

## 1.0 Policy Objectives

The objectives of this Policy are:

- To maintain a general presumption against the extraction of mineral sands within the Shire of Serpentine Jarrahdale, unless the proponent has demonstrated that net social, economic and environmental benefits will be delivered in the short, medium and long term.
- To clearly outline the matters that are required to be addressed by proponents that are seeking approval for mineral sands extraction within the Shire.
- To ensure that the assessment of mineral sands extraction proposals is comprehensive and consistent with orderly and proper planning principles.
- To provide clarity of the development assessment process for proponents and the broader community.
- To inform the community/stakeholders of the importance of a rigorous assessment process and the reasoning for the Shire's policy stance.

## 2.0 Background and Application

Mineral sands deposits exist within the Shire of Serpentine Jarrahdale (as shown in Appendix 1). There has historically been commercial interest in the extraction of these mineral sands deposits. The community expects that mineral sand proposals to be carefully considered, having regard for social, environmental and economic impacts, both positive and negative and also short, medium and long-term.

Heavy mineral sands deposits are made up of various assemblages of titanium-bearing minerals, such as rutile, leucoxene, ilmenite, xenotime and monazite (containing rare earth metals), and the industrial minerals zircon, kyanite, and garnet.

The production of mineral sands generally follows a three-stage process:

1. Mining – dredge or dry mining.
2. Concentration and separation – using gravitational, magnetic and electrostatic processes.
3. Synthetic rutile production – involving chemical reduction, leaching, aeration and physical separation.

Mineral Sands and other mining and mineral processing operations produce various waste material streams which are generically called tailings. Tailings are the sludge, mineral residue and wastewater (apart from final effluent) resulting from ore extraction and processing. (Source: NPI Emission Estimation Technique Manual for Mineral Sands Mining and Processing, 2001).

Whilst the Shire recognises the importance the State is placing on the responsible development of mining and the associated economic revenue it can bring, acknowledgment must also be given to the Shire's efforts to protect the wellbeing of the community. The Shire has a responsibility to deliver a Policy which provides strategic direction on mineral sands mining in the best interests of the community, through consideration of social impacts, including health, safety and amenity.

A key role of the Shire is to uphold community values and articulate the strategic vision of the community, both of which are expressed in the Shire's Plan for the Future 2009-2014. It is important proponents are aware that in order for the Shire to fulfil this role, proponents must demonstrate a commitment to achieving considerable net social, environmental and economic benefits in the short, medium and long term.

The aim of this Policy is to establish a clear policy framework for the assessment of any proposals that are required to be determined under the provisions of TPS2 and/or the Metropolitan Region Scheme. In addition, Section 120 of the Mining Act 1978 requires due regard to be given to the provisions of relevant planning

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schemes, to which this Policy is bound to. Proponents should also have due consideration to the broader local and state statutory and strategic framework, provided in Section 3.0, below. Collectively, these documents provide a broader perspective of issues which need to be addressed by proponents as part of the development application process.

This Local Planning Policy seeks to clearly outline the matters that are to be addressed by proponents and assessed by the Shire in making planning decisions and determining applications for development approval for mineral sands extraction. The Shire understands that in some cases, mineral sands applications will not be determined by the Shire, however it is intended that in these instances, this Policy can still be used as a statutory reference document to ensure consistency and guide the decision-making process.

### **3.0 Status**

#### **(a) Relationship to Town Planning Scheme No.2**

This Policy is a planning Policy prepared, advertised and adopted pursuant to Clause 9.1 of Town Planning Scheme No.2 (TPS2). Under Clause 9.2 of TPS2 all planning policies are documents supporting the Scheme. The Policy augments and is to be read in conjunction with the provisions of TPS2 relating to development applications.

#### **(b) Relationship to other State Planning Policies (SPPs)**

This policy has due regard to, and should be read in conjunction with the entire State Planning Policy suite.

#### **(c) Relationship to other Local Planning Policies (LPPs)**

This policy has due regard to, and should be read in conjunction with the Shire's entire Local Planning Policy suite.

