

Section 6.0



Statement of Commitments

6.0 Statement of Commitments

The DGR's for the Project require that the EA includes a Statement of Commitments which details the measures proposed by NPM for environmental mitigation, management and monitoring of the Project.

If approval is granted under Part 3A of the EP&A Act for the Project, NPM will commit to the following controls.

6.1 Compliance with the EA	
6.1.1	NPM will carry out the development for the Project generally in accordance with the Project Application and this EA report.
Surrender of Redundant Development Consents	
6.1.2	NPM will surrender existing Project Approval PA06_0026 and development consent DA11092 within 12 months of the granting of the Project Approval, subject to that approval appropriately providing for continued operations.
6.2 Life of Mine Operations, Production and Concept Mine Plan	
Project Life	
6.2.1	The project approval life will be for an extended mine life of seven years until the end of 2032. Closure and rehabilitation activities will be undertaken in accordance with an approved MOP, or other relevant approval under the Mining Act or equivalent, at the time of closure. These works may extend beyond closure at the end of 2032.
Production Limits	
6.2.2	The Project will process up to 8.5 Mtpa of ore.
6.2.3	Campaign open cut mining of up to 7 Mtpa over the life of the mine for stockpiling and processing as required.
Hours of Operation	
6.2.3	The Project will be undertaken on a 24 hours a day, seven days a week basis.
Refinement of Mine Plan	
6.2.4	Any refinements to the conceptual mine plan outlined in the EA report will be detailed as part of MOPs or other relevant process.
6.2.5	The locations of ancillary surface infrastructure required to support underground mining will be documented and detailed within the MOPs (or other relevant process) required for NPM to continue its mining and associated activities in consultation with relevant stakeholders.
6.3 Agricultural Resources	
6.3.1	NPM will continue to farm its landholdings within the vicinity of the Project Area (refer to Figure 5.2) for the life of the Project.
6.4 Rehabilitation and Decommissioning	
6.4.1	Once mining operations are complete, NPM will rehabilitate the site in accordance with the approved Landscape Management Plan and in accordance with the conceptual final land use figure (refer to Figure 2.17). The detailed processes to be implemented will be document in an approved MOP.
6.4.2	The Closure Strategy and Closure Plan will be updated in consideration of the commitments outlined in the EA and will include details regarding final land use objectives and closure criteria, rehabilitation and final void management strategies as well as the process for engaging relevant stakeholders in the closure planning process to be adopted throughout the mine life. NPM will commence consultation on closure at least five years prior to the anticipated end of mine life.
6.4.3	Closure works will continue until all works are completed and the closure criteria are met.

6.5 Air Quality	
6.5.1	NPM will continue to implement the approved Environmental Dust Monitoring Program. The existing Environmental Dust Monitoring Program will be updated to incorporate the additional operational elements of the Project and required monitoring, should the Project be approved.
6.5.2	NPM commits to reviewing and updating the current monitoring network to accurately identify air quality impacts during adverse meteorological conditions through the addition of real time PM ₁₀ monitors at the existing Milpose and Hubberstone monitoring sites prior to the commencement of construction activities associated with the Project.
6.6 Noise	
6.6.1	NPM will continue to undertake regular periodic noise monitoring of site operations in accordance with its existing noise management program. This monitoring will be undertaken as attended noise monitoring at surrounding receivers on a six monthly basis over the life of the Project.
6.6.2	NPM will undertake additional targeted noise monitoring during construction periods for TSFs, whilst campaign open cut mining operations occur during winter night time operations. This targeted monitoring program will include the use of real time monitoring and be undertaken to identify situations when meteorological conditions have the potential to exacerbate noise impacts on neighbouring receivers. Appropriate noise mitigation measures will be implemented as required (refer to Commitment 6.6.3).
6.6.3	NPM will revise the existing Construction Noise Management Plan in consultation with relevant agencies and potentially affected receivers that will outline the impact mitigation measures to be implemented should targeted noise monitoring during construction activities identify exceedances of relevant noise impact assessment criteria.
6.7 Blasting	
6.7.1	NPM will design and undertake blasts to ensure the relevant vibration and blast overpressure criteria are met at private residences.
6.7.2	NPM will undertake monitoring of all blasts at surrounding private receivers during campaign open cut mining operations to measure compliance with relevant criteria and to further refine relevant blast site laws.
6.8 Ecology	
6.8.1	NPM will commit to undertaking targeted surveys of potential habitat areas for Pine donkey orchid within the proposed disturbance areas in order confirm presence or otherwise to inform the development of specific impact mitigation and management measures relative to this species, which may be required as part of the Project. The surveys will be completed by qualified ecologists during suitable conditions over one season prior to disturbance.
6.8.2	<p>NPM will revise the FFMP which will be expanded to include areas to be impacted by the Project. This will include adaptive management, as required, if a previously not recorded or assessed threatened species is identified in the Project Area during operations.</p> <p>Key impact mitigation strategies will include:</p> <ul style="list-style-type: none"> • feral animal and noxious weed control consistent with existing practices at the NPM; • implementation of a nest box replacement program and salvage of habitat features (logs etc) for the creation of habitat nearby; • implementation of a tree felling procedure to limit impacts on hollow-dependent threatened species to be incorporated into pre-clearance surveys; • establishment of an annual ecological monitoring program that focuses on nest box installation and also existing and proposed biodiversity offset areas; and • ongoing monitoring and maintenance of any revegetation works and habitat enhancement activities.

