

Risk Register and Action Plan																										
Risk No.	Phase					Project Activity	Study Area	Event description / Potential Impact	MNES Relevance						Category 2	Initial			Mitigation Measures/Risk Treatment	After			Confidence	Initial Risk	After treatment risk	Comments
	Construction of containment pond	Dredge pipeline assembly/installation	Dredging	Post dredging management	Establishment of the final landform				Threatened species and ecological communities	Migratory species	the Great Barrier Reef World Heritage Property	the Great Barrier Reef National Heritage Place	the Great Barrier Reef Marine Park	Commonwealth marine areas		Consequence	Likelihood	Initial Risk		Consequence	Likelihood	After treatment risk				
1	x					Footprint clearing and topsoil stripping	Terrestrial ecology	Increased dust depositing on plants and dust concentrations affecting fauna	x	x	x					Moderate	Moderate	High	Design sets back DMCP footprint from wetland vegetation. Wet down (for dust control) of stockpiles, working areas and roads.	Minor	Unlikely	Low	Med	High	Low	
2	x					Footprint clearing and topsoil stripping	Terrestrial ecology	Removal of threatened plants, TECs and habitat for threatened flora	x	x	x					Moderate	Moderate	High	Map MNES and design Project footprint to avoid and/or minimise impacts.	Minor	Unlikely	Low	High	High	Low	
3	x					Footprint clearing and topsoil stripping	Terrestrial ecology	Increased noise disturbing fauna including migratory shorebirds in wetland	x	x	x					Minor	Moderate	Moderate	Design setback DMCP footprint from wetland vegetation (habitat). Project design utilised noise modelling results to predict disturbance areas (which are taken into consideration in the "After treatment risk levels")	Minor	Unlikely	Low	High	Moderate	Low	
4	x					Footprint clearing and topsoil stripping	Terrestrial ecology	Human activity disturbing fauna including migratory shorebirds in wetland	x	x	x					Minor	Moderate	Moderate	Set back Project Area from wetland edge and restrict access to this zone during works	Minor	Unlikely	Low	High	Moderate	Low	
5	x					Earthworks including embankment preparation	Terrestrial ecology	Increased dust depositing on plants and dust concentrations affecting fauna	x	x	x					Moderate	Likely	High	Design sets back DMCP footprint from wetland vegetation. Wet down (for dust control) of stockpiles, working areas and roads.	Minor	Unlikely	Low	Med	High	Low	
6	x					Earthworks including embankment preparation	Terrestrial ecology	Increased noise disturbing fauna including migratory shorebirds in wetland	x	x	x					Moderate	Moderate	High	Design setback DMCP footprint from wetland vegetation (habitat). Project design utilised noise modelling results to predict disturbance areas (which are taken into consideration in the "After treatment risk levels")	Minor	Unlikely	Low	High	High	Low	
7	x					Earthworks including embankment preparation	Terrestrial ecology	Human activity disturbing fauna including migratory shorebirds in wetland	x	x	x					Minor	Moderate	Moderate	Design sets back DMCP from wetland vegetation (habitat). Restrict access to this zone during works	Minor	Unlikely	Low	High	Moderate	Low	Unlikely during dredging campaign as material is wet and seawater provides neutralising capacity.