(d) Other documents which have the potential to influence mineral sands applications (and have ultimately guided the preparation of this Policy) include:

- Mining Act 1978
- Local Government Act 1995
- Guidelines for Mining Proposals in Western Australia (February 2006)
- Environmental Protection Authority (EPA) Part IV Environmental Protection Act 1986
- Environment Protection and Biodiversity Conservation Act (EPBC Act) 1999.

### **4.0 Interpretations**

**Mineral Sands** – “Sand containing economic quantity of titanium minerals”

**Industry Extractive** - means an industry which involves:

- (i) the extraction of sand, gravel, clay, turf, soil, rock, stone, minerals, or similar substance from the land, and also includes the management of products from any of those products from any of those materials when the manufacture is carried out on the land from which any of the materials so used is extracted or on land adjacent thereto, and the storage of such materials or products; and
- (ii) the production of salt by the evaporation of sea water.

**Development** – as per definition provided in the Planning and Development Act 2005.

**Extraction Area** – the extent of land proposed to be used for ground-disturbing activities

**Operational Area** – the extent of land proposed to be used for extraction and all associated activities.



## **5.0 Application of Policy**

5.1 This policy shall apply across the entire municipality of the Shire of Serpentine Jarrahdale.

5.2 This policy shall be used in the following circumstances:

- (a) when proponents are preparing applications for development approval for mineral sands extraction
- (b) when the Shire is assessing and ultimately determining an application for development approval under Town Planning Scheme No. 2
- (c) when the Shire is assessing and ultimately providing a recommendation on applications for development approval under the Metropolitan Region Scheme.

## **6.0 Policy Provisions**

- 6.1 Through this policy, the Shire has established the relevant matters that are required to be addressed by the proponents and assessed by the Shire.
- 6.2 The relevant matters are outlined in Appendix B
- 6.3 It is the responsibility of the proponents to ensure and to demonstrate, in detail, that all of the relevant matters are adequately addressed.
- 6.4 Applications for development approval should include a completed checklist, outlining the matters outlined in Appendix B and the manner in which the matter has been addressed. Applications lodged without a completed checklist shall be deemed to be incomplete and will not be assessed by the Shire.
- 6.5 The Shire is required to consider all of the relevant matters in the assessment of proposals.
- 6.6 The Shire shall embrace a precautionary approach to the assessment of proposals.
- 6.7 Nothing within this policy shall restrict the ability of the Shire to obtain advice from third parties on the relevant matters and regarding the extent to which a proposal addresses such relevant matters.
- 6.8 Where a proponent believes that a relevant matter is not relevant, the proponent shall provide reasons and sufficient justification.
- 6.9 Where a proponent believes that a relevant matter should not to be considered by the Shire, by virtue of its consideration under separate legislation or by a different decision-making authority, the proponent shall be required to provide the following details:
- The relevant matter;
  - The applicable statutory framework
  - The extent to which the matter has been considered.
  - The extent to which matters were deferred to either a later assessment process or assessment by a different decision-making authority.
- 6.10 Where a proponent believes that there are no potential impacts regarding a particular matter, the proponent shall provide reasons and documentary evidence to support the assertion that there is no potential for the impact.
- 6.11 Where a proponent identifies that there is potentially a negative impact regarding a particular matter, the proponent shall outline the following:
- The likelihood of the impact;
  - The local and regional significance of the impact;
  - The expected timeframe for the impact (short-term, medium-term and long-term);
  - Measures proposed to minimise the impact including actions, responsibilities, contingencies and timing;



- Documentary evidence that the measures proposed to minimise the impact have been proven effective in other similar situations and that the measure is suitable for the particular proposal; and
- The contingency measures that are proposed, in the case that the proposed measures are ineffective at minimising the impact.

