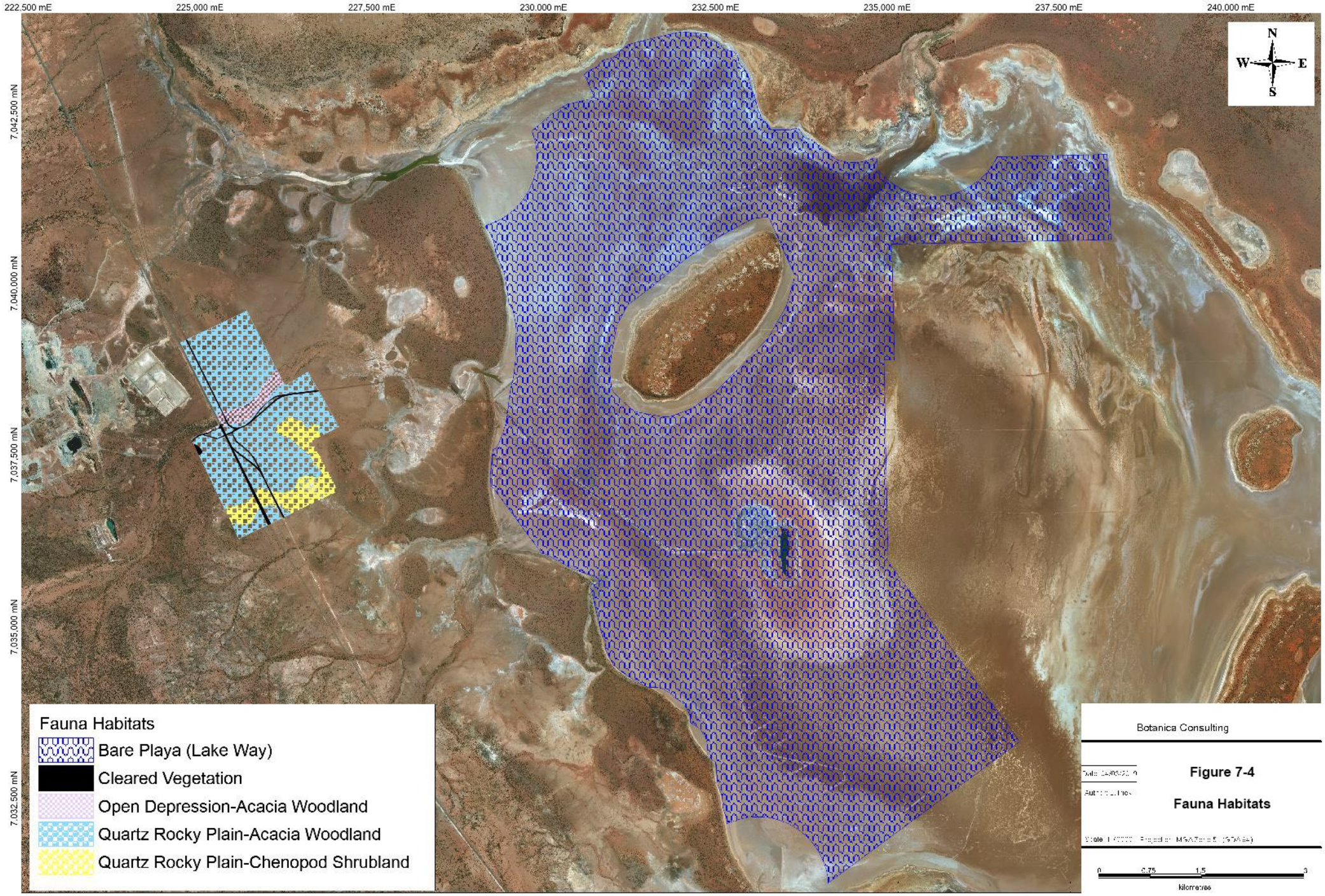
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Fauna Habitats
Bare Playa (Lake Way)
Cleared Vegetation
Open Depression-Acacia Woodland
Quartz Rocky Plain-Acacia Woodland
Quartz Rocky Plain-Chenopod Shrubland
Botanica Consulting
Figure 7-4
Fauna Habitats
0
0.75
1.5
3
kilometres