8	x					Earthworks including embankment preparation	Terrestrial ecology	Disturbance of Acid Sulphate Soils (ASS)	x	x	x					Minor	Moderate	Moderate	Design mitigation included undertaking soil testing and development of preliminary ASS Management Plan (Testing indicates soils are non-PASS). Final ASS management Plan to be developed and implemented.	Minor	Unlikely	Low	High	Moderate	Low	
9	x					Traffic movements	Terrestrial ecology	Vehicle strike on fauna including shorebirds or traffic-related disturbance of habitat	x	x	x					Moderate	Moderate	High	Use of designated routes and speed limits	Minor	Rare	Low	High	High	Low	
10	x					Nightwork	Terrestrial ecology	Disturbance of fauna or wetland habitat by light spill	x	x	x					Minor	Moderate	Moderate	Use of directional lighting, set back Project Area from wetland edge	Minor	Unlikely	Low	High	Moderate	Low	
11	x					Footprint clearing and topsoil stripping	Aquatic ecology	Direct loss of wetland vegetation leading to loss/impairment of functional values supported by the Wetlands			x	x	x			Moderate	Rare	Moderate	Vegetated buffer, measures to ensure no unintended clearing outside approved footprint	Minor	Rare	Low	High	Moderate	Low	
12	x					Footprint clearing and topsoil stripping	Aquatic ecology	Increased sediment and nutrient loading into the Wetlands due to construction activities leading to degradation/loss of aquatic habitats, flora and fauna			x	x	x			Moderate	Unlikely	Moderate	Sediment erosion controls, maintenance of a buffer between the site works and the Wetlands	Moderate	Rare	Moderate	Med	Moderate	Moderate	
13	x					Earthworks including embankment preparation	Aquatic ecology	Increased sediment and nutrient loading into the Wetlands due to construction activities leading to degradation/loss of aquatic habitats, flora and fauna			x	x	x			Moderate	Unlikely	Moderate	Sediment erosion controls, maintenance of a buffer between the site works and the Wetlands	Moderate	Rare	Moderate	Med	Moderate	Moderate	
14	x					Footprint clearing and topsoil stripping	Aquatic ecology	Accidental contaminant spills (hydrocarbons) leading to degradation/loss of aquatic flora and fauna			x	x	x			Moderate	Rare	Moderate	Standard measures to minimise the likelihood of spillage, clean-up measures etc.	Moderate	Rare	Moderate	Med	Moderate	Moderate	
15	x					Earthworks including embankment preparation	Aquatic ecology	Disturbance of acid sulfate soils leading to acid waters and increased metals in surface water runoff, leading to degradation/loss of aquatic flora and fauna			x	x	x			Minor	Rare	Low	Minimise disturbance to topsoil, liming where necessary	Minor	Rare	Low	High	Low	Low	
16	x					Footprint clearing and topsoil stripping	Aquatic ecology	Introduction of new weeds during construction, or establishing habitats preferred by weed species, leading to modifications to aquatic vegetation			x	x	x			Moderate	Unlikely	Moderate	Vegetated buffer, measures to ensure no unintended clearing outside approved footprint, weed monitoring, weed control	Minor	Rare	Low	Med	Moderate	Low	
17	x					Earthworks including embankment preparation	Aquatic ecology	Introduction of new weeds during construction, or establishing habitats preferred by weed species, leading to modifications to aquatic vegetation			x	x	x			Moderate	Unlikely	Moderate	Vegetated buffer, measures to ensure no unintended clearing outside approved footprint, weed monitoring, weed control	Minor	Rare	Low	Med	Moderate	Low	
18	x					Footprint clearing and topsoil stripping	Aquatic ecology	Creation of habitat conditions favouring feral and pest animals, resulting in impacts to wetland flora and fauna			x	x	x			Minor	Unlikely	Low	Rehabilitation of disturbed areas, standard house keeping	Minor	Rare	Low	Med	Low	Low	

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19	x					Footprint clearing and topsoil stripping	Aquatic ecology	Loss of vegetated buffer to the Wetlands, resulting in adverse effects to water quality ecosystem services				x	x	x				Minor	Likely	Moderate	Rehabilitation of disturbed areas	Minor	Moderate	Moderate	Med	Moderate	Moderate	
20	x	x				Footprint clearing and topsoil stripping	Soils and contaminated land	Inappropriate management of contaminated soils leading to land contamination of the site										Minor	Moderate	Moderate	Induction package. Complete a Detailed Site Investigation (DSI) to investigate potential existing sources of contaminated land identified in the Preliminary Site Investigation (PSI).	Minor	Unlikely	Low	High	Moderate	Low	
21	x	x				Footprint clearing and topsoil stripping	Soils and contaminated land	Inappropriate management of ASS leading to land contamination of the site										Minor	Moderate	Moderate	ASS Management Plan. Induction package.	Minor	Unlikely	Low	High	Moderate	Low	