6.12 The Shire shall seek to recover from proponents, to the maximum extent practicable, the costs associated with the assessment of proposals. The costs that the Shire shall seek to recover shall include but not be limited to the following:

- (a) costs and expenses of advertising the application and advertising matters related to the application.
- (b) costs and expenses of any specific assessment that is required in relation to the application, for example, environmental assessment.
- (c) costs and expenses of consultation procedures required in relation to the application.
- (d) costs and expenses of technical resources and equipment such as computer modelling.
- (e) costs and expenses of specialist advice required in relation to the application, for example, advice in relation to heritage matters.

The Shire shall reserve the right to require an applicant to pay estimated costs and expenses that may be incurred by the local government before the costs and expenses are actually incurred. Where any moneys paid in advance by an applicant to a local government for estimated costs or expenses that are not incurred by the local government are to be refunded to the applicant upon a formal determination being made on the application.

## **7.0 Conclusion**

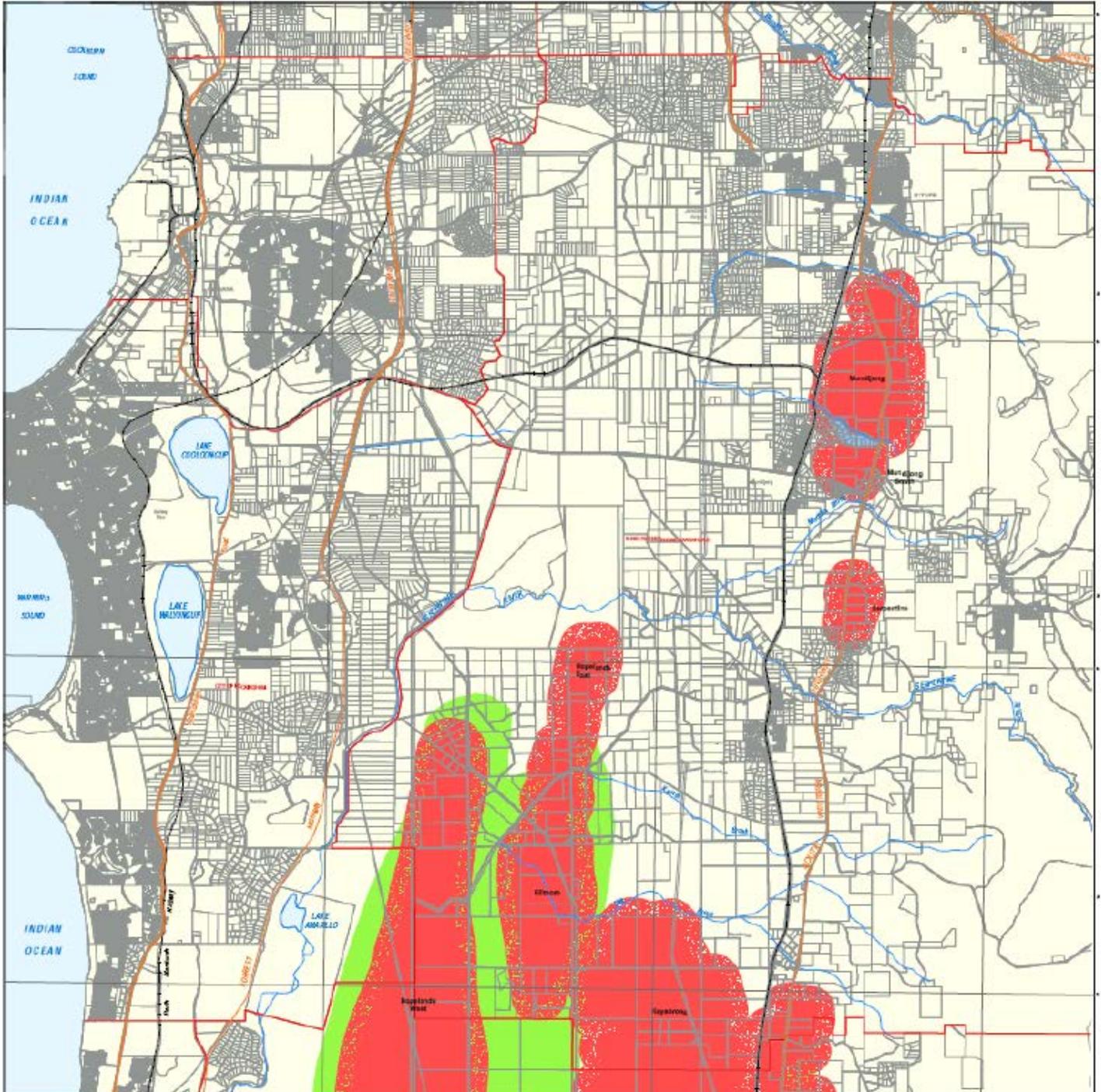
In an effort to ensure that the Shire fulfils its role in delivering the community's strategic vision and to protect the community against issues of health, safety and amenity, it is imperative the Shire maintains a general presumption against the extraction of mineral sands. Mineral Sands applications must demonstrate a commitment to achieving social, economic and environmental benefits in the short, medium and long term otherwise applications will be automatically refused. This Policy aims to inform Proponents of the Shires reasoning for this stance to alleviate confusion and to provide clarity prior to the development application process.