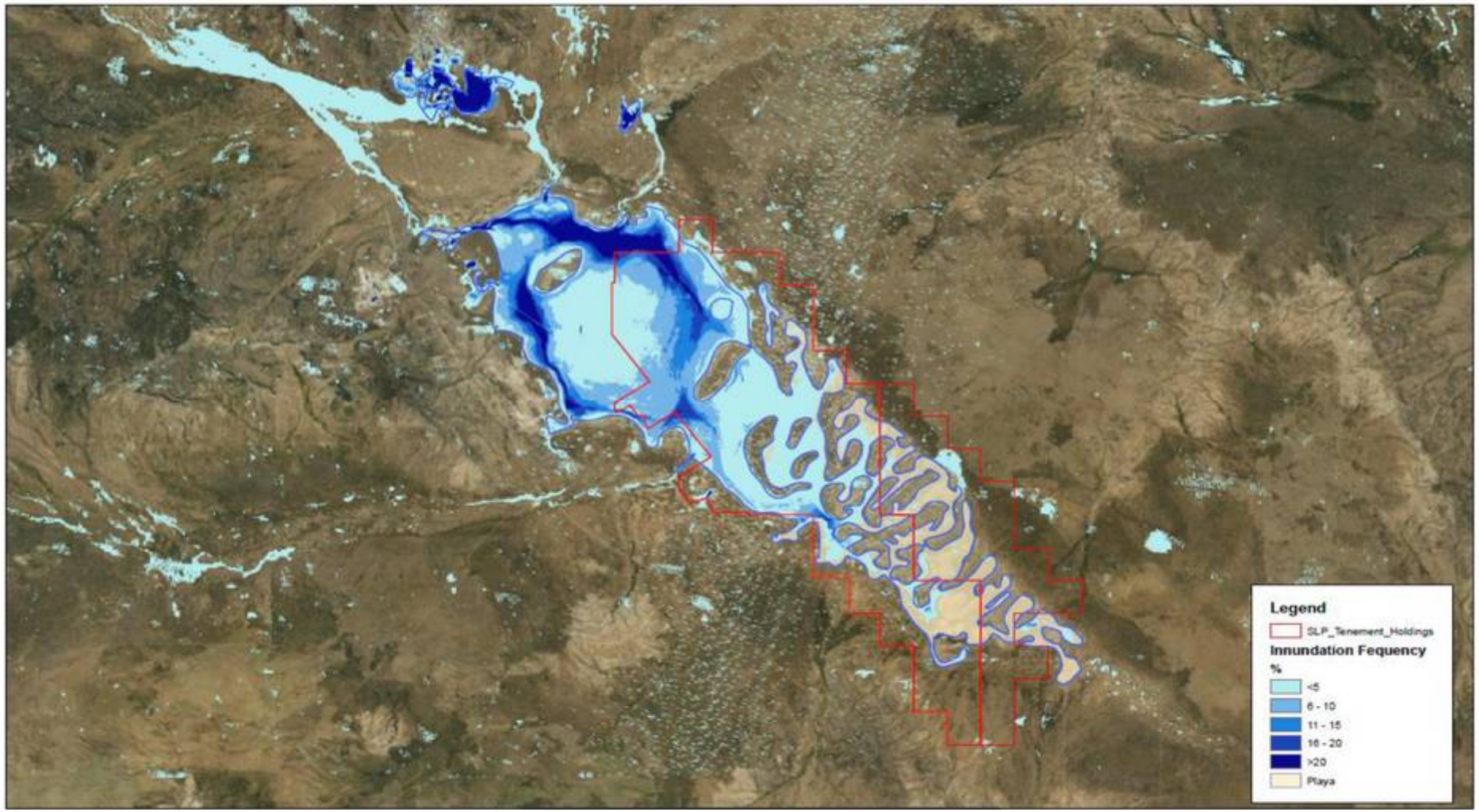
7.2.5 Hydrological Processes

EPA Objective: To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.	
Legislation, policy and Guidance	• EPA - Statement of Environmental Principles, Factors and Objectives (EPA 2016). • Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016 (EPA 2016b). • Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016 (EPA 2016c). • EPA Factor Guideline – Hydrological Processes (EPA 2016d) • *Rights in Water and Irrigation Act 1914.* • *Country Areas Water Supply Act 1947.* • Policies for the take and use of water (DWER). • Policies for better understanding water resources and planning for their use (DWER). • Policies for protecting public drinking water supplies and the natural environment (DWER). • Western Australia Water in Mining Guideline (DWER 2013)
Relevant Documentation	**Appendix D**: Lake Way Modelling: 50ktpa Scoping Study **Appendix F**: Hydrological Assessment **Appendix G**: Groundwater Resource Assessment **Appendix J**: Lake Way Discharge Report (2006) **Appendix K**: Lake Way Monitoring Report (2006) **Appendix M**: Lake Way Ecological Monitoring (2017)
Receiving Environment	**Surface Water Hydrology** • Lake Way is primarily dry except during wet periods with large runoff and/or when cyclones cause extensive rainfall-runoff. • The lake receives episodic surface water inflows from creeks in the north and smaller creeks along the western and south-western perimeter of the lake. • The northern part of the playa exhibits morphology typical of significant surface water influence and periodic inundation (smooth playa edges and island). • The Lake Way catchment is 11,000km^2 in extent. Most heavy rainfall occurs between December and March. The average annual modelled run-off to the playa is 38GL/year but this is highly variable. • The 10-yr pre and post development flood indicate a change in water level of 16mm and the 100-yr pre and post development flood indicate a rise of 44mm. • The Water Observations from Space data (Figure 7-5) for Lake Way indicates distinct high (>20%) and low (<5%) frequency of flooding regions attributed to minor changes in topography.

EPA Objective: To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.	
