

# Section 7

## Evaluation and Justification of the Project

### PREAMBLE

*This section concludes the assessment of the proposed Southern and Northern Extensions and the ongoing operations of the Teralba Quarry. The key assessment requirements (identified by the Director-General's Requirements) and other issues identified as having higher unmitigated risk rankings (see Section 3.4) are re-assessed based on the implementation of the proposed safeguards, controls and mitigation measures and a residual risk level determined. The Project is then evaluated based on the residual risk posed and in consideration of ecologically sustainable development (ESD) principles.*

*A justification for the Project is then 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 proceeding.*

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## 7.1 INTRODUCTION

As a conclusion to the *Environmental Assessment*, the Project is evaluated and justified through consideration of its potential impacts on the environment and potential benefits to the local and wider community.

An evaluation of the proposed Southern and Northern Extensions has been undertaken by firstly re-assessing the risks posed to the local environment by project activities, and then considering the implementation of the commitments for controls, safeguards or mitigation measures summarised in Section 6. The proposed extensions have also been evaluated against the principles of Ecologically Sustainable Development (ESD) in order to provide further guidance on the acceptability of the Project, as presented in the *Environmental Assessment*.

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

## 7.2 EVALUATION OF THE PROJECT

### 7.2.1 Residual Environmental Risk and Impacts

Following consideration of the proposed operational safeguards, controls and mitigation measures that would be implemented by Metromix as part of the Project design, **Table 7.1** re-assesses the risk associated with each of the potential environmental impacts identified in Section 3.5.

**Table 7.1**  
**Analysis of Mitigated Risk**

<b>Environmental Issue</b>	<b>Risk Source(s)</b>	<b>Receptor / Surrounding Environment</b>	<b>Potential Consequence if not mitigated</b>	<b>Consequence rank</b>	<b>Likelihood if Mitigated</b>	<b>Mitigated Risk</b>
Air Quality	Dust from extraction and processing operations stockpiles and exposed quarry surfaces. Dust from vehicle movements on site and off site.	Residences and other local buildings. Local residents and businesses. Surface water bodies. Surrounding native vegetation.	Increased deposited dust and associated nuisance for local residents and business. Increased complaints to Metromix by community. Reduction in local water quality. Reduction in local air quality and resultant health effects for both people and vegetation.	Minor(2)	Unlikely(D)	Low
	Particulate and greenhouse emissions from vehicles and fixed plant on the site.	Local and regional air shed.	Cumulative reduction in local and regional air quality. Contribution to increase in greenhouse gas emissions to atmosphere.	Insignificant (1)	Unlikely (D)	Low
Noise and Vibration	Noise from fixed and mobile plant, and equipment on site	Local residents, business and land owners.	Reduced amenity for local residents both locally and along transport routes. Increased complaints to Metromix by community.	Minor (2)	Possible (C)	Medium
		Native fauna.	Relocation of and or reduction of local native fauna species due to noise disturbance. Possible loss of species in the local area.	Insignificant (1)	Unlikely(D)	Low
	Noise from trucks off site.	Local residents, business and land owners.	Reduced amenity for local residents both locally and along transport routes. Increased complaints to Metromix by community.	Minor (2)	Possible (C)	Medium
	Vibration from blasting and other extraction operations on site.	Local residents, business and land owners.	Reduced amenity for local residents both locally and along transport routes. Damage to surrounding residences and buildings. Increased complaints to Metromix by community.	Minor (2)	Unlikely(D)	Low
Native fauna.		Relocation of and or reduction of local native fauna species due to noise disturbance leading to possible loss of species in the local area.	Insignificant (1)	Unlikely(D)	Low	