6.8.3	<p>NPM commit to the implementation of a Biodiversity Offset Strategy for the Project that includes:</p> <ul style="list-style-type: none"> establishment and long-term protection of an off-site offset area, the Kokoda Offset Site, to allow for the conservation of large areas of existing vegetation and the protection of threatened woodland birds, micro-bats and EECs; the development, and implementation, of an active ecological restoration and regeneration program within the proposed offset site to enhance existing EECs and threatened species habitat; and the development of an appropriate ecological monitoring program to assess the success of the BOS in counterbalancing the residual impacts of the Project on ecological values.
6.8.4	<p>NPM commit to implementing a range of improvements and management actions across the Kokoda Offset Site. A Biodiversity Offset Management Plan for the Kokoda Offset Site will be prepared to detail the planned improvements to the Kokoda Offset Site and its ongoing management for biodiversity conservation and enhancement purposes.</p>
6.8.5	<p>NPM will secure the Kokoda Offset Site for in perpetuity conservation. The mechanism for securing this conservation will be placing a covenant over the land reflecting this conservation status along with appropriate management mechanisms. This will be developed with the landholder and in consultation with DP&I, OEH, and DSEWPC (as relevant). The property will be secured by NPM within 3 months of the granting of Project Approval.</p>
6.9	Groundwater
6.9.1	<p>NPM commit to the continuation of the existing approved groundwater monitoring program as part of the Project.</p>
6.9.2	<p>In addition to the continuation of the existing groundwater monitoring program, NPM commit to the following additional groundwater monitoring and management measures:</p> <ul style="list-style-type: none"> The extent of dewatering, impacts on current users and future resources will be monitored throughout the life of the Project in accordance with a revised groundwater monitoring program. Monitor dewatering volumes to verify that volumes are within licenced allocations. Trigger levels, regarding declines in groundwater levels and the degradation of groundwater quality, will be reviewed to manage the potential impacts as part of updated monitoring program. Where monitoring results indicate levels in excess of the trigger values, an investigation appropriate for the situation will be conducted to assess the need to implement management/mitigation/remedial measures. The existing water monitoring program will be updated for the Project in accordance with relevant Project approval requirements.
6.10	Surface Water
6.10.1	<p>NPM will continue to manage its operations in accordance with its existing Water Management Plan, which will be updated to reflect the proposed amendments to the surface water catchments and additional monitoring and management measures. This will involve updates to the existing NPM water management plan and environmental monitoring program.</p>
6.10.2	<p>Additional catch drains will be developed around operational mining areas to intercept sediment laden runoff and direct this material to new sediment dams. Consistent with the existing WMS, these works will seek to maintain separation between the three classifications of water onsite (clean, dirty and contaminated water). To manage potential flood risk NPM proposes to include a 1 metre high bank at the toe of the proposed waste rock stockpiles which will incorporate the proposed catch drain.</p>
6.10.3	<p>NPM will continue to manage contaminated water onsite as closed circuit process designed to manage run off up to and including a 1 in 100 year ARI 72 hour design storm event.</p>
6.10.4	<p>All erosion and sediment control measures will continue to be carried out in accordance with the relevant guidelines for erosion and sediment control, including Managing Urban Stormwater Soils and Construction (the Blue Book) Volume 1 and Volume 2E Mines and Quarries (DECC).</p>

