

Applicable Phase				Domain					Inherent Risk				Mitigated Risk							
ID	Construction	Operations	Closure	1. Roads & Linear Infrastructure	2. Industrial Infrastructure	3. Support Infrastructure	4. Borrow Pits	5. On-playa infrastructure	Environmental Value Affected	Event Description	Potential Impact	Likelihood	Consequence	Risk Rating I	Risk Rating II	Risk Treatment Plan	Likelihood	Consequence	Risk Rating I	Risk Rating II
1	✓			✓					Hydrological processes - surface water	Clearing and ground disturbance for establishment of off-playa infrastructure	Alteration of surface drainage - modification of frequency, velocity, duration, depth or extent of flow	3	3	9	Medium	<ul style="list-style-type: none"> No water will be taken from McKay Creek. Roads and access tracks will be constructed with appropriate surface water drainage structures to minimise impacts on surface water flows. Seasonal flow gauging will be conducted at McKay Creek and Savory Creek to allow calibration and updating of the surface hydrology model 	2	3	6	Medium
2	✓			✓	✓	✓	✓		Soil / sediment quality / stability	Clearing and ground disturbance for establishment of off-playa infrastructure	Alteration of surface drainage - mobilisation of sediment, increased erosion	3	2	6	Medium	<ul style="list-style-type: none"> Site drainage works will be designed and constructed to prevent scouring associated with concentrated surface flows. Appropriately engineered culverts, floodways and bypass structures will be provided where off-playa works traverse drainage lines. 	2	2	4	Medium
3	✓			✓	✓	✓	✓		Terrestrial flora / vegetation	Clearing and ground disturbance for establishment of off-playa infrastructure	Vegetation loss; clearing impacts on conservation significant flora.	2	3	6	Medium	Disturbance of vegetation will be minimized by siting project infrastructure on existing disturbed areas and/or on unvegetated areas, to the extent that this is compatible with other environmental requirements.	1	3	3	Medium
4	✓			✓					Surface water quality	Clearing and ground disturbance for establishment of off-playa infrastructure	Sediment mobilisation affects water quality	3	2	6	Medium	Install temporary settling ponds and silt fences. Use of concrete stabilised fill (sands / gravels) and rock armouring along banks. Install barriers etc from natural resources to impede flows in creek beds. Use of soil binders and erosion fabrics to support seed germination and growth.	2	2	4	Medium
5	✓	✓						✓	Aquatic fauna / fauna habitat	Clearing and ground disturbance for establishment of on-playa infrastructure	Loss of aquatic fauna habitat	5	3	15	High	<ul style="list-style-type: none"> On-playa ponds and waste salt storage will be established on elevated sections of playa that are rarely inundated. Where required, suitable floodways, drains and culverts will be installed to convey flow past on-playa infrastructure and return it to its natural flow path. Implement ponds progressively to allow for adaptive design / management 	5	1	5	Medium
6	✓	✓	✓	✓	✓	✓	✓		Terrestrial fauna / fauna habitat	Clearing and ground disturbance for establishment of off-playa infrastructure	Loss of significant terrestrial fauna habitat	3	4	12	High	<ul style="list-style-type: none"> Implement formal clearing permit procedure Conduct of pre-clearing surveys, with trapping and relocation of fauna and/or postponement of clearing activity if required Implement of feral animal control programme for life of project 	2	4	8	Medium
7	✓			✓	✓	✓	✓		Cultural / heritage values	Clearing and ground disturbance for establishment of off-playa infrastructure	Damage to culturally significant place	3	4	12	High	<ul style="list-style-type: none"> Conduct pre-disturbance surveys with input from Traditional Owners. Seek Section 18 consent if heritage sites cannot be avoided. Implement chance find procedure and other element of Cultural Heritage Management Plan 	2	4	8	Medium

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8	✓			✓	✓	✓	✓		Amenity (noise, visual impact)	Clearing and ground disturbance for establishment of off-playa infrastructure	Aesthetic impact: visual	2	1	2	Low	<ul style="list-style-type: none"> Minimise disturbance of vegetation by siting project infrastructure on existing disturbed areas and/or on unvegetated areas, to the extent that this is compatible with other environmental requirements. During detailed design, the project layout will be systematically reviewed to check for opportunities to consolidate the disturbance footprint so as to further reduce vegetation clearing. 	1	1	1	Low
9	✓			✓	✓	✓	✓		Air quality	Clearing and ground disturbance for establishment of off-playa infrastructure	Air quality impact: dust generation	5	1	5	Medium	<ul style="list-style-type: none"> Water sprays and other conventional dust suppression measures will be implemented if required to reduce dust generation. Speed limits will be established and enforced on designated access roads. 	3	1	3	Low
10	✓			✓	✓	✓	✓		Terrestrial fauna / fauna habitat	Clearing and ground disturbance for establishment of off-playa infrastructure	Transient noise impacts on fauna	4	1	4	Medium	No risk treatment proposed.	4	1	4	Medium
11	✓			✓	✓	✓	✓		Amenity (noise, visual impact)	Clearing and ground disturbance for establishment of off-playa infrastructure	Transient noise impacts on people	3	1	3	Low	No risk treatment proposed.	3	1	3	Low
12	✓	✓	✓					✓	Terrestrial flora / vegetation	Clearing and ground disturbance for establishment of on-playa infrastructure	Vegetation loss; clearing impacts on conservation significant flora.	3	2	6	Medium	<ul style="list-style-type: none"> During detailed design, the project layout will be systematically reviewed to check for opportunities to consolidate the disturbance footprint so as to further avoid conservation significant flora and / or reduce vegetation clearing. An internal clearing permit system will be implemented to ensure that clearing occurs only in approved locations. Pre-clearance targeted surveys for novel/ Priority listed Tecticornia species will be conducted in those riparian zones of the playa which cannot be avoided. 	2	2	4	Medium