**Table 7.1 (Cont'd)**  
**Analysis of Mitigated Risk**

Environmental Issue	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence if not mitigated	Consequence rank	Likelihood if Mitigated	Mitigated Risk
Traffic	Increased traffic levels on road network to the west of the site.	Local residents, business, land owners.	Increased traffic congestion and accidents. Deterioration of road surface.	Minor (2)	Possible (C)	Medium
		Native fauna.	Native animals killed on road.	Insignificant (1)	Possible (C)	Low
	Consistent traffic levels to the east of the site at Teralba.	Local residents, business and land owners and native fauna.	Contribution to traffic congestion and accidents. Continued deterioration of road surface.	Minor (2)	Possible (C)	Medium
		Native fauna.	Native animals killed on road.	Insignificant (1)	Possible (C)	Low
	Construction of intersection on Rhondda Road.	Local residents, business and land owners and native fauna.	Road construction delays and associated nuisance.	Minor (2)	Possible (C)	Medium
Surface water resources and quality	Capture and use of on site surface water	Local surface water resources downstream of site (Lake Macquarie)	Reduction of surface water environmental flows both on and downstream of site.	Minor (2)	Possible (C)	Medium
		Groundwater beneath the site.	Reduced groundwater recharge beneath the site leading to reduced groundwater resource volumes.	Minor (2)	Possible (C)	Medium
	Surface water contaminated with suspended solids from processing operations, on site erosion and from chemicals and fuels stored and used on site.	Local surface watercourses.	Reduction in water quality on site and downstream of site (Lake Macquarie).	Minor (2)	Possible (C)	Medium
		Groundwater beneath the site.	Reduction in quality of local groundwater resource.	Minor (2)	Possible (C)	Medium

**Table 7.1 (Cont'd)**  
**Analysis of Mitigated Risk**

<b>Environmental Issue</b>	<b>Risk Source(s)</b>	<b>Receptor / Surrounding Environment</b>	<b>Potential Consequence if not mitigated</b>	<b>Consequence rank</b>	<b>Likelihood if Mitigated</b>	<b>Mitigated Risk</b>
Groundwater resources and quality	Abstraction of water at Mine Adit Dam.	Groundwater beneath the site. Local users of groundwater for resident / business purposes. Groundwater dependent ecosystems. Groundwater fed surface water courses.	Reduction of volume and flow rates of local groundwater resource and subsequent availability to local users.	Minor (2)	Possible (C)	Medium
	Groundwater contaminated with suspended solids from processing operations, erosion and chemicals from chemicals and fuels used on site.	Local users of groundwater for resident / business purposes. Groundwater dependent ecosystems. Groundwater fed surface water bodies.	Groundwater resource is no longer suitable for use by local users. Local surface water bodies become contaminated. Impact to and possible loss of groundwater dependent ecosystems due to contamination of waters.	Minor (2)	Possible (C)	Medium
Flora and Fauna	Removal of threatened flora and fauna species identified at the site through clearing activities.	Native flora on site and local fauna using the site including threatened species.	Loss of local and regionally important threatened species (flora and fauna). Reduced local and regional biodiversity.	Minor (2)	Possible (C)	Medium
Bushfire	Initiation of bushfire due to on site activities.	Local residents, local residences, local businesses. Native flora and fauna.	Loss of life, assets and property on site and in surrounding area. Reduction of operating performance for site and surrounding businesses. Destruction and damage of native flora and fauna.	Moderate (3)	Possible (C)	High
Soil Resources and Erosion	Removal and loss or degradation of soil resource on site due to overburden stripping and surface water runoff.	On site soil resource.	Reduced soil resource to undertake appropriate rehabilitation program. Compromised soil quality leads to poor vegetation regrowth on site.	Minor (2)	Unlikely (D)	Low
		On and off site surface water bodies.	Sedimentation of on site and local surface water bodies resulting in poor water quality.	Minor (2)	Unlikely (D)	Low