22		x				Pipeline assembly	Terrestrial ecology	Indirect effects on SEVT TEC from pipeline installation and removal	x	x	x							Minor	Unlikely	Low	Weed and pest control, fire mitigation strategies, mark off areas to be cleared	Minor	Rare	Low	High	Low	Low	
23		x				Footprint clearing and topsoil stripping	Terrestrial ecology	Disturbance of fauna and indirect impacts from clearing for pipeline alignment establishment	x	x	x							Minor	Unlikely	Low	Selection of alignment that is already mostly cleared, mark off areas to be cleared, pre-clearance survey	Minor	Rare	Low	High	Low	Low	
24		x				Pipeline assembly and installation	Marine ecology	Injury or mortality of marine fauna due to boat traffic	x		x							Minor	Rare	Low	Implement a Vessel Traffic Management Plan	Insignificant	Unlikely	Low	High	Low	Low	
25		x				Pipeline assembly and installation	Marine ecology	Direct impact to benthic ecology due to pipeline laying on seafloor	x		x							Minor	Unlikely	Low	Proposed pipeline route intersects with only 0.43ha of potential seagrass habitat Pipeline anchored securely to seafloor	Insignificant	Unlikely	Low	High	Low	Low	
26		x				Pipeline assembly and installation	Marine ecology	Introduction of marine pests and diseases	x	x	x	x	x	x				Minor	Rare	Low	A detailed risk assessment procedure consistent with the National System for the Prevention and Management of Marine Pest Incursions Guidelines will be implemented to deal with the risk associated with introduction of IMS.	Insignificant	Unlikely	Low	High	Low	Low	
27		x				Pipeline assembly and installation	Marine ecology	Displacement of fauna from habitat due to underwater noise	x					x				Minor	Unlikely	Low	Noise modelling undertaken based on the proposed dredge and support vessels predict no displacement of marine fauna in relation to dredging activities, pipeline installation underwater noise will be much less than the noise associated with dredging - no mitigation measures proposed	Insignificant	Unlikely	Low	High	Low	Low	Results of acid sulfate soil (ASS) sampling did not identify the presence of potential ASS (PASS) or actual ASS (AASS) within the DMCPs area to a depth of 5 m below ground level (mbgl). If the DMCPs area is changed, extends further than 5 mbgl or dewatering of the excavation during construction is undertaken additional ASS assessment will be required. Potential
28		x	x	x	x	Pond operation	Aquatic ecology	Accidental contaminant spills (hydrocarbons) leading to degradation/loss of aquatic flora and fauna				x	x	x				Moderate	Rare	Moderate	Standard measures to minimise the likelihood of spillage, clean-up measures etc.	Moderate	Rare	Moderate	Med	Moderate	Moderate	
29			x			Offshore dredging activities	Marine ecology	Injury / mortality of fauna due to dredging	x	x	x	x	x	x				Minor	Unlikely	Low	CSD is not mobile and is slow moving. Visual monitoring for marine fauna in immediate vicinity of dredge. Implement a Vessel Traffic Management Plan	Minor	Rare	Low	High	Low	Low	
30			x			Nightwork	Terrestrial ecology	Disturbance of fauna or wetland habitat by light spill	x	x	x							Minor	Moderate	Moderate	Use of directional lighting, set back Project Area from wetland edge	Minor	Unlikely	Low	High	Moderate	Low	
31			x			Traffic movements	Terrestrial ecology	Vehicle strike on fauna including shorebirds or traffic-related disturbance of habitat	x	x	x							Moderate	Unlikely	Moderate	Use of designated routes and speed limits	Minor	Rare	Low	High	Moderate	Low	
32			x			Offshore dredging activities	Marine ecology	Direct impact to benthic ecology due to removal of habitat	x		x							Minor	Unlikely	Low	Restrict dredging to locations specified on approved drawings.	Minor	Unlikely	Low	High	Low	Low	
33			x			Offshore dredging activities	Marine ecology	Smothering of benthic ecology in areas adjacent to dredging (sediment plume drift)	x		x							Minor	Unlikely	Low	Use of the CSD type dredger means sediment deposition is limited to areas within the dredge footprint and within 50-100m of the footprint. Predicted bed thickness is not considered sufficient to impact upon the benthic ecology (<5mm deep - see Section 6.2.5).	Minor	Rare	Low	High	Low	Low	
34			x			Offshore dredging activities	Marine ecology	Mobilisation of sediment resulting in turbidity plumes potentially affecting light dependent species, filter feeders and having potential flow on effects to higher trophic groups	x	x	x	x	x	x				Moderate	Unlikely	Moderate	Use of CSD type dredger reduces mobilisation of fine sediment, dredging duration is limited (6-13 weeks). Implement a Receiving Environment Management Plan	Minor	Unlikely	Low	High	Moderate	Low	
