SUMMARY AND COMPARISON OF RISK ASSESSMENT FOR POTENTIAL IMPACTS TO MNES FROM ONSHORE AND OFFSHORE DREDGE SPOIL DISPOSAL OPTIONS

The following tables present a summary and comparison of the risk assessments examining potential impacts to MNES from the onshore and offshore dredge spoil disposal options. It includes analysis of onshore impacts that were identified during the tender process conducted to implement the approved onshore disposal method.

Table 1 outlines the common potential impacts shared by both disposal options. Tables 2 and 3 outline and compare the potential direct and indirect impacts, respectively. From this analysis, it is clear that the onshore disposal option exposes the project to more direct and indirect impacts than offshore disposal. The inherent and residual risk rating for the onshore disposal option is also higher than the offshore disposal option.

Table 1: Potential impact to MNES that are <u>common</u> to the onshore and offshore dredge spoil disposal options

Direct Impacts	**Inherent Risk Rating**	**Residual Risk Rating**
Injury and/or death of MNES marine fauna via **v**essel strike (i.e. dredge vessel)	Medium	Low
Injury or alteration of MNES marine fauna behaviour via noise impacts from the dredge vessel	Medium	Low
Light spill to the marine environment could lead to alteration of MNES marine fauna behaviour	Medium	Low
Indirect Impacts		
Decline in health and/or loss of MNES marine fauna habitat via introduced marine pests (IMPs)	Medium	Low

Table 2: Summary and Comparison of Potential Direct Impacts on MNES from Offshore Dredge Spoil Disposal versus Onshore Dredge Spoil Disposal

Offshore Dredge Spoil Disposal			Onshore Dredge Spoil Disposal		
Direct Impacts	**Inherent Risk Rating**	**Residual Risk Rating**	**Direct Impacts**	**Inherent Risk Rating**	**Residual Risk Rating**
Impacts to MNES resulting from the loss of BCH/ MNES marine fauna habitat from disposal of dredge spoil within DMPA4	Medium	Low	Impacts to MNES resulting from the loss of MNES terrestrial habitat within the disturbance footprint for the construction and operation of the land disposal area	High	High
Dredge spoil disposal (dumping) operations could increase the risk of disturbance, injury or death to MNES marine fauna if in the vicinity of the barge during disposal activities	Low	Low	Impacts to MNES resulting from the decline in health and/or loss of MNES marine and terrestrial fauna habitat through smothering by dredge spoil due to leakage and/or rupture of up to 9km of slurry pipeline	Severe	High
			Impacts to MNES resulting from alteration to marine environmental quality via increased sediment due to leakage and/or rupture of up to 9km of slurry pipeline	Severe	High
			Impacts to MNES resulting from alteration to marine environmental quality via hydrocarbon spills during refuelling of booster pumps for the slurry pipeline	Severe	High
			Impacts to MNES resulting from the decline in health and/or loss of MNES marine and terrestrial fauna habitat via hydrocarbon spills during refuelling of booster pumps for the slurry pipeline	Severe	High
			Impacts to MNES resulting from loss of MNES marine fauna habitat from the physical disturbance for installation of anchors required to secure the slurry pipeline and booster pumps	High	Medium
			Injury and/or death of MNES marine fauna via entanglement in slurry pipeline and/or anchor points for the booster pumps	Medium	Low

Table 3: Summary and Comparison of Potential Indirect Impacts on MNES from Offshore Dredge Spoil Disposal versus Onshore Dredge Spoil Disposal

Offshore Dredge Spoil Disposal			Onshore Dredge Spoil Disposal		
Indirect Impacts	**Inherent Risk Rating**	**Residual Risk Rating**	**Indirect Impacts**	**Inherent Risk Rating**	**Residual Risk Rating**
Impacts to MNES resulting from the permanent and temporary loss of BCH/ MNES marine fauna habitat from disposal of dredge spoil within ZoHI and ZoMI, respectively	Low	Low	Impacts to MNES resulting from the declined health and/or loss of MNES fauna habitat via impacts from airborne dust blown from the dewatered dredge spoil stockpile in the land disposal area	High	Medium
Impacts to use of the water column by MNES marine fauna due to sedimentation and decreased water quality	Medium	Low	Impacts to MNES resulting from the declined health and/or loss of MNES terrestrial fauna habitat via altered groundwater quality from the seepage of water from the dredge spoil stockpile in the land disposal area	Medium	Low
			Impacts to MNES resulting from the declined health and/or loss of MNES marine and terrestrial fauna habitats through smothering with dredge spoil material due to structural integrity failure of the containment bund	Severe	High
			Impacts to MNES resulting from increased emissions from fuel burning for the booster pumps on the slurry pipeline, and for the boat required to refuel the booster pumps	Medium	Medium
			Impact to MNES resulting from the decline and/or loss of MNES marine and terrestrial fauna habitats due to mobilisation of dredge spoil sediments into tidal creeks and sensitive nearshore environments during severe weather events (e.g. cyclones).	High	Medium