**Table 7.1 (Cont'd)  
Analysis of Mitigated Risk**

Environmental Issue	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence if not mitigated	Consequence rank	Likelihood if Mitigated	Mitigated Risk
Rehabilitation and final landform	Rehabilitated soils and vegetation of the site	On site future landuse	Soils and vegetation quality and suitability for future use is compromised or restricted.	Minor (2)	Unlikely (D)	Low
		Surrounding residences	Inadequate or inappropriate rehabilitation leads to reduced visual amenity of local residents.	Minor (2)	Unlikely (D)	Low
	Final landform and topography of the site.	Surrounding residences	Reduced visual amenity of local residents.	Minor (2)	Unlikely (D)	Low
		On site future landuse	Landform and topography suitability for future use is compromised or restricted.	Minor (2)	Unlikely (D)	Low
Aboriginal Heritage	Clearing of land and overburden and general on site operations resulting in ground disturbance	Local Aboriginal community Local European heritage items	Destruction of, damage to, or removal of known or unidentified Aboriginal heritage artefacts or heritage items.	Moderate (3)	Unlikely (D)	Medium
Visual Amenity	Changes in the visual character of the Project site	Surrounding residents and passers by	Reduced visual amenity of local residents and passers-by.	Minor (2)	Unlikely (D)	Low
		Residents on eastern side of Lake Macquarie (typically >3km) and on Lake Macquarie	Reduced visual amenity from residences and for lake users	Minor (2)	Likely (D)	Low
Socio-economic	Increase in local employment for quarry operations.	Local community and residents	Change of social activities in local settlements due to increased employment levels both directly and indirectly.	Insignificant (1)	Possible (C)	Low
	Proximity of quarry to local and neighbouring properties	Local community and residents	Perceived / loss of amenity at local and neighbouring properties	Minor (2)	Possible	Low

Through the implementation of the proposed controls, safeguards and mitigation measures identified in Section 5 and summarized in the Statement of Commitments in Section 6, the risk rating for the majority of potential environmental impacts has been reduced to low and in some instances medium. The only mitigated risk rating that remains high is bushfire. Specific bushfire management measures to manage a local bushfire event would be undertaken should project approval be granted, as detailed in Section 5.12.5.

The risks associated with the majority of possible environmental impacts are considered medium 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 assessed as acceptable.

## **7.2.2 Ecological Sustainable Development**

### **7.2.2.1 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 proposed extensions, Metromix 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 intergenerational equity;
- the principle of the conservation of biodiversity and ecological integrity; and
- the principle for the improved valuation, pricing and incentive mechanisms.

### **7.2.2.2 The Precautionary Principle**

During the planning phase for the proposed extensions and throughout the preparation of the *Environmental Assessment*, Metromix 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, Metromix and its consultants have adopted an anticipatory approach to impacts, particularly that of irreversible ecological damage, by undertaking an analysis of the risks posed by Project related activities, an appropriate level of research and baseline investigations and environmental evaluation. The controls, safeguards and/or mitigation measures have therefore been planned with a comprehensive knowledge of the existing environment and the potential risk of environmental degradation posed by Project activities.



The implementation of the environmental safeguards, controls and mitigation measures has been formalised by Metromix as the draft Statement of Commitments presented as Section 6.

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

### Objectives of the Project

The Project has been designed with the principal objective being to continue to operate the Teralba Quarry in a safe and environmentally responsible manner which meets the requirements of local and State government agencies, accepted industry standards and wherever possible, reasonable community expectations. Metromix recognises that only through comprehensive environmental assessment, consideration of feasible mitigation measures and offset strategies and an environmentally responsible approach to the design and operation of the proposed extensions, can the risk of harm to the environment be minimised.

### Design of Project Components

Several design aspects of the proposed extensions required consideration of the precautionary principles and associated potential impacts on the local environment to ensure the requirements of local and State government agencies, accepted industry standards and wherever possible, reasonable community expectations were met. These included the following.

