

Local Planning Scheme 4 Amendment 1 - Benthic Communities and Habitats Risk Assessment



Potential Impact and Risk	Project Phase	Inherent Risk			Controls and/or Management Measures	Residual Risk			Rationale for rating
		Likelihood on Receptor	Consequence on Receptor	Risk		Likelihood on Receptor	Consequence on Receptor	Risk	
Direct loss of BCH during launchway construction	Construction	Almost Certain	Minor	High	Design of launchway to minimise footprint. Pre-fabrication of concrete panels to reduce seabed disturbance during construction	Almost Certain	Insignificant	Low	BCH to be impacted (Soft sediment, Reef with macroalgae and Pavement reef) are well represented at a local and regional scale. Residual consequence decreased after taking into account prefabrication of panels which will reduce direct impacts. Colonisation of the launchway structure will return ecosystem structure and function within the footprint area.
Loss or degradation of BCH representing marine fauna habitat (e.g. breeding and or foraging habitat) due to launchway construction	Operations	Possible	Insignificant	Low	Deployment of silt curtain(s) Construction material to be screened and washed to remove 'fines' Visual observations of turbidity Cease turbidity generating activities (if required)	Possible	Insignificant	Low	Localised and short-term impacts to BCH. Following management, impacts expected to be reversible and limited to within 50m of launchway footprint. BCH within this area does not represent habitat important to conservation significant fauna. Impacts to BCH are expected to be short-term (<1 year). Residual consequence decreased after taking into account use of silt curtain(s) and temporary cessation of construction, if required, to minimise impacts to BCH.
Reduction in abundance of commercial and recreational fishing species due to loss of habitat and/or changes in marine water quality	Operations	Likely	Minor	Moderate	Siting of launchway and Bundle track to minimise impacts Design of launchway to minimise footprint Deployment of silt curtain(s) Construction material to be screened and washed to remove 'fines' Visual observations of turbidity Cease turbidity generating activities (if required)	Unlikely	Insignificant	Low	Localised and short-term impacts to BCH. Following management, impacts expected to be reversible and limited to within 50m of launchway footprint. BCH within this area does not represent habitat important to commercial and recreational fishing species. Given the limited extent of turbidity impacts and short construction duration, no reduction in abundance of commercial and recreational fishing species as a result of changes in water quality is expected. Residual consequence decreased after taking into account management of water quality including use of silt curtain(s) and temporary cessation of construction if required.
Indirect loss or degradation of BCH due to turbidity created during launchway construction	Operations	Possible	Minor	Moderate	Deployment of silt curtain(s) Construction material to be screened and washed to remove 'fines' Visual observations of turbidity Cease turbidity generating activities (if required)	Unlikely	Insignificant	Low	Localised and short-term loss of BCH. Following management, impacts expected to be reversible and limited to within 50m of launchway footprint. Residual consequence decreased after taking into account management of water quality including use of silt curtain(s) and temporary cessation of construction if required.
Indirect loss of BCH due to altered water flows and sediment movement as a result of the presence of the launchway	Operations	Possible	Insignificant	Low	Monitoring of shoreline change Sand bypassing	Unlikely	Insignificant	Low	No significant changes to local wave or current conditions are expected. Impacts will be limited to potential sediment accretion over pavement reef to the north of the launchway and potential erosion of perched beaches to the south. These areas do not support flora or fauna. Residual impact takes account of sand bypassing to maintain the natural sand movement from north to south along Heron Point, leading to a reduced likelihood of impacts to BCH.
Impacts to BCH as a result of maintenance or removal of the launchway	Closure	Possible	Minor	Moderate	Deployment of silt curtain(s) Visual observations of turbidity Cease turbidity generating activities (if required)	Possible	Insignificant	Low	Localised and short-term loss of BCH. Following management, impacts expected to be reversible and limited to within 50m of launchway footprint. Residual consequence decreased after taking into account management of water quality including use of silt curtain(s) and temporary cessation of construction if required.