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13	✓	✓	✓					✓	Hydrological processes - surface water	Clearing and ground disturbance for establishment of on-playa infrastructure	Alteration of surface drainage - modification of frequency, velocity, duration, depth, or extent of flow	4	4	16	High	<ul style="list-style-type: none"> No on-playa infrastructure will be located within the exclusion area at the mouth of Savory Creek. Pond infrastructure will be developed progressively. Where required, suitable floodways, drains and culverts will be installed to convey flow past on-playa infrastructure and return it to its natural flow path. Brine abstraction rates will be managed so as to limit groundwater drawdown, especially in the riparian zone. Monitoring bores will be established upstream and downstream of on-playa infrastructure to check groundwater drawdown and mounding impacts. Seasonal flow gauging will be conducted at Savory Creek to allow calibration and updating of the surface hydrology model. Routine monitoring of surface water extent / depth during wet season. 	2	4	8	Medium
14	✓	✓	✓					✓	Surface water quality	Clearing and ground disturbance for establishment of on-playa infrastructure	Sediment mobilisation affects water quality	3	2	6	Medium	<ul style="list-style-type: none"> Site drainage works will be designed and constructed to prevent scouring associated with concentrated surface flows Routine monitoring of surface water quality (including turbidity) when water is present. 	2	2	4	Medium
15	✓	✓						✓	Surface water quality	Clearing and ground disturbance for establishment of on-playa infrastructure	Oxidation of excavated sediments results in acidification and mobilisation of metals	2	3	6	Medium	<ul style="list-style-type: none"> A field procedure to enable identification and management of acid sulphate sediments will be developed and implemented. Routine groundwater monitoring will be conducted upstream and downstream of on-playa infrastructure. A supply of neutralising material will be kept on site in case unexpected pockets of acid generating material are encountered during construction 	1	3	3	Medium
16	✓	✓	✓					✓	Terrestrial fauna / fauna habitat	Clearing and ground disturbance for establishment of on-playa infrastructure	Loss of significant wetland fauna habitat: impact on breeding success of banded stilt	4	4	16	High	<ul style="list-style-type: none"> No infrastructure will be developed on islands within the playa and or within the agreed buffer surrounding the islands. Pond infrastructure will be developed progressively. Where required, suitable floodways, drains and culverts will be installed to convey flow past on-playa infrastructure and return it to its natural flow path. Halite will be stored in stockpiles to avoid the need to continuously expand the evaporation pond complex 	2	4	8	Medium
17	✓	✓						✓	Cultural / heritage values	Clearing and ground disturbance for establishment of on-playa infrastructure	Damage to culturally significant place	4	5	20	Extreme	<ul style="list-style-type: none"> All works will be designed and constructed to comply with agreed heritage exclusion areas [ILUA] A Cultural Heritage Management Plan will be developed and implemented in consultation with Traditional Owners. Aboriginal monitors will be present during construction works 	2	5	10	High