- Upon identification and confirmation of the clumps of *Tetratheca juncea* in early 2011, Metromix agreed to further amend the boundary of the proposed Southern Extension to retain the additional sub-population of *Tetratheca juncea*. Only two sub-populations (with 68 clumps) would be removed.
- The identified biodiversity offset, will provide for the conservation of 118ha of remnant forested vegetation and a further enhancement and conservation of 2.1ha in order to offset the 28.7ha of vegetation to be removed across the Project Site.
- Active rehabilitation of existing cleared land to encourage native regrowth vegetation and re-establishment of *Tetratheca juncea* where possible.
- Installation of species specific nesting boxes within nominated areas on the Project Site in order to encourage threatened native fauna to remain in the locality of retained vegetation.
- Design of extraction areas to be sympathetic with the existing topography, i.e. following contours and retaining ridge tops to maintain visual screening for residences to the east and southeast of the Project Site.
- Restrictions of heavy traffic movements through Teralba to 2010 volumes, to ensure no additional traffic and associated impacts are experienced through Teralba.
- Continued monitoring of deposited dust at five locations adjacent to the proposed quarry extensions.
- Implementation of a water monitoring program to monitor water quality on and leaving the Project Site to ensure water quality remains within acceptable water quality criteria.

### **Integration of Safeguards and Procedures**

The framework for ongoing environmental management, operational performance and rehabilitation of the Project Site would be provided through the project approval and an Environmental Management Strategy. The overall Quarry Management Plan, which would contain a range of site specific environmental procedures to achieve consistency with specified outcomes and to control identified risks, would be updated periodically, while the Annual Environmental Management Reports would report on the progress of the operation and provide an opportunity to review the effectiveness of the environmental management strategies adopted.

### **Rehabilitation and Subsequent Land Use**

Long term adverse impacts on the local environment would be avoided through the design and rehabilitation of disturbed areas outside the 4(1) Industrial (core) zone of the LMLEP (2004) to a landform and vegetation structure comparable to that of the pre-quarrying environment. The area within the 4(1) zone would be left as a flat grassy area, suitable for industrial redevelopment.

### **Conclusion**

The precautionary principle has been considered during all stages of the design and assessment of the Project. The approach adopted, i.e. 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.

#### **7.2.2.3 Intergenerational Equity**

Intergenerational equity embraces value concepts of justice and fairness so that the basic needs of all sectors of society are met and there is a fair distribution of costs and benefits to the community. This provides for both inter-generational (between generations) and intra-generational (within generations) equity considerations.

Equity within generations requires that the economic and social benefits of the development be distributed appropriately among all members of the community. Equity between generations requires that the non-material well-being or “quality of life” of existing and future residents of the local community would be maintained throughout and beyond the life of the 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**

The Project has been designed with an objective of maintaining significant employment opportunities to residents of the Lake Macquarie LGA and providing raw materials for the building and construction industry within and beyond the Lake Macquarie LGA.

The Project has also been designed with an 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, i.e. in recognition that quarry operations are a comparatively short-term land use, and to ensure components of the existing biological, social and economic environment available to existing generations would also be available to future generations. The project has been designed to provide for both long term industrial uses after the quarry ceases operation and nature conservation in the form of vegetated corridors for north-south fauna movements. Hence, the industrial precinct created would serve to provide long term employment for future generations and the vegetated corridors would provide for long term fauna movements.

The ongoing operation of the Teralba Quarry would provide raw materials for the ongoing development of infrastructure and buildings that would not only benefit today's generation but many generations to come.

## **Integration of Safeguards and Procedures**

Metromix recognises that all members of the local community and other local communities should benefit appropriately from the Project either directly or indirectly. In order to ensure a realistic distribution of benefits, Metromix 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 of the quarry.

## **Rehabilitation and Subsequent Land Use**

The final landform would be constructed and rehabilitated to accommodate the future designated use of the southern part of the site for an industrial land use. Other land will be rehabilitated to the former land use, i.e. nature conservation.

## **Conclusion**

The principle of social equity has been addressed throughout the design of the Project. The Southern and Northern Extensions would contribute significantly to the ongoing economic activity of Teralba and the communities of the Lake Macquarie LGA and surrounding districts through the generation of employment and increased demand for local goods and services and flow-on effect. As such, the benefits of the Project would be distributed throughout the local community. Furthermore, the products from Teralba Quarry are important for the cost-effective development and growth of the Lake Macquarie LGA.

The Project was also designed such that elements of the existing environment available to this generation, including natural environment and industrial land, water and local biodiversity would continue to be available to future generations. Metromix would adopt a pro-active approach in identifying and addressing any concerns identified by the local community.