35			x			Offshore dredging activities	Marine ecology	Displacement of fauna from habitat due to underwater noise	x	x	x	x	x	x				Minor	Unlikely	Low	Noise modelling undertaken based on the proposed dredge and support vessels predict no displacement of marine fauna in relation to dredging activities - no mitigation measures proposed	Minor	Unlikely	Low	High	Low	Low	
36			x			Offshore dredging activities	Marine ecology	Lighting impacts on marine fauna behaviour	x	x	x	x	x	x				Minor	Unlikely	Low	Light spill minimised, dredging occurring well offshore from nesting turtles and turtle hatching areas	Minor	Unlikely	Low	High	Low	Low	
37			x			Offshore dredging activities	Marine ecology	Release of contaminants into the water (wastes / chemical spill from dredge or tender vessels)	x	x	x	x	x					Minor	Unlikely	Low	Implement waste and pollution management plans. Mitigation measures will include: All domestic, toxic, and hazardous wastes, oils and petroleum hydrocarbons, empty drums and other containers, and any other waste materials will be collected, handled, stored, and disposed of in accordance with existing Port of Abbot Point waste management policies and procedures. Any materials or objects dropped onto the seabed will be recovered.	Minor	Unlikely	Low	High	Low	Low	

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38			x		Offshore dredging activities	Marine ecology	Introduction of marine pests and diseases	x	x	x	x	x	x	Minor	Unlikely	Low	A detailed risk assessment procedure consistent with the National System for the Prevention and Management of Marine Pest Incursions Guidelines will be implemented to deal with the risk associated with introduction of IMS.	Minor	Unlikely	Low	High	Low	Low
39			x		Offshore dredging activities	Marine ecology	Mobilisation of sediment resulting in changes to chemical signature of water (nutrients, pH, heavy metals and metalloids)	x	x	x	x	x	x	Minor	Unlikely	Low	The sediment released into the water column by the action of dredging are deemed suitable for ocean disposal.	Minor	Unlikely	Low	High	Low	Low
40			x		Return water discharges	Marine ecology	Smothering of benthic ecology in areas adjacent to dredging (sediment plume drift)	x	x	x	x	x	Minor	Unlikely	Low	The fines sediments released are quickly dissipated and drift away from the discharge point. Sediments may collect in areas to the west of Abbot Point, however the predicted bed thickness is not considered sufficient to impact upon the benthic ecology (<5mm deep – see Section 6.2.5). Implement a Receiving Environment Management Plan	Minor	Rare	Low	High	Low	Low	
41			x		Return water discharges	Marine ecology	Mobilisation of sediment resulting in turbidity plumes potentially affecting light dependent species, filter feeders and having potential flow on effects to higher trophic groups	x	x	x	x	x	Minor	Unlikely	Low	The fines sediments released are quickly dissipated and drift away from the discharge point. Implement a Receiving Environment Management Plan	Minor	Rare	Low	High	Low	Low	
42			x		Return water discharges	Marine ecology	Mobilisation of sediment resulting in changes to chemical signature of water (nutrients, pH, heavy metals and metalloids)	x	x	x	x	x	Minor	Unlikely	Low	Implement an ASS Management Plan for the dredged sediments. Implement a Receiving Environment Management Plan which includes monitoring sites for a range of chemical and physicochemical water quality parameters at nearby sensitive receptors beyond the discharge point	Minor	Unlikely	Low	High	Low	Low	
43			x		Pond Operation	Groundwater	Saline discharge to groundwater from DMCP, potential medium/long term adverse impact upon groundwater quality.						Minor	Unlikely	Low	Groundwater bores adjacent to the wetland have identified groundwater salinity levels 1.5 to 2.5 times seawater concentration. Wetlands are periodically inundated with seawater (king tides and storm surges) and rainfall runoff. Natural variability provides capacity and resilience to deal with temporary seawater input from dredge placement - no mitigation measure is proposed.	Minor	Unlikely	Low	High	Low	Low	
44			x		Pond Operation	Groundwater	Oxidation of PASS dredged material leads to generation of acidic seepage						Major	Rare	Moderate	Dredged material is expected to be self neutralising. Seawater present during the dredging phase has neutralising effect. ASSMP outlines appropriate management measures	Minor	Rare	Low	med	Moderate	Low	
45			x	x	Pond Operation	Groundwater	Dredged material contains metals and metalloids and/or organic compounds and potential adverse impact on groundwater quality						Moderate	Rare	Moderate	112 metal and metalloids samples and 69 organic compound samples tested. Results low to negligible concentrations in some samples, vast majority of sample results below NAGD screening levels - no mitigation measure is proposed.	Minor	Rare	Low	High	Moderate	Low	