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18	✓	✓	✓					✓	Amenity (noise, visual impact)	Clearing and ground disturbance for establishment of on-playa infrastructure	Aesthetic impact: visual	3	2	6	Medium	<ul style="list-style-type: none"> Ponds will be constructed progressively. Halite stockpiles will not exceed a height of 13m. 	2	2	4	Medium
19	✓							✓	Air quality	Clearing and ground disturbance for establishment of on-playa infrastructure	Air quality impact: dust generation	1	1	1	Low	No risk treatment proposed.	2	1	2	Low
20	✓	✓	✓					✓	Terrestrial fauna / fauna habitat	Clearing and ground disturbance for establishment of on-playa infrastructure	Transient noise impacts on fauna	2	1	2	Low	On-playa operations will not be active during major flood events (corresponding to critical breeding periods)	1	1	1	Low
21	✓	✓	✓					✓	Amenity (noise, visual impact)	Clearing and ground disturbance for establishment of on-playa infrastructure	Transient noise impacts on people	1	1	1	Low	No risk treatment proposed.	1	1	1	Low
22	✓	✓	✓					✓	Terrestrial fauna / fauna habitat	Clearing and ground disturbance for establishment of on-playa infrastructure	Vehicle collision - fauna injury or death	3	2	6	Medium	<ul style="list-style-type: none"> Establish a 200m buffer zone (no go zone) between on-playa works and riparian habitat Limit vehicle movements to designated routes Implement and enforce speed limits Closure and rehabilitation of access tracks when no longer required Maintain records of fauna mortality 	1	2	2	Low
23	✓	✓	✓					✓	Terrestrial fauna / fauna habitat	Establishment and operation of on-playa infrastructure	Lake environment habitat value for wetland vertebrates is reduced.	4	4	16	High	<ul style="list-style-type: none"> Implement feral animal control programme to reduce predation/competition on native fauna Land disturbance will be kept to the minimum necessary for development of the project. Infrastructure will be sited preferentially on unvegetated areas or existing disturbed areas. A 200 m buffer zone will be established and maintained between on-playa infrastructure and riparian vegetation. A 200 m buffer zone will be established and maintained between on-playa infrastructure and islands used for breeding by migratory birds Where required, suitable floodways, drains and culverts will be installed to convey flow past on-playa infrastructure and return it to its natural flow path. 	2	4	8	Medium
24	✓	✓	✓					✓	Aquatic fauna / fauna habitat	Establishment and operation of on-playa infrastructure	Habitat for wetland invertebrate fauna is reduced in quality or extent	4	2	8	Medium	<ul style="list-style-type: none"> Land disturbance will be kept to the minimum necessary for development of the project. Infrastructure will be sited preferentially on unvegetated areas or existing disturbed areas. Implement screening procedure to identify and manage acid generating sediments 	2	2	4	Medium

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25	✓	✓	✓					✓	Terrestrial flora / vegetation	Establishment and operation of on-playa infrastructure	Changed hydrology adversely affects health of riparian vegetation	4	3	12	High	<ul style="list-style-type: none"> Land disturbance will be kept to the minimum necessary for development of the project. Infrastructure will be sited preferentially on unvegetated areas or existing disturbed areas. A 200 m buffer zone will be established and maintained between on-playa infrastructure and riparian vegetation. Where required, suitable floodways, drains and culverts will be installed to convey flow past on-playa infrastructure and return it to its natural flow path. Brine abstraction rates will be managed so as to limit groundwater drawdown, especially in the riparian zone. Monitoring bores will be established upstream and downstream of on-playa infrastructure to check groundwater drawdown and mounding impacts. Routine groundwater monitoring, opportunistic surface water monitoring and vegetation health monitoring will be carried out to check that brine abstraction and treatment operations on the Lake Disappointment playa are not significantly impacting the health of riparian vegetation. 	2	3	6	Medium
26	✓	✓	✓					✓	Terrestrial flora / vegetation	Establishment and operation of on-playa infrastructure	Changed hydrology alters composition of riparian vegetation communities.	4	4	16	High	<ul style="list-style-type: none"> Land disturbance will be kept to the minimum necessary for development of the project. Infrastructure will be sited preferentially on unvegetated areas or existing disturbed areas. A 200 m buffer zone will be established and maintained between on-playa infrastructure and riparian vegetation. Where required, suitable floodways, drains and culverts will be installed to convey flow past on-playa infrastructure and return it to its natural flow path. Brine abstraction rates will be managed so as to limit groundwater drawdown, especially in the riparian zone. Monitoring bores will be established upstream and downstream of on-playa infrastructure to check groundwater drawdown and mounding impacts. Routine groundwater monitoring, opportunistic surface water monitoring and vegetation health monitoring will be carried out to check that brine abstraction and treatment operations on the Lake Disappointment playa are not significantly impacting the health of riparian vegetation. 	2	4	8	Medium
27	✓	✓	✓					✓	Soil / sediment quality / stability	Establishment and operation of on-playa infrastructure	Changed surface flow results in increased scouring, erosion or deposition.	3	2	6	Medium	<ul style="list-style-type: none"> Site drainage works will be designed and constructed to prevent scouring associated with concentrated surface flows. Pre- and post-wet season observations of erosion / depotion 	2	2	4	Medium