	Ground Water • Materials at the site comprise evaporate salts (up to 50mm thick) blanketing upper lakebed sand, silt and clay sequences (Qhs and Qhl), aeolian silts and sands and alluvial/lacustrine sediments (Qpl and Qplr), underlain by weathered basement/basalt. • The average water (brine) level depth beneath the playa surface pits ranges between 0.3m and 0.5m. The thickness of the brine resource is defined by the depth to the base of the lakebed sediments which varies between 6.7m and 34.6m below ground level; the resource is generally thinner in the north thickening to the south. • The lake sediments is recharged by infiltration of surface run-off from the surrounding catchment (on average 38GL/yr) and direct rainfall.
Potential Impacts	• Alteration to drainage patterns due to the construction of ponds, trenches and associated infrastructure, resulting in drainage shadow/inundation impacts. • Alteration to the groundwater regime due to abstraction of saline water from trenches on the lake surface. • Loss of biological diversity and reduced regional representation of flora and vegetation communities.
Mitigation and Management Measures	• Flood modelling has been completed to show no flood inundation or shadow effects. • Flood modelling has identified that a minimal change in water level in extreme flood events (1% AEP) will occur from the implementation of this Project. Based on this, there will be no change on the fringing *tecticornia* habitat. • Trenches located a considerable distance (greater than 750 m) from the lake fringes; modelling has shown that the groundwater drawdown is minimal and will not alter the current groundwater levels in and around fringing vegetation (Refer **Appendix D**). • Flow meters will be fitted to groundwater abstraction pipelines to facilitate monitoring of abstraction volumes. • On playa roads and access tracks will be constructed with appropriate surface water drainage measures to minimise impacts on lake surface water flows. • Where necessary, suitable floodways, drains and culverts will be installed to transfer flow past infrastructure and return it to its natural flow path. • Ponds will be designed and constructed to minimise seepage. • Diversion bunds will divert surface water around infrastructure.
Predicted Outcome	SO4 considers that the potential impacts to hydrological processes within the On-Playa Development Envelope will be adequately managed such that the EPA's environmental objective will be met. Surface water within the On-Playa Development Envelope is ephemeral in nature and is typically hypersaline. Project design has considered flow volumes, velocity and direction and will not significantly affect downstream environmental values given the location of project infrastructure and the size of Lake Way.

