

## 10 RESIDUAL RISK ANALYSIS

### 10.1 Approach

The Residual Risk Analysis for the proposed project is based on a process adapted from Australian Standard AS 4369:1999 Risk Management, as well as environmental risk tools developed by other organisations. The process is qualitative and is based on the Residual Risk Matrix shown in **Table 10.1**.

Residual Environmental Risk is assessed on the basis of the significance of environmental effects of the proposed project and the ability to confidently manage those effects to minimise harm to the environment.

The significance of environmental effects is given a numerical value between 1 and 5 based on the receiving environment, the level of understanding of the type and extent of impacts, and community response to the environmental consequences of the project. This enables both the actual and perceived impacts to be considered. The manageability of environmental effects is similarly given a numerical value between 1 and 5 based on the complexity of mitigation measures, the known level of performance of the safeguards proposed, and the opportunity for adaptive management. The numerical value allocated for each issue is based upon the following considerations:

#### **Significance of Effects**

5. *Extreme*

Undisturbed receiving environment; type or extent of impacts unknown; substantial community concern.

4. *High*

Sensitive receiving environment; type or extent of impacts not well understood; high level of community concern.

3. *Moderate*

Resilient receiving environment; type and extent of impacts understood; community interest.

2. *Minor*

Disturbed receiving environment; type and extent of impacts well understood; some local community interest.

1. *Low*

Degraded receiving environment; type and extent of impacts fully understood; uncontroversial project.

#### **Manageability of Effects**

5. *Complex*

Complicated array of mitigation measures required; safeguards or technology are unproven; adaptive management in appropriate.

4. *Substantial*

Significant mix of mitigation measures required; limited evidence of effectiveness of safeguards; adaptive management feasible.

3. *Straightforward*  
Straightforward range of mitigation measures required; past performance of safeguards is understood; adaptive management easily applied.
2. *Standard*  
Simple suite of mitigation measures required; substantial track record of effectiveness of safeguards; adaptive management unlikely to be required.
1. *Minimal*  
Little or no mitigation measures required; safeguards are standard practice; adaptive management not required,

The numbers are added together to provide a result which provides a ranking of potential residual effects of the project when the safeguards identified in this EA are implemented. **Table 10-1** demonstrates the Residual Risk Matrix.

**Table 10-1: Residual Risk Matrix**

Significance of Effects	Manageability of Effects				
	5 Complex	4 Substantial	3 Straightforward	2 Standard	1 Minimal
1 Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

## 10.2 Analysis

The analysis of residual environmental risk for issues related to the proposed project is shown in **Table 10-2**. This analysis indicates the environmental risk profile for the proposed project based on the assessment of environmental effects, the identification of appropriate safeguards, and the SoC shown in this EA.

**Table 10-2: Risk Profile**

Issue	Significance	Manageability	Residual Risk
Air Quality	3	3	Medium (6)
Noise and Vibration	2	3	Low/Medium (5)
Social	2	2	Low/Medium (4)
Land Use	1	2	Low (3)
Traffic	2	2	Low/Medium (4)
Water	2	3	Low/Medium (5)

Issue	Significance	Manageability	Residual Risk
Soil	2	3	<b>Low/Medium (5)</b>
Hazard and Risk	2	3	<b>Low/Medium (5)</b>
Flora and Fauna	1	1	<b>Low (2)</b>
Heritage	1	1	<b>Low (2)</b>
Economic	1	1	<b>Low (2)</b>

The above residual risk analysis indicates that the proposed remediation facility presents an overall low to medium risk in relation to each of the identified environmental issues, provided that the recommended mitigation measures are implemented. Whilst there are some low to medium residual risks associated with the project, the risks associated with not undertaking the project and leaving the land in its contaminated state are considered to far outweigh potential risks associated with the remediation works.



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