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28	✓	✓	✓					✓	Terrestrial fauna / fauna habitat	Establishment and operation of on-playa infrastructure	Birds or other wildlife are attracted to area at a time / frequency that differs to usual pattern.	3	2	6	Medium	<ul style="list-style-type: none"> • Impounded brine is too saline to support Artemia or other avian food sources: birds unlikely to establish significant presence • Inspect ponds at least daily during operations and record fauna presence • Maintain fauna injury/mortality records and implement adaptive management if required 	3	2	6	Medium
29	✓	✓	✓					✓	Terrestrial fauna / fauna habitat	Establishment and operation of on-playa infrastructure	Water in ponds unsuitable for wildlife	4	2	8	Medium	<ul style="list-style-type: none"> • Egress matting will be provided to prevent entrapment of fauna in ponds / trenches. • Ponds and trenches will be inspected at least daily for presence of fauna. • Quality of water in ponds will be monitored regularly. 	3	2	6	Medium
30	✓	✓	✓					✓	Terrestrial fauna / fauna habitat	Establishment and operation of on-playa infrastructure	Fauna entrapment in ponds	4	2	8	Medium	<ul style="list-style-type: none"> • Egress matting will be provided to prevent entrapment of fauna in ponds / trenches. • Ponds and trenches will be inspected at least daily for presence of fauna. 	3	2	6	Medium
31		✓	✓					✓	Surface water quality	Loss of containment: overtopping or embankment failure of evaporation ponds.	Release of salt to lake surface: impact on water quality	3	2	6	Medium	<ul style="list-style-type: none"> • Brine ponds will be designed and constructed to minimise seepage losses and prevent overtopping. 	1	2	2	Low
32		✓	✓					✓	Soil / sediment quality / stability	Loss of containment: overtopping or embankment failure of evaporation ponds.	Release of salt to lake surface: impact on soil quality	3	2	6	Medium	<ul style="list-style-type: none"> • Brine ponds will be designed and constructed to minimise seepage losses and prevent overtopping. • A perimeter bund provided around the halite stockpiles to reduce the risk of stormwater incursion during major flood events. • Routine inspections and planned audits will be implemented to monitor integrity of containment systems. 	1	2	2	Low
33		✓	✓					✓	Surface water quality	Loss of containment: erosion of halite stockpiles (wind or water) or breach of perimeter bunds.	Release of salt to lake surface: impact on water quality	3	2	6	Medium	<ul style="list-style-type: none"> • A perimeter bund provided around the halite stockpiles to reduce the risk of stormwater incursion during major flood events. • Routine inspections and planned audits will be implemented to monitor integrity of containment systems. 	2	2	4	Medium

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34	✓	✓				✓		Terrestrial flora / vegetation	Water abstraction from lower salinity borefields results in watertable drawdown	Adverse impact on vegetation health	3	3	9	Medium	<ul style="list-style-type: none"> No water will be taken from Savory Creek or McKay Creek. Production bores in the Northern bore field will be screened only in the confined aquifer. All groundwater abstraction, monitoring and reporting activities will be conducted in accordance with applicable permits and licences. Monitoring bores will be established upstream and downstream of the process water bore fields to check groundwater drawdown impacts. Monitoring bores associated with the Northern bore fields will include bores screened so as to enable checking of water levels in both shallow unconfined aquifer and the confined aquifer from which water will be abstracted. Flow meters will be fitted to groundwater abstraction bores to enable monitoring of abstraction volumes. Only the volume of water required for ore processing and associated support operations will be abstracted. Routine vegetation health monitoring will be carried out to check that water abstraction at the Northern borefield is not adversely affecting riparian vegetation associated with McKay Cree 	2	3	6	Medium
35	✓	✓				✓		Subterranean fauna	Water abstraction from lower salinity borefields results in watertable drawdown	Loss of subfauna habitat; extinction of species with restricted occurrence	2	5	10	High	<ul style="list-style-type: none"> Production bores in the Northern bore field will be screened only in the confined aquifer. All groundwater abstraction, monitoring and reporting activities will be conducted in accordance with applicable permits and licences Monitoring bores will be established upstream and downstream of the process water bore fields to check groundwater drawdown impacts. Monitoring bores associated with the Northern bore fields will include bores screened so as to enable checking of water levels in both shallow unconfined aquifer and the confined aquifer from which water will be abstracted. Flow meters will be fitted to groundwater abstraction bores to enable monitoring of abstraction volumes. Only the volume of water required for ore processing and associated support operations will be abstracted. An expanded programme of subfauna monitoring will be implemented prior to commencement of full-scale operations to check for presence of stygofauna not yet recorded outside the bore field zone of influence. 	2	5	10	High
36	✓	✓				✓		Hydrological processes - groundwater	Water abstraction from lower salinity borefields results in watertable drawdown	Reduction in water available to other water users	1	2	2	Low	On-going monitoring in accordance with approved groundwater operations strategy to demonstrate extent of drawdown effects	1	2	2	Low