EPA Objective: To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.	
	Groundwater drawdown will be confined to within the perimeters of the lake and consequently not impact fringing habitat and/or ecological functions off the lake. For these reasons, SO4 believe that the EPA Objective for this factor can be achieved.

Figure 7-5 : Water Observations From Space Mapping



7.2.6 Inland Waters Environmental Quality

EPA Objective: To maintain the quality of groundwater and surface water so that environmental values are protected.	
Legislation, policy and Guidance	• EPA - Statement of Environmental Principles, Factors and Objectives (EPA 2016a). • Environmental Impact Assessment (EIA) (Part IV Divisions 1 and 2) Administrative Procedures 2016 (EPA 2016b). • EIA (Part IV Divisions 1 and 2) Procedures Manual 2016 (EPA 2016c). • EPA Factor Guideline - Terrestrial Environmental Quality (EPA 2016m). • *Environmental Protection Act 1986* (Part V - Works Approvals and Licencing). • EPA Factor Guideline – Inland Waters Environmental Quality (EPA 2016e). • Department of Water and Environment Regulation: *Rights in Water and Irrigation Act 1914.* • Department of Water and Environment Regulation Operational Policy No 5.12 - Hydrogeological Reporting associated with a Groundwater Well Licence (DWER, 2009). • Department of Water and Environment Regulation Operational Policy No 5.08 - Use of Operating Strategies in the Water Licensing Process (DWER 2011). • Department of Water and Environment Regulation Western Australia Water in Mining Guideline (DWER 2013). • Department of Water and Environment Regulation Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes (DWER 2015a). • Department of Water and Environment Regulation Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes (DWER 2015b). • Shand, P, Appleyard, S, Simpson, SL, Degens, B, 2018: National Acid Sulfate Soils Guidance: *Guidance for the Dewatering of Acid Sulfate Soils in Shallow Groundwater Environments*, Department of Agriculture and Water Resources, Canberra, ACT. • Sullivan, L, Ward, N, Toppler, N and Lancaster, G, 2018: National Acid Sulfate Soils Guidance: *National Acid Sulfate Soils Identification and Laboratory Methods Manual*, Department of Agriculture and Water Resources, Canberra, ACT. • Sullivan, LA, Ward, NJ, Bush, RT, Toppler, NR, Choppala, G, 2018: National Acid Sulfate Soils Guidance: *Overview and Management of Monosulfidic Black Ooze (MBO) accumulations in waterways and wetlands*, Department of Agriculture and Water Resources, Canberra, ACT. • Sullivan, L, Ward, N, Toppler, N and Lancaster, G, 2018: National Acid Sulfate Soils Guidance: *National Acid Sulfate Soils Sampling and Identification Methods Manual*, Department of Agriculture and Water Resources, Canberra ACT. • Queensland Acid Sulfate Soils Investigation Team Acid Sulfate Soils – Laboratory Methods Guidelines (QASSIT 2004).