Should Proponents wish to submit an application, it should be made clear that the absence of full documentation supplied by a Proponent may provide grounds for automatic refusal; however this is not to say that if Proponents submit all required documentation and comply with this Policy that approval is guaranteed. As clarified in the initial section of this Policy, the Shire will assess each individual application on the basis of its environmental, economic and social merit and in the context of the Shire's best interests.



**APPENDIX A – KNOWN MINERAL SANDS DEPOSITS**

(Source – Department of Mines and Petroleum 2009)





-  Strategic mineral resource protection area; should be set aside for future mining
  -  500m separation area around strategic mineral resource protection area; land use options may be restricted
  -  Possible strategic resource area that may contain mineral deposits; land use options may be restricted in parts of these areas
  -  Sterilized mineral deposit currently unlikely to be mined; does not restrict land use options
- Mundijong** Generalized deposit name
-  Land title boundary, simplified
  -  Highway / major road
  -  Rail
  -  Local government area boundary
  -  Drainage

NOTE: this map shows the extent of known titanium-zircon mineralization surrounded by an infrastructure halo. The extent of mineralization is based on exploration only up to the date of publication. Future exploration may locate additional areas of mineralization.



NOTE: this map shows the extent of known titanium-zircon mineralization, surrounded by an infrastructure halo. The extent of mineralization is based on exploration only up to the date of publication. Future exploration may locate additional areas of mineralization.



UNIVERSAL TRANSVERSE MERCATOR PROJECTION  
HORIZONTAL DATUM: GEODESIC DATUM OF AUSTRALIA 1984  
GDA  
The Map Grid of Australia (MGA) is based on the Geocentric Datum of Australia 1984 (GDA84).  
GDA84 positions are compatible within one metre of the datum NGVD84 positions.

**GEOLOGICAL SURVEY OF WESTERN AUSTRALIA**  
**RESOURCE POTENTIAL FOR LAND USE PLANNING**  
**TITANIUM-ZIRCON MINERALIZATION**  
**SERPENTINE-JARRAHDALÉ**



## **Appendix B – Relevant Matters**

### **General**

1. the proposed scale, form and function of the proposal.
2. the proposed staging and timing for the operation.
3. the plant and equipment to be used within the operational area.
4. the financial viability of the proposal, in terms of its potential to deliver identified positive impacts and minimise negative impacts in the short term (0-5 years), medium term (5-15 years) and long term (15 years +). The timeframes shall be considered to be from the commencement date of ground-disturbing activities.
5. All proposed management arrangements, strategies and plans, including timing (short-term, medium-term and long-term), actions, responsibilities and contingencies.