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37	✓	✓						✓	Terrestrial flora / vegetation	Brine abstraction from trenches results in water table drawdown	Adverse impact on vegetation health	3	3	9	Medium	<ul style="list-style-type: none"> Brine abstraction rates will be managed so as to limit groundwater drawdown, especially in the riparian zone. Monitoring bores will be established upstream and downstream of on-playa infrastructure to check groundwater drawdown and mounding impacts. Routine groundwater monitoring, opportunistic surface water monitoring and vegetation health monitoring will be carried out to check that brine abstraction and treatment operations on the Lake Disappointment playa are not significantly impacting the health of riparian vegetation. 	2	3	6	Medium
38	✓	✓						✓	Subterranean fauna	Brine abstraction from trenches results in water table drawdown	Loss of subfauna habitat	1	2	2	Low	Hypersaline groundwater unlikely to support significant subfauna population: no risk treatment proposed.	1	2	2	Low
39	✓	✓						✓	Groundwater quality	Brine abstraction from trenches results in water table drawdown	Oxidation of shallow sediments results in acidification and mobilisation of metals	3	3	9	Medium	<ul style="list-style-type: none"> A field procedure to enable identification and management of acid sulphate sediments will be developed and implemented. Routine groundwater monitoring will be conducted upstream and downstream of on-playa infrastructure. A supply of neutralising material will be kept on site in case unexpected pockets of acid generating material are encountered during construction 	2	3	6	Medium
40	✓	✓						✓	Hydrological processes - groundwater	Brine abstraction from trenches results in water table drawdown	Reduction in water available to other water users	1	1	1	Low	No risk treatment proposed.	1	1	1	Low
41	✓	✓						✓	Terrestrial fauna / fauna habitat	Brine abstraction from trenches	Fauna entrapment in trenches	3	3	9	Medium	<ul style="list-style-type: none"> Egress matting will be provided to prevent entrapment of fauna in ponds / trenches. Trenches will be inspected at least daily for presence of fauna. 	2	3	6	Medium
42	✓	✓	✓	✓	✓	✓	✓	✓	Terrestrial flora / vegetation	Movement of vehicles and machinery during construction and mining operations	Introduction and/or spread of weeds	4	4	16	High	<ul style="list-style-type: none"> Vehicle and equipment hygiene procedures will be implemented to control the risk of introducing and/or spreading weeds and soil borne diseases. Vehicles will not be permitted to leave designated access tracks or cleared areas. Compliance with the weed hygiene procedures will be audited, especially during the construction phase of the project. 	2	4	8	Medium
43	✓	✓		✓	✓	✓	✓	✓	Terrestrial flora / vegetation	Movement of vehicles and machinery during construction and mining operations	Vegetation damage, unauthorised clearing	4	3	12	High	<ul style="list-style-type: none"> A formal vegetation clearing permit system will be implemented and enforced. Land access and clearing requirements will be explained in site inductions Clearing activity will be reviewed and reported on annually via the Annual Environmental Report 	2	3	6	Medium

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44	✓	✓		✓	✓	✓	✓	✓	Soil / sediment quality / stability	Movement of vehicles and machinery during construction and mining operations	Compaction or other soil damage	4	1	4	Medium	<ul style="list-style-type: none"> •Vehicles will not be permitted to leave designated access tracks or cleared area • Rehabilitation will be undertaken on disturbed areas as they become available. 	2	1	2	Low
45	✓	✓		✓	✓	✓	✓		Terrestrial fauna / fauna habitat	Movement of vehicles and machinery during construction and mining operations	Road kill	5	3	15	High	<ul style="list-style-type: none"> •Establish and enforce speed limits on access and haulage roads. •Maintain fauna mortality register. •Implement feral animal control program to reduce other threatening processes 	3	3	9	Medium
46	✓	✓	✓	✓					Public health / safety	Movement of vehicles and machinery during construction and mining operations	Increased traffic; injury or death associated with road accidents	3	5	15	Extreme	<ul style="list-style-type: none"> •Establish and enforce speed limits on access and haulage roads. •Upgrade roads to standard suitable for planned traffic. •Provide appropriate signage at intersection and creek crossings. •Implement zero-tolerance drug and alcohol policy for project-related driving and equipment operation. •Implement fatigue-management practices for drivers. •Include traffic risk issues in site safety induction. •Maintain emergency response and communications systems during project implementation. 	2	5	10	High
47	✓	✓		✓	✓	✓	✓		Terrestrial flora / vegetation	Movement of vehicles and machinery during construction and mining operations	Dust deposition damages vegetation	3	2	6	Medium	<ul style="list-style-type: none"> •Establish and enforce speed limits on access and haulage roads. •Upgrade roads to standard suitable for planned traffic. •Use conventional dust suppression to control road dust as required. 	2	2	4	Medium
48	✓	✓		✓	✓	✓	✓	✓	Soil / sediment quality / stability	Transport, storage, dispensing and use of hydrocarbon fuels	Spillage or loss of containment at plant site results in soil or water contamination	3	3	9	Medium	<ul style="list-style-type: none"> •No storage or handling of fuels or reagents will occur within the 1 in 100 year flood zone. •No waste treatment or disposal facility will be sited within the 1 in 100 year flood zone. •Vehicle servicing areas and maintenance workshops will be located outside the 1 in 100 year flood zone. •No explosives will be stored or used at the site. •Diesel fuel and emissions reduction fluid will be stored in self-bunded tanks. •Refuelling facilities will be constructed with concrete or HDPE-lined pads to contain any drips and spills. •The pads will drain to a sump to allow removal of collected material. •All hydrocarbon and chemical storages will be designed and constructed in accordance with relevant requirements of Australian Standards AS1940 and AS1692. •Vehicles and equipment will be regularly inspected and maintained to reduce the likelihood of spills and leaks. •Hydrocarbon wastes will be segregated from other wastes and collected for offsite disposal by a licensed contractor. •Spill kits will be located at strategic locations throughout the project area and employees trained in their use. •Spills will be contained, remediated, investigated and reported to the relevant authorities as required. •The transport, storage or use of any designated Dangerous Good or substance will be conducted in accordance with Dangerous Goods permits and in accordance with relevant provisions of the Dangerous Goods Safety 	2	3	6	Medium