6.10.5	The predicted annual water demands for NPM will remain consistent with the currently approved water demands with external sources of water accessed in accordance with existing approved and licensed extractions limits.
6.11	Traffic and Transport
6.11.1	The proposed road upgrades, including the development of a new internal access road, upgrades to McClintocks Lane and its intersection with Bogan Road and the development of a new visitors car park, will each be designed in accordance with appropriate guidelines and standards and finalised in consultation with Parkes Shire Council and local landholders/neighbours as appropriate.
6.11.2	NPM will continue to encourage and promote driving safely with its workforce, as well as working closely with Parkes Shire Council about road safety, including contributing to road maintenance and reconstruction works in Bogan Road.
6.11.3	NPM will maintain current arrangements for financial contribution for the purpose of road maintenance as agreed with Parkes Shire Council and DP&I.
6.11.4	NPM will prepare a detailed Construction Traffic Management Plan for the construction period of the Project, which will include details of: <ul style="list-style-type: none"> any staging works; construction routes; heavy vehicles including oversize vehicles; and traffic management during the construction of the upgraded intersection in Bogan Road and McClintocks Lane.
6.12	Aboriginal Archaeology
6.12.1	NPM commits to the revision of the existing AHMP in consultation with the Aboriginal Heritage Working Group and relevant agencies to provide for the management of cultural heritage across the Project Area, and specifically implement mitigation measures for identified impacts, prior to the commencement of construction.
6.12.2	NPM commits to a comprehensive survey of all portions of the proposed disturbance area that have not been subject to 100 per cent survey coverage prior to disturbance. Thus, any and all areas of the development footprint that would be affected will be examined prior to construction commencing, in consultation with the Aboriginal Heritage Working Group, and agreed management measures will be implemented.
6.13	Historic Heritage
6.13.1	In the unlikely event that unexpected archaeological remains or potential heritage items not identified as part of this report are discovered during the Project, all works in the immediate area will cease. The remains and potential impacts will be assessed by a qualified archaeologist or heritage consultant and, if necessary, the Heritage Branch, OEH notified in accordance with Section 146 of the Heritage Act (NSW).
6.13.2	If potential human remains are located following any surface disturbance, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police will be contacted immediately. No action will be undertaken until police provide written notification to the Proponent.

6.14	Visual Amenity
6.14.1	<p>NPM will implement the following mitigation measures to mitigate potential visual impacts from the Project:</p> <ul style="list-style-type: none"> • maintenance of existing vegetation where possible for visual screening, including infill planting where necessary; • additional screening plantings will be utilised in strategically located positions to augment existing plantings and limit views into the Project from public roads, in particular McClintock's Lane; • continued establishment of revegetation corridors outside the active mine area through ongoing land management practices; • ensuring that areas of disturbance are kept to a minimum at any one point in time; • progressive rehabilitation on disturbed areas is undertaken as soon as practical; and • aiming to minimise night lighting impacts on surrounding land owners and road users by ensuring, where practicable, that lighting plants are positioned such that light is directed towards work areas and not towards private residences and roads.
6.15	Socio-Economic
6.15.1	<ul style="list-style-type: none"> • NPM will continue investigating the sizing of contracts in order to facilitate the inclusion of local businesses within ongoing operations; • NPM will consult with PSC in regard to other influences on accommodation demands when scheduling operations requiring short-term increases in employees and contractors; • Should unanticipated impacts become evident during the life of the Project, NPM will liaise with PSC and/or the relevant government body in relation to how infrastructure challenges in the future may be met as a community; • NPM will commence SIA, with regard to mine closure (including consultation with PSC, FSC, and the community), 10 years prior to the anticipated end of mine life, unless further extensions of mine life are being sought at that time; and • NPM will continue its existing community engagement and consultation program and will extend the program to facilitate feedback from the community with regard to community perceptions of NPM in order to proactively manage matters as they arise.

Section 7.0



**Conclusion & Ecologically
Sustainable Development**

7.0 Conclusion and Ecologically Sustainable Development

As discussed in **Section 5.0**, the potential environmental impacts of the proposed modification have been assessed, and where relevant, been the subject of detailed environmental assessment based on assessment of the site characteristics:

- assessment of the assumed worst case extent of the Project in relation to recognised standards and guidelines, which were appropriately focused on the environmental risks associated with Project as identified in **Section 5.1**;
- consultation with relevant government agencies and the local community;
- application of the principles of ecologically sustainable development, including the precautionary principle, inter-generational equity, conservation of biological diversity and ecological integrity and valuation and pricing of resources; and
- expert technical assessment.

Assessments of the key issues identified are detailed in **Section 5.0** and the appendices to this document. **Table 7.1** presents a summary of the findings/conclusions of the detailed assessments undertaken.

Table 7.1 – Summary of Environmental Assessment Results

Environmental/ Social Issue	Overview of Key Outcomes (after Proposed Management, Mitigation, Offsets)
Agricultural Impact	<ul style="list-style-type: none"> • The Project will result in the disturbance of approximately 117 hectares of potential farming land owned by NPM. • The removal of this potential farming land represents approximately 0.04 per cent of the estimate of annual average production in the Parkes LGA. • NPM commits to the continued operation of farming activities on its land holdings for the life of the Project.
Air Quality	<ul style="list-style-type: none"> • Minimal contribution of predicted dust emissions to surrounding receiver areas. • No private residences predicted to exceed relevant long term (annual average) air quality criteria. • During periods of worst case background dust concentration levels the Project may result in exceedance of the relevant short term maximum air quality criteria on occasion, but expected to be less than two days per year at surrounding private residences. • NPM will undertake additional real time air quality monitoring to inform the management of operations in order to minimise impacts on surrounding areas.

Table 7.1 – Summary of Environmental Assessment Results (cont.)

