern to the community and all levels of government. The Project provides for the recovery of valuable gold resources which contribute significantly to the economies of NSW and Australia. The subsequent landform would be constructed to sustain agricultural operations and nature conservation.

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

- satisfy sustainable development principles;
- operate with risks to the local environment minimised to the greatest extent practicable through Project design and implementation of a range of environmental controls and safeguards;
- have a minimal and manageable adverse impact on the biophysical environment;
- have a substantial positive impact on the local and wider regional and NSW socio-economic environment;
- contribute to the continued economic activity of the Palerang LGA; and
- provide a site suitable for future agricultural activities incorporating areas for long term nature conservation.

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