EPA Objective: To maintain the quality of groundwater and surface water so that environmental values are protected.	
Relevant Documentation	**Appendix F**: Hydrological Assessment **Appendix G**: Groundwater Resource Assessment **Appendix L**: Acid Sulfate Soils Investigation
Receiving Environment	• The Australian National Acid Sulfate Soil Risk Map (ASRIS, Figure 2.2) indicates that Lake Way is an inland water body with sediments of recent (Holocene) geological age with a high probability, but with very low confidence, of the presence of potential acid sulfate soils (PASS). • Run-off modelling estimated that on average 3.9% of rainfall runs off to the lake. • Most heavy rainfall occurs between December and March and as such 71% of significant runoff events (runoff depth >5mm) occur during this period. • The average annual modelled run-off to the playa is 38GL/year but this is highly variable • Effectively all of the recharge water entering the playa is eventually lost to evaporation. • The quality of water ponding on the playa is influenced by the salt crust that covers the playa. • Except for brief periods after large rainfall events, water ponded on the playa is typically hyper saline (>200,000mg/L TDS). • Groundwater beneath Lake Way is also hyper saline (ten times as salty as seawater). • The playa groundwater has no noticeable enrichment in trace metals, including uranium and thorium.
Potential Impacts	**Surface Water** • Impacts from excavation and / or dewater of PASS causing acidic surface water. **Ground Water** The potential to directly or indirectly impact soil, water and ecosystems through: • Acidification and consequently hydrogeochemical changes to lake sediments and waters from acid sulphate soils. • Leaching of heavy metals. By the following mechanisms: • Excavation of sediment for trenches to exploit brine resource causes oxidation of acid forming sediments. • Abstraction of brine lowers the water level and allows oxidation of potentially acid forming sediments. • Leaching (mobilisation) of heavy metals as a result of acidification of soils and brine/water.

EPA Objective: To maintain the quality of groundwater and surface water so that environmental values are protected.	
Mitigation and Management Measures	• Acid sulphate soils sampling and analysis report is provided as **Appendix L.** The report concluded from laboratory analytical data that the on-Playa Lake sediments cannot be classified as either Sulfidic or Sulfuric. • Monosulfidic Black Oozes (MBO's) were below the assessment level of 0.010%S at each locality. • The excavation of sediments and abstraction of brine is unlikely to cause acidification of soils and water within the On-Lake Development Envelope.
Predicted Outcome	The sediments underlying the lake show no significant sulfidic or sulphuric materials and/or MBO's, and the lake system has significant buffering capacity to minimise the potential impact. In the absence of reactive materials the likelihood of acidification and mobilisation of metals is considered very low. Based on this, SO4 believes that there is insignificant impact from the implementation of the Project.

7.2.7 *Air Quality*

EPA Objective: To maintain air quality and minimise emissions so that environmental values are protected	
Legislation, policy and Guidance	• National Greenhouse and Energy Reporting (Measurement) Determination 2008 • EPA - Statement of Environmental Principles, Factors and Objectives (EPA 2016a). • Environmental Impact Assessment (EIA) (Part IV Divisions 1 and 2) Administrative Procedures 2016 (EPA 2016b). • EIA (Part IV Divisions 1 and 2) Procedures Manual 2016 (EPA 2016c). • EPA Factor Guideline – Air Quality (EPA 2016q). • National Environmental Protection (Ambient Air Quality) Measures (NEPM 2015).
Receiving Environment	The Lake Way Potash Project is situated in a remote location 25 km southeast of the town of Wiluna. The Blackham accommodation village is the nearest sensitive receptor and this is located about 13 km north of Lake Way.
Potential Impacts	**On and Off Playa:** Implementation of the Project has potential to affect local air quality through: Generation of dust via: Land clearing during construction. Material handling. Vehicle movement on unsealed roads within the Project area. Diesel emissions through generators and vehicle movements
Mitigation and Management Measures	Vehicle traffic will be confined to designated roads and tracks. Dust suppression measures will be implemented, including the use of water carts and dust suppressants. Vehicles will be maintained to minimise emissions. Product exported from the site will either be packaged in sealed bags or in bulk via covered loads. The pastoral station homestead has adequate separation from the operations. A review of diesel consumption rates have identified that the greenhouse gases produced would not exceed 13,200 tonnes of CO_{2eq} per year.
Predicted Outcome	The project will produce minimal air quality impacts due to its small project size and limited operational impact. The Project will not impact air quality impacts through the development and operation of the project.