Environmental/ Social Issue	Overview of Key Outcomes (after Proposed Management, Mitigation, Offsets)
Noise and Blasting	<ul style="list-style-type: none"> Minimal contribution of predicted noise emissions to surrounding receiver areas. During periods of worst case meteorological conditions and during construction, one private residence is likely to be subject to significant noise impacts and will likely have acquisition rights under the Project approval. NPM will undertake targeted real time monitoring during worst case periods during construction and implement a hierarchy of controls to mitigate potential significant impacts. No private residences or other blast sensitive locations will be significantly impacted by proposed blasting practices associated with the Project.
Biodiversity	<ul style="list-style-type: none"> Impact to identified ecological values has been avoided where practicable through Project design. Two TECs will be impacted by the Project with total disturbance of approximately 38 hectares. The extent of disturbance on these TECs is not considered to constitute a significant impact. The Project has the potential to have a significant impact on two threatened species, Pine donkey orchid and Sloane's Froglet, if confirmed that these species occur within the proposed disturbance area. NPM has developed a comprehensive Biodiversity Offset Strategy, which includes the establishment of the 350ha Kokoda Offset Site, to maintain and enhance the biodiversity values of the region in the medium to long term.
Water Resources	<ul style="list-style-type: none"> The existing water management system will be extended to include all areas of additional disturbance associated with the Project. Water for operational uses will continue to be sourced from on site collection and externally through existing licences. The Project is not predicted to have significant impacts on downstream water users in relation to surface water and groundwater resources.
Transport	<ul style="list-style-type: none"> Detailed assessment of potential road transport impacts indicate the existing transport infrastructure will continue to operate satisfactorily during peak traffic generation periods. All proposed road works have been designed to accommodate future traffic movements in accordance with relevant guidelines. Road works will be completed in consultation with PSC and local landholders.
European Heritage	<ul style="list-style-type: none"> No items of National, State or local Heritage Significance will be impacted. NPM will continue to implement relevant mitigation and management measures from existing approvals.
Cultural Heritage	<ul style="list-style-type: none"> Project will result in direct impact to up to four identified archaeological sites, including isolated finds or artefact scatters that will be managed in consultation with the Aboriginal community. NPM has committed to the continued implementation of an updated AHMP to mitigate and manage identified impacts within the Project area.

Table 7.1 – Summary of Environmental Assessment Results (cont.)

Environmental/ Social Issue	Overview of Key Outcomes (after Proposed Management, Mitigation, Offsets)
Visual	<ul style="list-style-type: none"> The Project has a substantial buffer of mine owned land. Potential views to the Project are consistent with existing and approved operations.
Greenhouse Gas	<ul style="list-style-type: none"> A range of energy management initiatives have been investigated for the Project, which has been factored into Project design.
Waste	<ul style="list-style-type: none"> Any waste generated by the Project will be managed through NPM's existing waste management system.
Social Impact Assessment	<ul style="list-style-type: none"> The Project will not alter the current operational and peak workforce of NPM operations and will not significantly impact on housing, accommodation and infrastructure within the local area. NPM will continue to make substantial local and regional contributions due to employee spending, sourcing local suppliers (where practicable) and direct contributions. NPM will continue to consult with a range of stakeholders including local Councils and the community in regards to ongoing operations.
Rehabilitation	<ul style="list-style-type: none"> The rehabilitation strategy for the Project aims to minimise environmental impacts throughout the life of the Project as well as upon completion of the Project.

7.1 Objects of *the Environmental Planning and Assessment Act 1979*

The DGR's for the Project require a conclusion justifying the Project on economic, social and environmental grounds, taking into consideration whether the Project is consistent with the objects of the EP&A Act including the principles of ecological sustainable development.

The objects of the EP&A Act relevant to the Project encourage:

- the proper management, development and conservation of natural and artificial resources;
- the promotion and co-ordination of the orderly and economic use and development of land;
- the protection of the environment;
- ecologically sustainable development (refer to **Section 7.2**); and
- to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The Project includes the ongoing development of NPM, the development of additional mining resources within existing leases and an extension to the approved life of mining operations. NPM have sought to optimise project design through the targeted development of additional mining areas within, and/or in close proximity to previously disturbed areas, which seeks to minimise the disturbance of land. The proposed ore bodies targeted as part of the Project include those currently mined by existing and approved operations and have been designed to maximise resource recovery and minimise potential impacts. The Project will not impact directly, or indirectly on conservation areas, including state forests located within the Project area.

The environmental and social impacts associated with the Project have been comprehensively assessed as part of this EA (refer to **Section 5.0**) and NPM have committed to an extensive range of ongoing management and mitigation initiatives to minimise potential impacts and protect the environment (refer to **Section 6.0**). As outlined in **Section 4.0** of this EA, NPM have undertaken an extensive and ongoing engagement process with a range of stakeholders including the surrounding community, with key issues raised considered and addressed in the EA. This process of ongoing public participation will continue through the exhibition of the EA. In addition, NPM have committed to ongoing engagement with a range of stakeholders over the life of the Project.