Risk matrix based on DMIRS 2016 (Guideline for Mining Proposals in WA)

		Consequences				
		Insignificant	Minor	Moderate	Major	Severe
Likelihood	Rare	Low	Low	Low	Moderate	Moderate
	Unlikely	Low	Low	Moderate	Moderate	High
	Possible	Low	Moderate	Moderate	High	High
	Likely	Low	Moderate	High	Extreme	Extreme
	Almost Certain	Low	High	High	Extreme	Extreme

Table 38: Likelihood Definitions

Descriptor	Explanation
Rare	May occur in exceptional circumstances (would be considered highly unusual); may occur in the next 30-40 years (<5% per year).
Unlikely	Not likely to occur; may occur within the next 10-20 years (5%-10% probability).
Possible	May occur within 5-10 years (10%-50% probability).
Likely	Known to occur or has occurred in the past; is likely to occur in the next 24-36 months (50-80% probability).
Almost Certain	Expected to occur in the next 12-24 months (80-100% probability).

Consequence definitions adapted from DMIRS (2016) for 'Flora and Vegetation' and 'Terrestrial Fauna' factors

Environmental Factor		Insignificant 1	Minor 2	Moderate 3	Major 4	Extreme 5
Approvals		Minor administrative matter.	Potentially reportable event of some environmental significance.	Reportable event of considerable environmental	Significant non compliance that is close to the Company's limit of ability to rectify.	Forces Company into Bankruptcy.
Biodiversity / BCH / Marine Fauna / Ecosystem	Benthic Communities and Habitat (BCH)	Localised and short term decrease in health, abundance and structure of BCH that are well represented in the region.	Localised and medium term decrease in health, abundance and structure of BCH that are well represented in the region.	Localised and long term decrease in health, abundance and structure of BCH that are not well represented in the	Widespread and medium term decrease in health, abundance and structure of BCH that are not well represented in the	Permanent loss of BCH that are not well represented in the region.
		No direct loss of high value/restricted BCH in Development Envelope although increased stress incurred through indirect or induced processes.	Minor, localised loss of high value/restricted BCH either through direct, indirect or induced processes.	Regional loss of high value/restricted BCH with no impacts on species survival.	Project places significant pressure on continued survival of high value/restricted BCH.	Project results in complete removal of high value/restricted BCH on a regional scale.
		Manageable, localised IMP infestation that does not result in competition with native species.	Manageable, localised IMP infestation that results in minor competition with native species.	Localised IMP infestation that results in competition with native species requiring considerable management/control measures.	Regional IMP infestation that results in competition with native species requiring extensive management/control measures.	Uncontrollable regional IMP infestation that results in competition with native species.
	Marine Fauna	Localised and short term loss of habitat (including that of conservation significant species) that is well represented in the region, overall habitat area remains intact with minimal fragmentation.	Localised and medium term loss of habitat (including that of conservation significant species) that is well represented in the region, some short term habitat fragmentation.	Localised and permanent or widespread and long term loss of habitat (including that of conservation significant species) that is not well represented in the region, medium term habitat fragmentation.	Permanent and widespread loss of habitat (including that of conservation significant species) that is not well represented in the region, permanent habitat fragmentation.	Permanent loss and fragmentation of habitat (including that of conservation significant species) that is not well represented in the region.
		Some displacement of fauna that has no lasting effects on population viability or abundance.	Some displacement of fauna that has short term effects on population viability or abundance.	Displacement of fauna that has medium term effects on population viability or abundance.	Displacement of fauna that puts populations at risk of local extinction.	Fauna displacement leads to extinction of species on a regional scale.
	No measurable impacts to behaviour of fauna in local area.	Short term impact to behaviour of fauna in local area.	Medium term impact to behaviour of fauna in local area.	Long term and widespread impact to behaviour of fauna.	Permanent change to behaviour of fauna in the regional area.	
	Localised and short-term decrease in fauna abundance (including conservation significant fauna) occurring in the Development Envelope.	Localised and long-term or widespread, and short-term decrease in fauna abundance (including conservation significant fauna) within the Development Envelope.	Localised and irreversible or widespread and long-term decrease in fauna abundance (including conservation significant fauna).	Significant, widespread, and persistent decrease in fauna abundance (including conservation significant fauna).	Permanent loss of a significant portion of fauna population (including conservation significant fauna).	
	Minor increase in pest species numbers, but does not result in impacts to the population viability or abundance of native species.	Minor increase in pest species numbers, resulting in localised impacts to the population viability or abundance of native species.	Major increase in pest species numbers, resulting in widespread impacts to the population viability or abundance of native species.	Pest species introduced and populations expand into the regional area resulting in long term exclusion of native species.	Pest species introduced and populations expand into the regional area resulting in permanent exclusion of native species.	