### **Water Resources**

- 6 the potential for the ground water levels to be lowered in the local vicinity of mining operations and the associated impacts including ecological, domestic, industry and rural use of this natural resource.
7. the potential for contamination of ground water in the local and downstream area of mining operations.
8. the potential impacts on drinking water supplies.
9. the potential for the disturbance of the land to increase salinity and acidity in surrounding water and soils.
10. the potential for short-term, medium-term and long-term damage to the above ground and below ground stream zones and natural aquifers.

### **Soil Profile**

11. the potential impact of acid sulphate soils, poorly structured soils, dispersive or sodic soils and any potentially hazardous compounds.

### **Native terrestrial vegetation**

12. the potential impact on vegetation identified by the State Government of Western Australia as being of regional significance.
13. the potential impact on biodiversity values identified in the Shire of Serpentine Jarrahdale adopted Local Biodiversity Strategy.
14. the potential impact on management plans adopted by the Shire of Serpentine Jarrahdale and other public authorities.
15. the potential for destruction of wildlife habitats.
16. the potential for weed infestation.
17. the potential for the spread of *Phytophthora cinnamomi* (dieback).
18. the potential for impact on matters identified as being of significance under the Environmental Protection and Biodiversity Conservation Act 1999.



**Native terrestrial fauna**

19. the potential impact on fauna identified by the State Government of Western Australia as being of regional significance.
20. the potential for impact on matters identified as being of significance under the Environmental Protection and Biodiversity Conservation Act 1999.
21. the potential impacts on habitat and ecological corridors for fauna.
22. the potential impact on fauna from accidents, including motor-vehicle conflicts.
23. the potential for competition from, and overgrazing by, farm and feral herbivores and other animals, for example rabbits, goats and honey bees.

**Other environmental impacts.**

24. the potential for erosion impacts, both directly and in-directly from activities within the operational area.
25. the potential impact on wetland values identified as being of significance under the State Government of Western Australia's Geomorphic Wetland Dataset for the Swan Coastal Plain.
26. proposed measures for the rehabilitation of the operational area including actions, responsibilities and contingencies.
27. the potential impact on sites identified as being of Aboriginal Heritage Significance.

**Visual impact**

28. the potential for visual impact from extraction areas. To enable the potential impacts to be properly considered, at a minimum the following information should be provided:
  - size of footprint of the altered area(s).
  - depth.
  - configuration of outer boundary.
  - terrain / topography.
  - angle of faces.
  - length of time faces are exposed before being re-contoured and re-vegetated.
  - time sequence for planting exposed surfaces.
  - planting programs, including screen planting.
  - siting, design and maintenance of plant and buildings.
  - location of powerlines, pipelines and other services.
  - alignment and design of access roads and rail links.
  - changes to original landscape, especially landform, drainage patterns, vegetation and other characteristics of the original landscape unit; and lighting.
29. Potential visual impact of residue areas. To enable the potential impacts to be properly considered, at a minimum, the following information should be provided:
  - Landfill and mining residue mounds.
  - placement of the mounds in locations avoiding further environmental degradation.
  - height above surrounding landscape.
  - size of footprint.
  - configuration of footprint.
  - steepness of the angle of outer slopes.