Further detail on how the Project is consistent with the principles of Ecologically Sustainable Development (ESD) is provided in **Section 7.2**.

7.2 Ecologically Sustainable Development

The EP&A Act aims to encourage ESD within NSW. As outlined in **Section 1.4**, the Project requires approval from the Minister under the transitional provisions of Part 3A of the EP&A Act. As such, the Minister needs to be satisfied that the Project is consistent with the principles of ESD. This section provides an assessment of the Project in relation to the principles of ESD.

To justify the Project with regard to the ESD principles, the benefits of the project in an environmental and socio-economic context should outweigh any negative impacts (refer to **Section 7.3**). The ESD principles, as outlined in Section 6 of the *Protection of the Environment Administration Act 1991* encompass the following:

- the precautionary principle;
- inter-generational equity;
- conservation of biological diversity; and
- valuation and pricing of resources.

7.2.1 The Precautionary Principle

The EP&A Regulation defines the precautionary principle as:

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
- (ii) an assessment of the risk-weighted consequences of various options.

In order to achieve a level of scientific certainty in relation to potential impacts associated with the Project, this EA has undertaken an extensive evaluation of all the key components of the Project, including the assessment of reasonable worst case impacts. Detailed assessment of all key issues and necessary management procedures has been conducted and is comprehensively documented in this EA.

The assessment process has involved a detailed study of the existing environment and the use of engineering and scientific modelling to assess and determine potential impacts as a result of the proposed modification (refer to **Section 5.0**). To this end, there has been careful evaluation to avoid, where possible, irreversible damage to the environment as detailed throughout the EA.

The decision making process for the design, impact assessment and development of management processes has been transparent in the following respects:

- government authorities, landholders potentially affected by the Project, the local community and other stakeholders were consulted during EA preparation (refer to **Section 4.0**). This enabled comment and discussion regarding potential environmental impacts and proposed environmental management procedures;
- the community was initially consulted through a range of mechanisms including community information sessions, newsletters and surveys which provided details and an opportunity for the community to provide feedback on the Project;
- NPM implements a comprehensive ISO 14001 certified HSEQ management system to encourage rigor and consistency in environmental management across the site. Related environmental management programs, that seek to implement management practices that minimise adverse impacts as far as practicable, as also implemented. The Project will incorporate the practices implemented and demonstrated to be effective at NPM and the existing HSEQ system will be revised to incorporate any additional controls outlined in this EA; and
- the EA has been undertaken on the basis of the best available scientific information for the study area. Where uncertainty in the data used in the assessment has been identified, a conservative worst-case analysis has been undertaken and contingency measures have been identified to manage that uncertainty.

7.2.2 Intergenerational Equity

The EP&A Regulation defines intergenerational equity as:

Intergenerational equity namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

Social equity involves concepts of justice and fairness so that the basic needs of all sectors of society are met and there is a fairer distribution of costs and benefits to improve the well being and welfare of the community, population or society (DUAP 1998).

Intergenerational equity refers to equality between generations. It requires that the needs and requirements of today's generations do not compromise the needs and requirements of future generations in terms of health, biodiversity and productivity.

The objective of the Project is to allow for a more efficient recovery of the resource in a manner that achieves the best practical safety, environmental, social and economic outcomes while aiming to minimise any associated environmental impacts. The Project seeks to provide for an additional life for NPM operations for an additional seven years. The environmental management measures discussed in **Section 5.0** and **Section 6.0** have been developed to minimise the impact on the environment to the greatest extent reasonably possible.

The management of environmental issues as outlined in the EA will maintain the health, diversity and productivity of the environment for future generations. The Project will also contribute to maintaining services in the community through the direct and flow on effects of employee and operational expenditure for an additional seven years relative to existing approved operations.

7.2.3 Conservation of Biological Diversity

The conservation of biological diversity refers to the maintenance of species richness, ecosystem diversity and health and the links and processes between them. All environmental components, ecosystems and habitat values potentially affected by the Project are described in the EA. Potential impacts and measures to ameliorate any negative impact are outlined in **Section 5.0** and the Statement of Commitments (refer to **Section 6.0**).

NPM has sought to avoid and minimise potential adverse impacts on the conservation and ecological values throughout the project planning process. This has included locating Project components in close proximity to existing and approved disturbance areas to minimise the extent of additional disturbance. Where additional disturbance areas have been proposed, NPM have sought to design and locate proposed infrastructure to further avoid and minimise impacts.

A comprehensive flora and fauna assessment has been completed for the Project. In addition, NPM have committed to the development and implementation of a Biodiversity Offset Strategy for the Project that will offset the residual impacts of the Project.

7.2.4 Valuation and Pricing of Resources

The principle of improved valuation and pricing refers to the need to determine proper values of services provided by the natural environment. The objective is to apply economic terms and values to the elements of the natural environment. This is a difficult task largely due to the intangible comparisons that need to be drawn in order to apply the values.