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49	✓	✓		✓	✓				Soil / sediment quality / stability	Transport, storage, dispensing and use of hydrocarbon fuels	Spillage or loss of containment following vehicle accident results in soil or water contamination	3	3	9	Medium	<ul style="list-style-type: none"> Vehicles and equipment will be regularly inspected and maintained to reduce the likelihood of spills and leaks. The transport, storage or use of any designated Dangerous Good or substance will be conducted in accordance with Dangerous Goods permits and in accordance with relevant provisions of the Dangerous Goods Safety Act 2004 and the Dangerous Goods Safety (Road and Rail Transport of Non-Explosives) Regulations 2007. Spills will be contained, remediated, investigated and reported to the relevant authorities as required. 	2	3	6	Medium
50		✓		✓	✓	✓	✓		Terrestrial fauna / fauna habitat	Processing of crude potash to produce SOP	Noise / light emissions adversely impact fauna	4	1	4	Medium	No risk treatment proposed.	4	1	4	Medium
51		✓			✓				Soil / sediment quality / stability	Processing of crude potash to produce SOP	Spillage, loss of containment or wind erosion of salts or brine results in salt contamination of soils surrounding plant	3	2	6	Medium	<ul style="list-style-type: none"> Install liners to capture entrained brines and dissolutes from the SOP stockpiles. Note: crude SOP salts naturally crystallise together to form a surface crust inhibiting dissolution and wind erosion. Surface drainage designed to direct runoff to settling ponds and an evaporation pond at the operations centre. Spillage control provisions similar to hydrocarbon spill kits. 	2	2	4	Medium
52		✓			✓				Amenity (noise, visual impact)	Processing of crude potash to produce SOP	Noise / light emissions adversely impact local amenity	1	1	1	Low	No risk treatment proposed.	1	1	1	Low
53		✓			✓				Air quality	Processing of crude potash to produce SOP	Dust emissions adversely impact air quality	2	1	2	Low	SoP is produced via a wet processing method. So there is no dust generation except for at the dryer end. At dryer, dust is controlled by recycling wet scrubber liquor within the plant.	1	2	2	Low
54		✓					✓		Air quality	Harvesting Operations (crude Potash and halite)	Dust emissions adversely impact air quality	2	1	2	Low	There are no dust emissions from harvesting as the salt products are moist.	2	1	2	Low
55		✓					✓		Soil / sediment quality / stability	Harvesting Operations (crude Potash and halite)	Airborne salt emissions result in spread of salt to surrounding areas	2	1	2	Low	No risk treatment proposed.	2	1	2	Low
56		✓					✓		Soil / sediment quality / stability	Harvesting Operations (crude Potash and halite)	Mechanical damage to playa surface: erosion, rutting	3	2	6	Medium	Vehicle movements will be restricted to designated access routes	2	2	4	Medium

Applicable Phase			Domain					Environmental Value Affected	Event Description	Potential Impact	Inherent Risk				Risk Treatment Plan	Mitigated Risk				
ID	Construction	Operations	Closure	1. Roads & Linear Infrastructure	2. Industrial Infrastructure	3. Support Infrastructure	4. Borrow Pits				5. On-playa infrastructure	Likelihood	Consequence	Risk Rating I		Risk Rating II	Likelihood	Consequence	Risk Rating I	Risk Rating II
57		✓						✓	Terrestrial fauna / fauna habitat	Harvesting Operations (crude Potash and halite)	Direct injury or death of fauna (contact with mechanical equipment)	3	1	3	Low	<ul style="list-style-type: none"> Speed limits will be established and enforced Fauna mortality records will be maintained 	3	1	3	Low
58		✓						✓	Terrestrial fauna / fauna habitat	Harvesting Operations (crude Potash and halite)	Noise impacts on fauna	3	1	3	Low	No risk treatment proposed.	3	1	3	Low
59	✓	✓				✓			Hydrological processes - groundwater	Operation of accommodation facilities for project personnel	Disposal of septic wastes results in groundwater contamination	3	2	6	Medium	<ul style="list-style-type: none"> Disposal of effluent will be done in accordance with DWER and Department of Health guidelines Routine water quality testing will be carried out to check for evidence of contamination 	2	2	4	Medium
60	✓	✓	✓			✓			Terrestrial fauna / fauna habitat	Operation of accommodation facilities for project personnel	Disposal of domestic wastes attracts feral animals, potentially including silver gulls	4	4	16	High	<ul style="list-style-type: none"> Putrescible waste will be stored in covered skips that cannot be accessed by fauna Litter control nets or cages will be used to limit fauna access to active tipping areas Landfill wastes would be covered promptly and active waste disposal cells would be fenced to exclude large fauna Routine surveillance for feral pests would be carried out, along with eradication actions (if required) 	2	4	8	Medium
61	✓	✓	✓			✓			Groundwater quality	Operation of accommodation facilities for project personnel	Disposal of domestic wastes results in groundwater contamination	3	2	6	Medium	<ul style="list-style-type: none"> Disposal of wastes will be done in accordance with DWER and Department of Health guidelines Routine water quality testing will be carried out to check for evidence of contamination 	2	2	4	Medium
62	✓	✓				✓			Amenity (noise, visual impact)	Operation of accommodation facilities for project personnel	Disposal of domestic wastes results in odour, loss of amenity	3	1	3	Low	<ul style="list-style-type: none"> Disposal of wastes will be done in accordance with DWER and Department of Health guidelines Landfill wastes would be covered promptly 	2	1	2	Low
63			✓					✓	Terrestrial fauna / fauna habitat	Mine decommissioning and closure	At closure, decommissioning of on-playa infrastructure removes fauna habitat	3	3	9	Medium	Use of evaporation ponds by wetland fauna to be investigated during active life of project and reflected in revised mine closure plans	2	3	6	Medium
64			✓	✓	✓	✓	✓		Public health / safety	Mine decommissioning and closure	Infrastructure / equipment left on site is a public safety hazard	3	3	9	Medium	Approved mine closure plan to be implemented, including safety audit at project completion	1	3	3	Medium