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- regularity and angularity of outer slopes (both vertical and horizontal profile).
  - length of time the outer slopes are exposed before they are vegetated.
  - dust control.
  - time sequence for vegetation of separate mounds.
  - success of vegetation programs.
  - distance to nearest public viewpoints.
  - screening of visually sensitive areas.
  - simulated views of the residue areas from the major view points into the site.
  - drainage issues (catchment, patterns, quality of runoff, etc).
30. Potential impact on the natural character landscape, including but not limited to the following:
- Vegetation: height, patterns, predominant species type, density, colour, textures, understorey layers and percentage of canopy cover. Examples of individual vegetation features include variation in woodland species, individual trees, and wildflowers patterns.
  - Waterform: size, extent, depth, colour, common surface texture for example, rippled, flat or choppy, as well as the edge characteristics of the water body eg embankment slope, line of the coast or rock boulders that border a waterform. Linear forms include streams and rivers. Open water bodies include lakes and estuaries. Examples of individual waterform features include: rock pools, waterfalls, rock seepages, fast-flowing stream, rapids or still water pools.
  - Soils and exposed rock (describe rock form and surface soil colour and texture).
31. Potential impact on rural character elements, including but not limited to:
- agricultural crop patterns, colour and scale.
  - plantation density and location, scale, colours, textures.
  - remnant vegetation stands.
  - individual remnant or exotic trees.
  - presence of natural features such as landform and valley slopes.
  - location and rural character of farm homesteads, associated buildings and views to the surrounding land.
  - settlement pattern of rural towns.
  - land tenure and zoning.
  - diversity in agricultural land uses.
  - mining activities (eg quarries).
  - utilities (including powerlines, water pipelines, wind turbines, mobile phone towers).
  - road patterns and character.
  - roadside vegetation pattern, density and naturalness.
  - ephemeral features such as wildflowers, fauna, and water conditions; and individual features such as windmills, historic buildings, bridges, fences, livestock and landmarks that are perceived as rural icons of cultural significance.
32. Potential impacts on built environment characteristics, including but not limited to the following:
- settlement patterns.
  - land tenure and zoning.
  - general road layout.
  - streetscapes (general, parking, freeways, main streets, residential).
  - buildings (general, residential, commercial, industrial, community, institutional, transport).
  - pedestrian ways.
  - trees in streets, gardens and parks.
  - public open space (vegetation and parks in built areas).
  - open space (including semi-public and private areas).
  - colour and style of built forms.



- location and design of industry and commercial areas (including ports).
- height, colour and siting of buildings, utility towers, power poles and lines.
- individual features in a built area, such as historic buildings and features, landmarks, artworks, railway stations and other unique built structures.

33. Visual impact assessments should be undertaken by proponents in a manner consistent with the following document:

“Visual Landscape Planning in Western Australia - a manual for evaluation, assessment, siting and design” Western Australian Planning Commission, 2007.

Existing landscape units should be a subject of visual evaluation at local and regional level. The evaluation should include:

- description of full characteristics contributing to landscape typology of existing landscapes on the subject land.
- complexity (variety) of landscape character units and physiographic units.
- visibility (short and long-distance views to the site, visually sensitive areas).
- existing quality (visual amenity) / degree of existing degradation.
- intangible qualities of landscapes; spiritual connection to the land (Aboriginal significance, cultural heritage, ethical issues, etc).

The visual evaluation of the proposed changes shall include:

- Simulated views (computer/photographic) of the proposed site from key viewing locations (travel routes, tourist destinations, etc) into the site.
- Cross-sections determining visibility objective and screening needs.

The visual evaluation of the proposed rehabilitation of the land (landscape and physiographic units shall include:

- Short-term.
- Long-term.

## **Community**

34. the potential impacts on access to community services and facilities.
35. the potential impacts on access to recreation opportunities.
36. the potential impacts on the accommodation of future population growth and provision of housing choice and diversity to suit the needs of different households, including specialist housing needs, and the services they require.
37. the potential impacts on the provision land for a range of accessible community resources, including affordable housing, places of employment, open space, education, health, cultural and community services.
38. the potential impacts on the integration of land use and transport planning and promotion of patterns of land use which reduce the need for transport, promote the use of public transport and reduce the dependence on private cars.
39. the potential impacts on the encouragement of safe environments, high standards of urban design and a sense of neighbourhood and community identity.
40. the potential impacts on the promotion of commercial areas as the focus for shopping, employment and community activities at local, district and regional levels.



### **Employment opportunities**

41. the potential for short, medium and long term employment opportunities.
42. the absolute number of employment opportunities that will likely result.
43. the type of employment opportunities that will likely result.
44. the potential to source labour locally.
45. the diversity of employment opportunities that will likely result.