NPM has intrinsically valued the environmental resources by designing the Project to avoid and minimise potential environmental impacts as much as possible. For example, the extent of additional disturbance has been minimised as far as practicable, and the Project designed to ensure impacts are not significantly greater than existing approved operations.

Where residual impacts remain, mitigation measures (refer to **Section 5.0** and **Section 6.0**) are proposed to further reduce potential impacts on the environment.

7.3 Project Justification

The Project provides an opportunity for NPM to develop significant ore resources within a well established mining area that provides a sustaining function across the business, including maintaining the long term life through the proposed extension of operational life. The location of the Project also provides an opportunity for maximising the integration of existing and approved infrastructure and mining areas within existing mining leases.

In addition, NPM has developed a comprehensive package of environmental management strategies, to maximise integration with existing systems, and effectively mitigate the potential impacts of the Project on the surrounding environment and community.

The Project provides significant operational and capital efficiencies to the approved NPM operations including:

- proposed open cut mining operations provides for operational resilience through providing for additional/alternate ore supply to maintain mill feed over the life of mining operations;
- proposed E26 open cut mine will maximise resource recovery in this ore body through enabling shallower areas of the ore body to be recovered that have not been accessed by historical and ongoing underground mining in E26;
- proposed E22 underground mining operations provides for the efficient use of existing underground mining infrastructure to maximise resource recovery within this ore body that has not been previously recovered through historical open cut mining activities;
- proposed construction of the TSF 3 to leverage off the existing southern wall of TSF 2 provides a more capital efficient design to undertake the construction and operations of all of the approved TSF at NPM; and
- the increase in mine life will enable long term planning and additional certainty as the proposed 19 year mine life is the longest in the history of NPM since granting of original development consent in 1993.

NPM provides substantial economic benefits at Federal, State and Local levels while maintaining a strong working relationship with the community and implementing sound environmental management practices. NPM will build on these attributes of the existing operations through continued operations as proposed through this Project.

The Project will result in a number of environmental, economic and social benefits which are described in detail in **Section 5.0**. Some of the specific benefits associated with the Project are outlined below:

- economic recovery of up to 8.5 Mtpa of ore over an extended mine life until end of 2032 (an additional seven years of mining operations to that currently approved);
- capital expenditure of approximately AUS\$190 million over the LOM;
- the Project is anticipated to significantly contribute at a local, regional and state level in direct and indirect output, which at a local level includes the following annual contribution during peak production:
 - \$329 million in annual direct and indirect regional output or business turnover;
 - \$220 million in annual direct and indirect regional value added;
 - \$34 million in annual direct and indirect household income;
 - 470 direct and indirect jobs;
- contributions to the Commonwealth Government in the form of any Company tax payable (\$11 million present value) which is subsequently used to fund provision of government infrastructure and services across Australia and NSW, including the local and regional area;
- contributions to the NSW Government via royalties (\$12 million present value) which are subsequently used to fund provision of government infrastructure and services across the State, including the regional area; and
- significant export earnings for Australia.

A detailed analysis of the economic benefit and costs associated with Project has been completed (refer to **Section 5.17.2**). This assessment calculates that the Project will have a net economic benefit, taking into account all relevant environmental and social impacts, of between \$28 million and \$60 million in present values. This measure indicates that the Project benefits exceed costs, in consideration of economic, social and environmental aspects and will have a net benefit for NSW. As outlined in **Section 7.1** and **7.2**, the Project is considered consistent with the objects of the EP&A Act, in particular the principles of ESD, justifying the Project on economic, social and environmental grounds.

Section 8.0



References

8.0 References

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Section 9.0



Abbreviations & Acronyms

9.0 Abbreviations and Acronyms

9.1 Abbreviations

µm	Micrometres
AEMR	Annual Environmental Management Report
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHMP	Aboriginal Heritage Management Plan
AHWG	Aboriginal Heritage Working Group
AIS	Agricultural Impact Statement
ANZECC	Australian and New Zealand Environment and Conservation Council
API	Aerial Photograph Interpretation
APZ	Asset Protection Zone
ARD	Acid Rock Drainage
ARI	Average Recurrence Interval
ARTC	Australian Rail Track Corporation
AS	Australian Standard
AQIA	Air Quality Impact Assessment
AU	Auxilliary Lane
BATEA	Best Available Technology Economically Achievable
BMP	Best Management Practice
BOS	Biodiversity Offset Strategy
BSAL	Biophysical Strategic Agricultural Land
CCC	Community Consultative Committee
CEEC	Critically Endangered Ecological Community
CH	Channelised Right Turn
CIP	Carbon-in-pulp
CNMP	Construction Noise Management Plan
CQCHM	Central Queensland Cultural Heritage Management
Crown Lands Act	<i>Crown Lands Act 1989</i>
DA	Development Application
dB(A)	Decibels, A-weighted scale
dB(L)	Decibels Linear
DEC	Former Department of Environment and Conservation NSW (now OEH)
DECC	Former Department of Environment and Climate Change NSW (now OEH)
DECCW	Former Department of Environment, Climate Change and Water
DEWHA	Former Commonwealth Department of Environment, Water, Heritage and the Arts (now DSEWPC)
DGR's	Director-General's Requirements
DNG	Derived Native Grasslands
DP	Deposited Plan
DP&I	Department of Planning and Infrastructure
DPI	Department of Primary Industries
DRE	Department of Resources and Energy
DSC	NSW Dams Safety Committee