In terms of Aboriginal heritage, intergenerational equity has been considered in terms of the cumulative impacts to Aboriginal objects and places in a region. In the absence of any artefactual material in a depositional context, or of known specific Aboriginal association with the Project Site, the impact of the proposed Southern and Northern Extensions is assessed to be low.

#### **7.2.2.4 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**

Metromix 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 adversely affect biological diversity or ecological integrity. As such, the Project has been designed through avoidance of disturbances, offsets and rehabilitation, with an objective to minimise impacts on the flora and fauna of the Project Site, whilst allowing the recovery of an economically viable resource.

One of Metromix's main objectives has been to ensure that while there is a proposed loss of biodiversity in the removal of some clumps of *Tetratheca juncea* in the proposed Southern Extension, there will be a number of clumps retained and protected and a considerable proportion of the land that will be legally offset for biodiversity benefit. In addition, areas of existing and proposed cleared vegetation will be the subject of ongoing active rehabilitation works in accordance with a Vegetation Management Plan for the Project Site.

##### **Integration of Safeguards and Procedures**

Metromix would implement the following safeguards and procedures to maximise the conservation of biological diversity and ecological integrity on and surrounding the Project Site.

- Surface water, groundwater, noise and deposited dust levels would be monitored, as required, at locations potentially most affected by the Project in order to ensure the continued compliance with the goals outlined in this document.
- The principles outlined in the surface water and groundwater management section of this document (Sections 5.2 & 5.3) would be adopted to minimise any impact on water quality or quantity.
- Topsoil would be stripped, stockpiled and re-spread on the basis of the quality of the soil (as indicated by the soil mapping unit), and planned final land use of different areas of the final landform.
- The location and orientation of the extraction areas, and location and orientation of progressive disturbance over the Project Site has been designed to minimise disturbance upon native vegetation, threatened species and sensitive fauna habitats.
- Pre-clearing surveys of native tree species with tree hollows to be removed would be undertaken by a qualified ecologist to identify whether any threatened species, population or community or their habitat (including aquatic habitat and species) is present.

- Weed eradication programs would be developed and implemented, as required.
- Nesting boxes for identified threatened species both on and in the vicinity of the Project Site would be provided.

Other ecological management commitments are included in Section 8 – Terrestrial Flora and Fauna of the draft Statement of Commitments (**Table 6.1**).

### **Rehabilitation and Subsequent Land Use**

The final landform has been designed to re-instate the natural landforms and vegetation communities, wherever possible.

### **Conclusion**

The Project would address the principle of conservation of biological diversity and ecological integrity through the minimisation of disturbance to areas of native vegetation, re-establishment of areas of native vegetation and implementation of a Biodiversity Offset Strategy. 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 OEH and a suitably qualified professional. The implementation of weed eradication and feral management programs, as well as provision of nesting boxes for identified threatened species would further assist in addressing the principle of sustainable development.

### **7.2.2.5 Improved Valuation and Pricing of Environmental Resources**

The issues that form the basis of this principle relate to the acceptance that the polluter pays, 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**

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

### **Design of 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 conglomerate to be extracted, is evidence of the value placed by Metromix on these resources.

### **Rehabilitation and Subsequent Land Use**

The design of the final landform to integrate future industrial land use as zoned by the LMLEP 2004, with the re-establishment of native vegetation illustrates the value placed by Metromix on both the future land use and ecological elements of the Project Site.

## **Conclusion**

The value placed by Metromix 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 conglomerate would be sufficient to enable Metromix to achieve an acceptable profit level whilst undertaking all environmentally-related tasks to a high standard and meeting all commitments in all the project approval, leases and licences and those made to the local community. Such commitments include a contribution to Lake Macquarie City Council for repairs of roads damaged (over time) by trucks travelling to and from Teralba Quarry.

### **7.2.2.6 Conclusion**

The approach taken in planning the Teralba Quarry Extensions has been multi-disciplinary, involved consultation with potentially affected local residents and various government agencies and incorporated the application of safeguards to minimise potential environmental, social and economic impacts. The design of the Teralba Quarry Extensions has addressed each of the sustainable development principles, and on balance, it is concluded that it achieves a sustainable outcome for the local and wider environment.