### **Health Impacts**

46. the potential exposure of local residents, visitors and mining employees to airborne contaminants and radiation.
47. the potential health risks to local residents, visitors and mining employees from increased exposure to dust and radiation (eg respiratory disease, depression and lowered immunity).
48. the potential mental health impacts of the mining operations on nearby residents, including but not limited to, stress-related disorders.
49. the extent of emissions and their potential to unreasonably interfere with the health, welfare, convenience, comfort or amenity of people the potential for biophysical impacts of the proposal to significantly and adversely change people's social surroundings.
50. the protection of land and water from contamination and the potential risks to human health.
51. the potential for mosquito breeding and the associated risks of mosquito-borne disease.
52. the potential for end-product effects on food production (eg meat, milk, eggs) from exposure to emissions, on both a domestic and commercial basis.
53. the potential for cumulative health impact on local residents.

### **Sensory Receptors**

54. the potential exposure of local residents, visitors and mining employees to dust.
55. the potential noise impacts associated with the mineral sands mine and its effect on adjacent and surrounding communities.
56. the potential impacts on the amenity and lifestyle opportunities for existing and future residents and visitors to the Shire of Serpentine Jarrahdale.

### **Transport**

57. the proposed vehicle movements, including:
  - number of vehicles.
  - type of vehicles.
  - hours of operation.
  - travel routes to be used, including origin and destination.
58. the capacity and condition of the local transport networks (both road and rail) relevant to the operation.
59. the capacity and condition of the district transport networks (both road and rail) relevant to the operation.



60. the capacity and condition of the regional transport networks (both road and rail) relevant to the operation.
61. the potential impacts on other road and rail users, including congestion and vehicular accidents.
62. the potential impacts of proposed vehicular movements on the physical condition of road and rail infrastructure.

### **Amenity**

63. the potential impacts on the amenity and lifestyle opportunities for existing and future residents and visitors to the Shire of Serpentine Jarrahdale.

### **Economic impacts**

64. the potential impacts on the attractiveness of the area for tourism activities.
65. the potential impacts on the diversity of the economic base of the locality and the region.
66. the potential impacts on the feasibility of future land uses, both within and in proximity to the operational area.
67. the potential impacts on the protection of agricultural land resources from inappropriate uses.
68. the potential impacts on the promotion of local employment opportunities in order to reduce the time and cost of travel to work.
69. the potential impacts on the provision of sites for tourism accommodation and facilities taking account of their special location and servicing needs.

### **Land use planning**

70. the degree of consistency (or otherwise) with relevant local government planning instruments including, but not limited to, the following:
  - District and local structure plans.
  - Local planning policies.
  - Local Planning Policy No. 30 Mineral Sands Extraction.
  - Detailed area plans.
  - Local Planning strategies.
71. the degree of consistency with state government planning instruments, including, but not limited to, the following:
  - sub-regional structure plans.
  - state planning policies.
72. the feasibility of future long-term land use planning, including development options (inter-generational equity).

### **Climate change**

73. the extent to which the proposal will contribute to greenhouse gas emissions.
74. the extent to which climate change has been factored into the proposal as a risk.



### **Energy consumption**

75. the extent to which non-renewable energy sources will be used within the operational area.
76. the extent to which renewable energy sources will be used within the operational area.

### **Infrastructure Provision**

77. The potential impact on domestic infrastructure provision including electricity, gas, water, wastewater and telecommunications.
78. The potential impact on regional infrastructure provision including electricity, gas, water, wastewater and telecommunications.

### **Mine Closure**

79. consideration of appropriate rehabilitation methods proposed in initial application stage.
80. consideration of material required for closure to eliminate the opportunity for mismanagement of closure.
81. consideration of post-mining land uses in the form of a Mine Closure Plan in early stages to allow for continual improvement and best practice.

### **Ancillary Legislation**

82. Consideration of ancillary legislation which may indirectly affect the proposal:
  - Eg Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This legislation is the Australian Government's central piece of environmental legislation as it provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. It is important for the Proponent to be conscious of secondary and tertiary impacts as well as primary impacts in the initial development application phase. Proponents must referred to the Commonwealth if the proposal may potentially impact on any elements outlined in this Act.

### **Miscellaneous**

83. Any other matter that the Shire considers to be relevant.