DSEWPC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities
DTIRIS	Department of Trade and Investment, Regional Infrastructure and Services (Mineral and Energy)
DWE	Former Department of Water and Energy
EA	Environmental Assessment
EAT	Emersons Aggregate Test
EC	Electrical Conductivity
EEC	Endangered Ecological Community
EHC Act	<i>Environmentally Hazardous Chemicals Act 1985</i>
EL	Exploration Licence
EMS	Environmental Management System
ENM	Environmental Noise Model
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000 (NSW)
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
ESHMS	Environmental, Safety and Health Management System
FM Act	<i>Fisheries Management Act 1994</i>
FTE	Full Time Equivalents
FVMP	Final Voids Management Plan
GDE	Groundwater Dependent Ecosystem
GHG Protocol	Greenhouse Gas Protocol 2004
GHGA	Greenhouse Gas Assessment
GJ	Gigajoule
GWIA	Groundwater Impact Assessment
GWMP	Groundwater Monitoring Plan
HSCC	Hazardous Substances and Contamination Control
HSEQ	Health Safety and Environmental Quality
HVAS	High volume air sampler
ICHA	Initial Cultural Heritage Assessment
INP	Industrial Noise Policy
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standards Organisation
km	Kilometres
kV	Kilo-volt
KTP	Key Threatening Processes
LEP	Local Environment Plan
LFB	Lachlan Ford Belt
LGA	Local Government Area
LOS	Level of Service
LSC	Land and Soil Capability
MIBC	Methyl isobutyl carbinol
ML	Mega litre
MNES	Matters of National Environmental Significance
MOP	Mining Operations Plan

MSB	Min Subsidence Board
Mtpa	Million tonnes per annum
NAG	Net Acid Generation
NEPC	National Environment Protection Council
NGA Factors	National Greenhouse Accounts Factors 2012
NOW	NSW Office of Water
NPM	Northparkes Mines
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NSR	Net Smelter Return
NWEC	Northparkes Wiradjuri Executive Committee
OEH	NSW Office of Environment and Heritage
OH&S	Occupational Health and Safety
OH&S Act	<i>Occupational Health and Safety Act 2000</i>
PA	Project Approval
PBC	Parkes Borefield Committee
PBP	Planning for Bushfire Protection 2006
PEA	Preliminary Environmental Assessment
PHLALC	Peak Hill Local Aboriginal Land Council
PM	Particulate matter
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
PSC	Parkes Shire Council
PSCLUS	Parkes Shire Council Land Use Strategy 2012
PSNL	Project Specific Noise Level
PVS	Peak Vector Sum
RAPs	Registered Aboriginal Parties
RBL	Rating Background Level
RMS	Roads and Maritime Services (formerly RTA)
RNE	Register of the National Estate
RT	Rio Tinto
RTA	Former NSW Roads and Traffic Authority (now RMS)
SAG	Semi Autogenous Grinding
SDP	Site Disturbance Permit
SEPP	State Environmental Planning Policy
SKM	Sinclair Knight Merz Pty Limited
SMU	Soil Mapping Unit
SOHI	Statement of Heritage Impact
SOP	Standard Operating Procedures
SRLUP	Strategic Regional Land Use Plan
SWA	Surface Water Assessment
SWMP	Surface Water Monitoring Plan
TBS	Tunnel boring system
TEC	Threatened Ecological Communities
TIA	Traffic Impact Assessment
ToR	Terms of Reference
TSC Act	<i>Threatened Species Conservation Act 1995 (NSW)</i>
TSF	Tailings Storage Facility

TSP	Total Suspended Particulates
VHF	Very high frequency
VWP	Vibrating wire piezometer
Water Act	<i>Water Act 1912</i>
WBCSD	World Business Council for Sustainable Development
WCOE	Wiradjuri Council of Elders
WM Act	<i>Water Management Act 2000 (NSW)</i>
WMP	Water Management Plan
WMS	Water Management System
WRI	World Resources Institute
WSP	Water Sharing Plan