7.2.8 Social Surroundings

EPA Objective: To protect social surroundings from significant harm	
Legislation, policy and Guidance	• EPA - Statement of Environmental Principles, Factors and Objectives (EPA 2016a). • Environmental Impact Assessment (EIA) (Part IV Divisions 1 and 2) Administrative Procedures 2016 (EPA 2016b). • EIA (Part IV Divisions 1 and 2) Procedures Manual 2016 (EPA 2016c). • EPA Factor Guideline – Social Surroundings (EPA 2016r). • Environmental Protection Act 1986 (Part V – Works Approvals and Licensing). • National Environmental Protection (Ambient Air Quality) Measures (NEPM 2015) • Environmental Protection (Noise) Regulations 1997.
Relevant Documentation	**Appendix N:** Aboriginal Heritage Inquiry System report
Receiving Environment	**On and Off Playa:** • The Lake Way Potash Project is situated in a remote location with the nearest population centre being the town of Wiluna some 25 km northeast. • Existing mining activities occur within the development envelope and in the near vicinity of the operations. • Many registered heritage sites exist within the general project locality, one of which intersects the off-playa development envelope (Figure 7-8). Several registered heritage sites (or their buffers) may intersect the pipeline alignment proposed to convey water from the Matilda South pit void to the processing plant, notwithstanding that the pipeline route follows an existing track.
Potential Impacts	• Impact to sites of Aboriginal heritage significance due to the development of the project. • Development could potentially impact surrounding mining and pastoral operations, through dust, vehicle movements, etc.
Mitigation and Management Measures	• Registered sites of significance have been identified and taken into account in siting project (Figure 7-6). • SO4 has undertaken regular engagement with local stakeholders, including Native Title holders, pastoralists and other operators within the area. Further discussions are planned as part of detailed design for the processing plant and process water pipeline.
Predicted Outcome	The project has been developed taking into consideration the issues and concerns raised by traditional owners, pastoralists and surrounding mining operations. SO4 is committed to avoiding sites of significance and as part of detailed project design it will seek guidance from the relevant stakeholders to minimise interference with heritage values.

EPA Objective: To protect social surroundings from significant harm	
	Where the impact to heritage sites is unavoidable, SO4 will seek approvals in accordance with Section 18 of the *Aboriginal Heritage Act 1972*.

120°20'0"E

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E 53/2049
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E 53/2057
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M 53/253
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2438
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M 53/797
M 53/796
E 53/1878
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120°20'0"E

Legend

- Lake Development Envelope
- Tenement Boundary
- On Lake Ponds
- Demonstration Process Plant Development Envelope
- Indicative Plant Site
- Williamson Pit
- Lake Way Causeway
- Access Road
- Process Water Pipeline
- Brine Pipeline
- Trench

Heritage Site

- Registered Site
- Lodged
- Stored Data / Not a Site

- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
- LOCALITY MAP SOURCED LANDGATE 2006
- AERIAL PHOTOGRAPHY SOURCED ESRI WORLD IMAGERY
- HERITAGE SITES SOURCED DIA, 2019

GDA 1994 MGA Zone 51

LOCALITY MAP

CREATED BY	JOB NUMBER	DATE	REVISION
ENVIRONMAPS	180025	8/03/2019	0

Client:

t: 0406 590 006
www.environmaps.com.au

7.2.9 Human Health

EPA Objective: To protect human health from significant harm	
Legislation, policy and Guidance	• EPA - Statement of Environmental Principles, Factors and Objectives (EPA 2016a). • Environmental Impact Assessment (EIA) (Part IV Divisions 1 and 2) Administrative Procedures 2016 (EPA 2016b). • EIA (Part IV Divisions 1 and 2) Procedures Manual 2016 (EPA 2016c). • EPA Factor Guideline – Human Health (EPA 2016s). • *Environmental Protection Act 1986* (Part V – Works Approvals and Licensing). • National Environmental Protection (Ambient Air Quality) Measures (NEPM 2015).
Relevant Documentation	**Appendix H**: Memorandum on Matters of National Environmental Significance
Receiving Environment	**On and Off Playa:** • The Lake Way Potash Project is situated in a remote location with the nearest population centre being the town of Wiluna some 25 km northeast. • Products including all waste products are non-radioactive and do not pose a risk to human health • Significant data and knowledge has been compiled through the operations of the Williamson Pit mining operations
Potential Impacts	• Wet processing is unlikely to cause significant amount of dust. • Noise impacts unlikely to be significant due to separation distance between industrial plant and residential areas. • Project traffic will not materially affect traffic flows on Goldfields Highway or in town of Wiluna. Haulage vehicles will not travel through the Wiluna township.
Mitigation and Management Measures	• Vehicle speed limits restricted to minimise dust. • The project has sufficient separation to sensitive receptors to limit amenity impacts.
Predicted Outcome	The remote location of the project ensures that there will be no adverse impacts on human health due to air, noise or odour emissions. None of the materials streams is radioactive and exposure to radiation is not a risk arising from project implementation. For these reasons, SO4 considers that the EPA Objective for this factor will be achieved.