## **7.3 JUSTIFICATION OF THE PROJECT**

### **7.3.1 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 Metromix, Teralba and Lake Macquarie City Council, surrounding districts, NSW and Australia. When considering the predicted residual impacts, a review of the proposed controls, safeguards and mitigation measures of Metromix 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.

### **7.3.2 Biophysical Considerations**

Section 5 presents the range of residual impacts on the biophysical environment predicted should the Project proceed, after the adoption of a number of design and operational procedures, mitigation measures and/or offset strategies. The residual impacts considered of greatest significance, and the proposed management of these, are summarised as follows.

### Groundwater Resources

Management of residual risk ranked as medium in relation to groundwater use and impact at the proposed Teralba Quarry Extensions focuses on two key aspects.

- Abstraction of water (groundwater and surface water) for use in the quarry processes, and the security of supply, which is subject to three key processes, namely:
  - licencing discussions with the regulator;
  - ongoing monitoring and discussions with a third party provider for alternative sources of water; and
  - ongoing monitoring on the impact of local groundwater resources and the natural recharge and supply of groundwater to local surface watercourses and associated users or communities dependent upon such a resource.
- Development and implementation of a Soil and Water Management Plan, which focuses upon the storage, transport and handling of fuels and chemicals at the Project Site and monitoring of groundwater, surface water and process water quality, use and flow rates across the site.

### Surface Water Resources

Management of residual risk ranked as medium in relation to surface water use and is the same as that described for groundwater in the section above.

### Flora and Fauna

Residual risk to flora and fauna remains at medium due to the known loss of clumps of *Tetratheca juncea* species in the proposed Southern Extension. Metromix would retain 64% of the identified clumps and will be actively rehabilitating the site with an objective of encouraging regrowth of *Tetratheca juncea* and other native vegetation.

### Aboriginal and Non-Aboriginal heritage

In the absence of any artefactual material in a depositional context, or of known specific Aboriginal association with the Project Site, the impact of the proposed Southern and Northern Extensions is assessed to be medium. All future clearing operations must be completed in accordance with protocols, which include a procedure to be followed in the event that potential Aboriginal artefacts are uncovered during vegetation clearing activities.

While no significant sites of Non-Aboriginal heritage have been identified within the Project Site, operations would be undertaken with consideration given to the future development guidelines for the Teralba Heritage Precinct to the east of the Project Site.

## **Noise**

Residual risk assessed as medium for noise is identified as truck noise in surrounding local streets between the Teralba Quarry and F3 Freeway in the west. Four key aspects will be developed, implemented and managed by Metromix in this regard.

1. Monetary contribution to Lake Macquarie City Council for road maintenance and improvements. Metromix will contribute an agreed sum of money on a quarterly basis to Council to make improvements to road pavements that have deteriorated over time in the routes that Metromix and other trucks use travelling to and from Teralba Quarry.
2. Metromix truck maintenance to ensure that trucks are appropriately maintained to allow smooth running of the vehicles with least possible noise.
3. Driver training and handbooks identifying specific routes and Code of Conduct for drivers to ensure smooth and less noisy operation of trucks associated with the Teralba Quarry
4. Restrictions on truck numbers and imposition of curfew times for trucks travelling through Teralba.

## **Air Quality**

Residual risk from air quality impacts is assessed as low. With appropriate management of dust on site through the use of water carts to dampen down any dust generation on dry days, the likelihood of noticeable dust migrating off site is assessed as minimal. Nonetheless, Metromix will continue to monitor dust levels adjacent to the Teralba Quarry to ensure that levels in the surrounding community remain below acceptable limits.

## **Soils and Land Capability**

Residual risks associated with Soils and Land Capability remain low. The rehabilitation plans and final landform proposals and associated processes are well documented through the environmental assessment. The desired result for Metromix is a final Project Site comprising an area of land suitable for industrial land use, as required by Lake Macquarie City Council and land that has been rehabilitated back to a nature conservation land use.