Applicable Phase			Domain					Inherent Risk				Mitigated Risk											
ID	Construction	Operations	Closure	1. Roads & Linear Infrastructure	2. Industrial Infrastructure	3. Support Infrastructure	4. Borrow Pits	5. On-playa infrastructure	Environmental Value Affected	Event Description	Potential Impact	Likelihood	Consequence	Risk Rating I	Risk Rating II	Risk Treatment Plan				Likelihood	Consequence	Risk Rating I	Risk Rating II
65			✓					✓	Terrestrial fauna / fauna habitat	Mine decommissioning and closure	Infrastructure (pondage, roads) left on site is encourages access by feral animals	4	4	16	High	<ul style="list-style-type: none"> •Approved mine closure plan to be implemented, • Post-closure monitoring to check for presence of ferals after completion of rehabilitation works 				2	4	8	Medium

	Slight	Minor	Moderate	Major	Severe
Hydrogeology	Localised, minor, transient changes in groundwater levels or flow regime: Occasional exceedance of agreed trigger values.	Widespread, minor changes to ground water levels and/or flow regime: does not result in permanent impacts to existing users (including water-dependent ecosystems)	Localised moderate changes to ground water levels and/or flow regime: does not result in permanent impacts to existing users (including water-dependent ecosystems)	Widespread, moderate changes to ground water levels and/or flow regime, resulting in long term impacts to existing users (including water-dependent ecosystems)	Major, permanent alteration of groundwater levels or flow regimes, extending beyond the approved area of operations.
Groundwater quality	Localised, short term change to water quality: does not alter beneficial use. Occasional exceedance of agreed trigger values.	Widespread, short term change to water quality: does not affect beneficial use	Localised change in water quality requiring active management or remediation to restore beneficial use.	Widespread change in water quality requiring ongoing active management or remediation to restore beneficial use.	Widespread significant pollution or alteration of water quality, requiring ongoing management to protect human health or the environment.
Surface water quality	Minor alteration in surface water quality, but without discernible biotic changes: Occasional exceedance of agreed trigger values.	Deviation in surface water quality resulting in widespread, but transient change to aquatic community structure.	Moderate change in surface water quality resulting in persistent locally reduced beneficial use or altered biotic communities	Pronounced, widespread alteration of water quality requiring ongoing active management to restore beneficial uses.	Widespread, irreparable alteration to surface water quality, resulting in permanent reduction in beneficial use (including permanent, widespread change to lake ecology).
Surface hydrology	Localised changes to surface flow regimes, but with no discernible increase in erosion or alteration to riparian systems.	Short term, localised changes to surface water flow regimes, resulting in temporarily increased erosion or reversible changes to riparian ecosystems.	Widespread but reversible changes to surface water flow regimes, resulting in increased erosion or changes to riparian ecosystems.	Permanent, but localised, changes to surface water flow regimes, resulting in irreversible changes to riparian or lake ecosystems.	Permanent, widespread changes to surface water flow regimes, resulting in irreversible changes to riparian or lake ecosystems.
Conservation significant flora, vegetation or groundwater dependent systems)	Minor (<10%) loss of priority taxa in local area. No impact on endangered taxa.	Up to 10% reduction in the abundance or extent of conservation significant species or ecosystems in local area. No impact on endangered taxa.	Up to 30% reduction in the abundance or extent of conservation significant species or ecosystems in local area. Localised and persistent or widespread, but short term alteration in abundance or distribution of conservation significant species or ecosystems, but not resulting in altered conservation status.	Up to 70% reduction in the abundance or extent of conservation significant species or ecosystems in local area. Alteration in abundance or distribution of conservation significant species or ecosystems, resulting in changed conservation status to "endangered" or "threatened".	More than 70% reduction in abundance or extent of conservation significant species or ecosystems in local area. Permanent reduction in abundance or distribution of conservation significant species or ecosystems, resulting in classification of "critically endangered" or higher.
Flora and vegetation - not priority, threatened or of conservation significance at local or regional scale	Localised, short term change to flora/vegetation abundance or extent: no active rehabilitation required to restore.	Localised, short term change to flora/vegetation abundance or extent: active rehabilitation required to restore.	Permanent local reduction in abundance or distribution of flora / vegetation at a local scale, but no change in regional conservation status.	Permanent (irreparable) widespread reduction in abundance or distribution of flora / vegetation, but no change in conservation status at regional scale.	Permanent widespread reduction in abundance or distribution of flora / vegetation at a regional scale, resulting in changed conservation status.