8 Matters of National Environmental Significance

Referral under the EPBC Act is required where a proposed action is likely to have a significant impact on a Matter of National Environmental Significance (MNES). Table 8-1 below provides a summary of MNES associated with the Project.

Table 8-1: MNES – applicability to Lake Way SOP Demonstration Plant Project

Listed matters	**Relevance to SO4**
World Heritage Properties	None present – confirmed by search of MNES database on 31/01/19.
National Heritage Places	None present – confirmed by search of MNES database on 31/01/19.
Wetlands of international Importance e.g: Ramsar wetlands	Not a wetland of international importance – confirmed by search of MNES database on 31/01/19.
Nationally threatened species and ecological communities	A search of the MNES database will always come up with at least some species potentially impacted; for Lake Way – 3 threatened species: Malleefowl (Vulnerable) Princess Parrot (Vulnerable) Night parrot (Endangered) No 'Listed Threatened Ecological Communities – confirmed by search of MNES database on 31/01/19.
Migratory species	Migratory species - an MNES database search on 31/01/19 showed 6 species: Terrestrial Species Grey Wagtail Yellow Wagtail Wetland species Common Sandpiper Sharp-tailed Sandpiper Pectoral Sandpiper Oriental Plover
Commonwealth marine areas	Not relevant
Great Barrier Reef marine Park	Not relevant

Listed matters	Relevance to SO4
Nuclear actions (including uranium mining)	Depends upon whether radioactive matter is likely to be present
A water resource (in relation to coal seam gas development and large coal mining development	Not relevant

Table 8-2 below lists the significant impact criteria for Vulnerable and Endangered species:

Table 8-2: Significant impact criteria

Significant impact criteria	**Vulnerable** Maleefowl and Princess Parrot	**Endangered** Night parrot
Lead to a long-term decrease in the size of a population	Relates only to an important population. An important population – not present	No significant impact on breeding or foraging habitat capable of causing long –term population decline
Will reduce the area of occupancy of a population	Relates only to an important population. An important population – not present	The project has limited disturbance footprint off-playa (>47 ha). Off-playa footprint is not considered suitable as foraging or breeding habitat.
Fragment an existing population into two or more populations	Relates only to an important population. An important population – not present	Project won't fragment any population that might be present
Adversely affect habitat critical to the survival of the species	Activities such as foraging, breeding, roosting or dispersal – not present	habitat suitable for foraging or nesting will not be materially altered.
Disrupt the breeding cycle of a population	Relates only to an important population. An important population – not present	Habitat for breeding – not present
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Activities such as foraging, breeding, roosting or dispersal – not present	Habitat suitable for foraging or nesting will not be materially altered.

Significant impact criteria	**Vulnerable** Maleefowl and Princess Parrot	**Endangered** Night parrot
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	Nothing in development of project (with suitable controls in place) supports invasive species	Nothing in development of project (with suitable controls in place) will to increase the risk of introduction or spread or invasive species. Project is located within an area of existing mining operations.
Introduce disease that may cause the species to decline	Nothing in development of project (with suitable controls in place) would lead to introduction of diseases	Nothing in development of project (with suitable controls in place) will increase the risk of introduction or spread of diseases Project is located within an area of existing mining operations.
Interfere with the recovery of the species	Substantially – habitat not suitable to support any recovery	Habitat not suitable to support recovery

The Project, even in its largest extent, involves limited clearing of vegetation because the majority of the project area will be on the lake beds which are devoid of vegetation.