## **Traffic**

Management of residual risk ranked as medium in relation to traffic is the same as that described for Noise.

## **Visibility**

Residual risk from visual amenity is assessed as low. The design of the quarry extraction boundaries and orientation of active quarry faces has been heavily influenced by the location of the residences to the east and southeast to ensure that the quarry operations remain screened from these areas.



## Bushfire

Residual risk from bushfire remains at high for the Project Site, given the forested environmental setting of the Project Site and the potential consequences of a bushfire in this setting. This scenario is consistent with the historical operations of the Teralba Quarry since its initial development in 1964. A revised Bushfire Management Plan will be developed for the quarry upon receipt of approvals which will be consistent with fire regulations and guidelines, as described in Section 5.12.

### 7.3.3 Socio-economic Considerations

Generally, the principal impacts of the Project would be the sustained higher levels of extraction and the lengthening of the life of the Teralba Quarry extraction operations. As such, the potential social impacts would generally be similar to those currently experienced by the communities of Teralba, Wakefield and surrounding areas. The fact that there is planned to be little change in the ongoing activities of the Teralba Quarry and the comparatively low level of impact is well understood by the surrounding residents and residents adjacent to the transport route, there should be little change in the current level of social impact.

The proposed extensions would provide the assured long-term presence of Metromix in the Teralba area, ensuring ongoing employment for up to 60 persons and the continued supply of reasonably priced conglomerate material to Civilake and other customers. It would also result in the continued and long-term contribution to the local economy through employment, wages and support of local businesses and services and Metromix's ongoing support for community projects.

The annual expenditure of \$12 million throughout the local area, surrounding region, NSW and Australia would have considerable direct and indirect economic benefits.

### 7.3.4 Planning Considerations

This section reviews the compliance of the Project with local, regional and State planning instruments. It is noted that whilst the relevance of these instruments may change in the future, the following represents the application of these in their current form to the Project as described in Section 3.3.

#### Lake Macquarie Local Environmental Plans

Under the provisions of the Lake Macquarie LEP 2004, the existing Mid Pit Extraction Area, proposed Southern and Northern Extensions and approximately 35% of the existing Southern Extraction Area are zoned '9 – Natural Resources'. The remaining 65% of the existing Southern Extraction Area is zoned '4(1) Industrial (Core)'. 'Extractive Industry' is permissible within both zones.

### Lower Hunter Regional Strategy

The future for the Lower Hunter is described as one that is sustainable, affordable, prosperous and liveable. Economically, the Lower Hunter is recognised as having a strong mining heritage upon which it is building an increasingly diverse economic base, skilled workforce and nationally significant economic infrastructure. The proposed Southern and Northern Extensions would build on these important economic assets and further enhance the capacity of the region by providing continued employment growth.

### 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 7.2** presents a summary of each element requiring consideration and a reference to the section in the *Environmental Assessment* where this is addressed.

**Table 7.2**  
**Application of SEPP (Mining, Petroleum Production and Extractive Industries) 2007**

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Relevant SEPP Clause	Description	EA Section
12: Compatibility with other land uses	<p>Consideration is given to:</p> <ul style="list-style-type: none"> <li>the existing uses and approved uses of land in the vicinity of the development;</li> <li>the potential impact on the preferred land uses (as considered by the consent authority) in the vicinity of the development; and</li> <li>any ways in which the development may be incompatible with any of those existing, approved or preferred land uses.</li> </ul> <p>The respective public benefits of the development and the existing, approved or preferred land uses are evaluated and compared.</p> <p>Measures proposed to avoid or minimise any incompatibility are considered.</p>	<p>4.3/5.13</p> <p>4.3.2/5.13</p> <p>4.3.2/5.13</p> <p>5.13</p>
13: Compatibility with mining, petroleum production or extractive industry	<p>Consideration is given to whether the development is likely to have a significant impact on current or future mining, petroleum production or extractive industry and ways in which the development may be incompatible. Measures taken by the Proponent to avoid or minimise any incompatibility are considered.</p> <p>The public benefits of the development and any existing or approved mining, petroleum production or extractive industry must be evaluated and compared.</p>	5.14
14: Natural resource and environmental management	<p>Consideration is given to ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure:</p> <ul style="list-style-type: none"> <li>impacts on significant water resources, including surface and groundwater resources, are avoided or minimised;</li> <li>impacts on threatened species and biodiversity are avoided or minimised; and</li> <li>greenhouse gas emissions are minimised and an assessment of the greenhouse gas emissions (including downstream emissions) of the development is provided.</li> </ul>	<p>5.2.7/5.3.7</p> <p>5.4.5</p> <p>5.7.7.2</p>
15: Resource recovery	<p>The efficiency of resource recovery, including the reuse or recycling of material and minimisation of the creation of waste, is considered.</p>	2.9