46			x	x	Pond operation	Aquatic ecology	Seepage of saline dredge pond water to areas supporting salt couch (intolerant of prolonged waterlogging and high salinity), leading to loss of vegetation and impairment of functional values supported by the Wetlands			x	x	x	Moderate	Unlikely	Moderate	Installation of stormwater discharge points remote from large salt couch meadows, rehabilitation of any affected areas post operation	Moderate	Rare	Moderate	Low	Moderate	Moderate	
47			x	x	Pond operation	Aquatic ecology	Seepage of saline dredge pond water directly to the Wetlands but not into salt couch areas, leading to increased saline waters within the Wetlands			x	x	x	Minor	Rare	Low	None	Minor	Rare	Low	Med	Low	Low	
48			x	x	Pond operation	Aquatic ecology	Overflow of pond resulting in waters discharging to the Wetlands, resulting in scour and possibly loss of littoral vegetation			x	x	x	Moderate	Rare	Moderate	Erosion and sediment control measures and design principles, including suitable erosion protection or energy dissipater immediately downstream of the spillway	Minor	Rare	Low	Med	Moderate	Low	
49				x	Earthworks including embankment preparation	Terrestrial ecology	Modification of surface water and groundwater flows from pond embankments	x	x	x			Moderate	Rare	Moderate	Development and implementation of Stormwater Management Plan. DMCP design minimises changes to existing surface water flows.	Minor	Rare	Low	High	Moderate	Low	
50				x	Earthworks including embankment preparation	Terrestrial ecology	Embankment failure, leading to spill of dredged material onto adjacent ecological values	x	x	x			Moderate	Rare	Moderate	Use of accepted engineering design principles and on site project management of construction works	Minor	Rare	Low	High	Moderate	Low	
51				x	Pond Operation	Groundwater	Oxidation of PASS dredged material leading to generation of acidic seepage						Severe	Unlikely	High	Dredged material is expected to be self neutralising. ASSMP outlines appropriate management measures.	Minor	Rare	Low	med	High	Low	
52				x	Traffic movements	Terrestrial ecology	Vehicle strike on fauna including shorebirds or traffic-related disturbance of habitat	x	x	x			Moderate	Rare	Moderate	Use of designated routes and speed limits	Minor	Rare	Low	High	Moderate	Low	

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53				x		Pond Operation	Groundwater	Post dredging operation and management of the DMCP, medium /long term potential adverse impacts on receiving environment groundwater quality due to rainfall infiltration of stored dredged material (residual salinity, metals etc).	x	x	x							Major	Unlikely	Moderate	Development and implementation of operation and decommissioning phase groundwater quality monitoring program will allow early detection and need for remediation.	Minor	Rare	Low	High	Moderate	Low
54					x	Earthworks including embankment preparation	Terrestrial ecology	Increased dust depositing on plants and dust concentrations affecting fauna	x	x	x							Moderate	Moderate	High	Design sets back DMCP footprint from wetland vegetation. Wet down (for dust control) of stockpiles, working areas and roads.	Minor	Unlikely	Low	Med	High	Low
55					x	Earthworks including embankment preparation	Terrestrial ecology	Increased noise disturbing fauna including migratory shorebirds in wetland	x	x	x							Minor	Moderate	Moderate	DMCP set back from wetland vegetation (habitat).	Minor	Unlikely	Low	High	Moderate	Low
56					x	Earthworks including embankment preparation	Terrestrial ecology	Human activity disturbing fauna including migratory shorebirds in wetland	x	x	x							Minor	Moderate	Moderate	DMCP set back from wetland vegetation (habitat). Restrict access to this zone during works	Minor	Unlikely	Low	High	Moderate	Low
57					x	Traffic movements	Terrestrial ecology	Vehicle strike on fauna including shorebirds or traffic-related disturbance of habitat	x	x	x							Moderate	Unlikely	Moderate	Use of designated routes and speed limits	Minor	Rare	Low	High	Moderate	Low
58	x	x	x	x	x	All	Soils and contaminated land	Inappropriate storage and disposal of oils, chemical and waste leading to a) land and potentially water contamination and b) reduced landfill space.									Minor	Moderate	Moderate	Implement EMP measures Oil Chemical and waste management	Minor	Unlikely	Low	High	Moderate	Low	
59	x	x	x	x	x	All	Greenhouse gas and climate change	Project activities leading to increased greenhouse gas emissions and adverse impact on climate change									Minor	Almost certain	Moderate	Assessment of construction techniques to improve fuel efficiency. Source material locally where practical. Consider switching to LED lighting for nightwork.	Insignificant	Almost certain	Moderate	High	Moderate	Moderate	