9.2 Glossary

µm	Micrometres.
µg/m³	Micrograms per metre cubed.
Alluvium	Sediment deposited by a flowing stream, e.g., clay, silt, sand, etc.
Amenities	Lunch room, showers, toilets.
Amenity	An agreeable feature, facility or service which makes for a comfortable and pleasant life.
Aquifer	A water-bearing rock/sediment formation.
Archaeological	Pertaining to the study of culture and description of its remains.
Bioregion	Relatively large areas characterised by broad, landscape-scale natural features and environmental processes that influence the functions of entire ecosystems.
Block Cave Mining	A form of underground mining. A method of mining a large block of ore by systematically undercutting so the ore will cave.
Catchment Area	The area from which a river or stream receives its water.
Conservation	The management of natural resources in a way that will preserve them for the benefit of both present and future generations.
dB(A)	The unit of measurement of sound pressure level heard by the human ear, expressed in 'A' scale.
Dip	The direction in which rock strata is inclined.
Ecology	The science dealing with the relationships between organisms and their environment.
Ecosystem	Organisms of a community together with its non-living components through which energy and matter flow.
Electrical Conductivity	The measure of electrical conduction through water or a soil-water suspension generally measured in millisiemens per centimetre or microsiemens per centimetre. An approximate measure of soil or water salinity.
<i>Environmental Planning and Assessment Act 1979</i>	NSW Government Act to provide for the orderly development of land in NSW.
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Commonwealth legislation that regulates development proposals that have an actual or potential impact on matters of national environmental significance.
Fauna	All vertebrate animal life of a given time and place.

Floodplain	Large flat area of land adjacent to a stream which has been deposited during previous stream flow events and is inundated during times of high flow.
Flora	All vascular plant life of a given time and place.
g/m²/month	Grams per square metre per month – unit for deposited dust.
Geology	Science relating to the earth, the rocks of which it is composed and the changes it undergoes.
Geomorphology	Science relating to the evolution and configuration of landforms.
Groundwater	Sub-surface water which is within the saturated zone and can supply wells and springs. The upper surface of this saturated zone is called the water table.
ha	Hectare (10,000m ²).
Habitat	The environment in which a plant or animal lives; often described in terms of geography and climate.
Indigenous	Native to, or originating in, a particular region or country.
<i>In situ</i>	In its original place.
kV (Kilo Volt)	One thousand volts.
L_{A1} Noise Level	The noise level exceeded for one per cent of the time. It is used in assessment of sleep disturbance.
L_{Aeq} Noise Level	The equivalent continuous noise level, measured in dB(A), during a measurement period.
Land Capability	The ability of a parcel of land to be used in a sustainable manner (that is without permanent damage) for a given land use.
Landform	Sections of the earth's surface which have a definable appearance (e.g. cliff, valley, mountain range, plain, etc).
mAHD	Metres Australian Height Datum.
Mean	The average value of a particular set of numbers.
Megalitre (ML)	One million litres.
Meteorology	Science dealing with atmospheric phenomena and weather.
Mitigate	To lessen in force, intensity or harshness. To moderate in severity.
Native	Belonging to the natural flora or fauna in a region.
Ore	A naturally occurring solid material from which a metal or valuable mineral can be profitably extracted.
Outcrop	Bedrock exposed at the ground surface.
Particulates	Fine solid particles which remain individually dispersed in gases.
pH	Scale used to express acidity and alkalinity. Values range from 0-14 with seven representing neutrality. Numbers from seven to zero represent increasing acidity whilst seven to fourteen represent increasing alkalinity.
Piezometer	A small diameter bore lined with a slotted tube used for determining the standing water level of groundwater.
PM₁₀	Refers to particulate matter with a diameter less than 10 micrometres (µm)
<i>Protection of the Environment Operations Act 1997</i>	NSW legislation administered by the EPA that regulates discharges to land, air and water.
Rehabilitation	The process of restoring to a condition of usefulness. In regard to mining, relates to restoration of land from a degraded or mined condition to a stable and vegetated landform.
Revegetation	The process of re-establishing vegetation cover.
Run-of-mine (ROM)	Bulk material extracted from a mine, before it is processed in any way.
Salinity	A measure of the concentration of dissolved solids in water.

Sedimentation	Deposition or settling of materials by means of water, ice or wind action.
Sediment Dam	A dam built to retard dirty runoff to allow sediment to settle out before allowing clean water discharge.
Site Specific	Relating to conditions existing at a particular location.
Socio-economic	Combination of social and economic factors.
Subsidence	The vertical movement of a point on the surface of the ground as it settles above a coal panel extracted by underground mining.
Surface Infrastructure	Any manmade object, facility or structure on the surface of the land.
Tailings	Fine residual waste material separated in the coal preparation process.
Topography	Description of all the physical features of an area of land and their relative positions, either in words or by way of a map.
Total Dissolved Solids (TDS)	A measure of salinity expressed in milligrams per litre (mg/L).
Total Suspended Particulates (TSP)	A measure of the total amount of un-dissolved matter in a volume of water or air usually expressed in milligrams per litre (mg/L) (for water) or micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) for air.
Woodland	Land covered by trees that do not form a closed canopy.



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