**Table 7.2 (Cont'd)**  
**Application of SEPP (Mining, Petroleum Production and Extractive Industries) 2007**

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Relevant SEPP Clause	Description	EA Section
16: Transportation	<p>The following transport-related issues are considered.</p> <ul style="list-style-type: none"> <li>• The transport of some or all of the materials from the site by means other than public road.</li> <li>• Limitation of the number of truck movements that occur on roads within residential areas or roads near to schools.</li> <li>• The preparation of a code of conduct for the transport of materials on public roads.</li> </ul>	<p>2.18</p> <p>5.1.4</p> <p>5.1.3</p>
17: Rehabilitation	<p>The rehabilitation of the land affected by the development is considered including:</p> <ul style="list-style-type: none"> <li>• the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated;</li> <li>• the appropriate management of development generated waste;</li> <li>• remediation of any soil contaminated by the development; and</li> <li>• the steps to be taken to ensure that the state of the land does not jeopardize public safety, while being rehabilitated or at the completion of rehabilitation.</li> </ul>	<p>2.16.1 / 2.16.2</p> <p>2.9</p> <p>NA</p> <p>2.16.2</p>

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

Neither the storage nor transportation 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**

The survey of the Project Site established that two koala-feed trees, namely grey gum and Tallowood are present on site in sufficient abundance for the Project Site to be considered as potential koala habitat. However, no observations were made suggesting that koalas frequent the Project Site.

#### **7.3.5 Consequences of not Proceeding with the Project**

The consequences of not extending the operational life of Teralba Quarry include the following.

- The conglomerate would not be extracted by Metromix to yield the range of products currently produced. Such an outcome would be contrary to the State's and Metromix's objective to maximise resource utilisation, particularly for a quality resource located in close proximity to areas in Lake Macquarie LGA requiring construction materials to build homes, public facilities and infrastructure.
- Higher levels of greenhouse gases would be generated as products used in Lake Macquarie City Council LGA would need to be transported further.
- The opportunity to provide employment for approximately 60 people directly and indirectly would be foregone.

- The disposable wages for the workforce would be foregone, a substantial proportion of which would be spent in the Lake Macquarie LGA.
- Foregoing the additional PAYE taxes for the extended life of the quarry.
- The additional minor impacts on the local biophysical environment would not eventuate, particularly those relating to the removal of *Tetratheca juncea*.

It is considered that the benefits of proceeding with the Project therefore far outweigh the minor impacts on the environment that would result. The nominated consequences of not proceeding with the Project also weigh heavily in favour of proceeding with the Project.

## **7.4 CONCLUSION**

The Project has, to the extent feasible, been designed to address the issues of concern to the community and all levels of government.

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

- contribute towards satisfying the demand for construction materials, particularly within the Lake Macquarie LGA;
- reduce risk levels associated with possible incidents and impacts on the environment to an acceptable level;
- have a minimal and manageable impact on the biophysical environment;
- satisfy sustainable development principles;
- generate less greenhouse gas (as alternative sources are more distant);
- provide for continuing and future use of the Project Site for industrial use and nature conservation;
- promote continued growth in economic activity in the Lake Macquarie LGA; and
- address the perceived social impacts.