Conservation significant fauna (terrestrial and subterranean. Includes short range endemics) and ecosystems	Behaviour changes at local scale: Reduction in available breeding or feeding habitat of < 10 % in local area. No impact on endangered taxa.	Localised, transient reduction in abundance or distribution of conservation significant species or ecosystems. Reduction in available breeding or feeding habitat of up to 10 % in local area.	Localised and persistent or widespread, but short term alteration in abundance or distribution of conservation significant species or ecosystems, but not resulting in altered conservation status. Reduction in available breeding or feeding habitat of up to 30 % in local area.	Significant alteration in abundance or distribution of conservation significant species or ecosystems, resulting in altered conservation status to "endangered". Reduction in available breeding or feeding habitat of up to 70 % in local area.	Permanent reduction in abundance or distribution of conservation significant species or ecosystems, resulting in classification of "critically endangered" or higher. Reduction in available breeding or feeding habitat of more than 70 % in local area.
Fauna (terrestrial and subterranean) - not priority, or of conservation significance at local or regional scale	Localised, short term alteration to habitat quality and/or fauna diversity or abundance: no active rehabilitation required to restore	Localised short term alteration to habitat quality and/or fauna diversity or abundance: active rehabilitation required to restore.	Permanent local reduction in habitat quality and/or fauna diversity or abundance, but no change in fauna conservation status at regional scale.	Permanent, widespread, persistent reduction in habitat quality and/or fauna diversity or abundance.	Permanent widespread alteration of habitat quality and/or fauna diversity and abundance. Ongoing threats to fauna at project completion (ecotoxicity, entrapment).
Soils	Localised changes to soil quality or physical condition, but no remediation required to use land for agreed post-mining land uses.	Minor local scale changes to soil quality or physical condition requiring remedial works to make land suitable for agreed post-mining land uses.	Significant changes to local soil quality or physical condition requiring remedial works and ongoing management or maintenance to support agreed post-mining landuses.	Pronounced, widespread changes to soil quality, necessitating extensive investigation and remediation to ensure land is suitable for agreed post-mining landuses.	Widespread changes to soil quality that cannot be fully remediated and constrain agreed post-mining landuses.
Landforms	Localised changes to landform which do not require remediation in order to implement agreed post-mining landuses.	Minor local scale changes to landforms (including drainage patterns) requiring remedial works to make land suitable for agreed post-mining land uses.	Pronounced alteration of local landforms (including drainage patterns), necessitating extensive remediation to ensure land within the project site is suitable for agreed post-mining landuses.	Pronounced alteration of local landforms (including drainage patterns), with potential to adversely affect land uses outside the immediate project area.	Changes to landform or drainage that cannot be remediated so as to be compatible with agreed post-mining landuses and/or permanently compromise surrounding landuses.
Heritage	Infrequent or transient disruption to environmental values that affect cultural values such as hunting and fishing which does not require remediation.	Minor or short term disruption to environmental values that affect cultural values such as hunting and fishing which does not require remediation. Unauthorised access but no damage.	Localised changes in environmental values that affect cultural values such as hunting and fishing. Requires active management or remediation to restore beneficial use.	Widespread disruption to environmental values that affect cultural values such as hunting and fishing requiring ongoing active management to restore beneficial uses.	Significant disruption to a heritage site that is irreparable. An offence committed under section 17 of the Aboriginal Heritage Act 1977.

"Local area" or "local scale" is defined as encompassing the project development envelope or the area surveyed during baseline studies, whichever is the greater

"Widespread" means "extending beyond the approved (or proposed) development envelope"

"Transient" means very short term (usually within an annual cycle)

"Short term" means impact does not persist beyond the life of the project

"Long term" or "persistent" means without intervention the impact will persist well beyond the life of the project

"Permanent" means "more than several decades after project completion".

A "trigger value" is a value of an indicator that is higher (or lower) than would normally occur, but not so high as to result in adverse impacts.

DWER RISK MATRIX

		Slight	Minor	Moderate	Major	Severe
		1	2	3	4	5
Rare	1	Low	Low	Medium	Medium	High
Unlikely	2	Low	Medium	Medium	Medium	High
Possible	3	Low	Medium	Medium	High	Extreme
Likely	4	Medium	Medium	High	High	Extreme
Almost Certain	5	Medium	High	High	Extreme	Extreme

Management responses

Low risk	Address via standard operating procedures and operational controls; reporting by exception.
Moderate risk	Define and monitor implementation of specific operational controls; review outcomes at least annually
High risk	Implement risk control programme with at least quarterly monitoring of outcomes and annual review by senior management
Extreme risk	Unacceptable: modify through improved engineering or implementation of reliable operational controls.