The Malleefowl is found in arid to semi-arid shrublands/low woodlands dominated by Mallee/Acacia. An abundance of leaf litter is required for breeding. Malleefowl densities were found by Frith (1962) to be highest in areas with more numerous food plants – leguminous shrubs and herbs; but Benshemesh (1992) found dense canopy cover was the most important factor (with food being poorly correlated).

Breeding mounds are relatively easy to spot (being large and distinctive). The local conditions do not exist for building breeding mounds which explains the absence of observations in the area. The Processing Plant Development Envelope has been assessed for both flora and fauna (**Appendix C** and **E**, respectively) and was not considered to be suitable habitat to Malleefowl.

Princess parrot – approved conservation advice for the Princess Parrot notes that these parrots are usually recorded in shrubland located in swales between sand dunes and feeds on grass seeds Acacia seed pods, nectar from flowering trees and shrubs and leaves. It nests in hollows in large trees usually at a height of about 6m. It is gregarious occurring in small groups and in flocks.

None of the area proposed for clearance could be characterised as Princess Parrot habitat (Figure 8-1).

Night Parrot – approved conservation advice for the Night Parrot notes that the distribution is unknown. All that is definitively known is that roosting and nesting takes place in clumps of dense vegetation and that they are ground feeding seed eaters.

It is not proposed to clear areas that contain either dense vegetation or support significant quantities of seed bearing plants that would provide a food source. None of the areas propose for clearance could be regarded as Night parrot habitat.

8.1 Assessment of MNES Factors

In relation to the listed 'Vulnerable' species the development of the project would need to be considered likely to have an impact on what was regarded as an important population, however surveys completed to date over the area, as well as the habitat mapping of the area, has not identified any important populations occurring in the vicinity of the project.

The proposed clearance cannot be said to be likely to have a significant impact upon any activities that might be undertaken by 'Vulnerable' species were they to be present that might represent a threat over the long term.

In relation to the listed 'Endangered' species the development of the project would need to be considered likely to have an impact that could affect any of the species that might be present. The areas proposed for clearance do not represent either breeding or foraging habitat for what is essentially a seed eating bird requiring dense ground cover for breeding and roosting.

8.2 Nuclear Actions

All nuclear actions must be referred. Nuclear actions are:

- establishing or significantly modifying a nuclear installation or a facility for storing spent nuclear fuel – **not relevant**
- transporting spent nuclear fuel or radioactive waste products arising from reprocessing – **not relevant**
- establishing or significantly modifying a facility for storing radioactive waste products arising from reprocessing – **not relevant**
- mining or milling uranium ore – **not relevant**
- establishing or significantly modifying a large-scale disposal facility for radioactive waste – **not relevant**
- de-commissioning or rehabilitating any facility or area in which an activity described above has been undertaken – **not relevant**

- establishing, significantly modifying, decommissioning or rehabilitating a facility where radioactive materials at or above the activity level specified in regulation 2.02 of the Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations) are, were, or are proposed to be stored – **depends upon activity level of waste**

8.2.1 Activity level

For paragraph (g) of the definition of ***nuclear action*** in subsection 22(1) of the Act {any other action prescribed by the regulations}, a nuclear action includes establishing, significantly modifying, decommissioning or rehabilitating a facility where radioactive materials at or above the activity level mentioned in regulation 2.02 are, were, or are proposed to be used or stored.

Activity level specified in regulation 2.02 of the *Environment Protection and Biodiversity Conservation Regulations 2000* refers to a multiple of 10^6 for unsealed sources (and 10^9 times for sealed sources) the activity values set out in Part 1 of Schedule 1 to the *Australian Radiation Protection and Nuclear Safety Regulations 2018* (ARPANSA 2018).

In 'ARPANSA 2018' Part 1 Schedule 1 the activity values for natural uranium are 10^3 Bequerel (Bq) and this is then multiplied by 10^6 (utilising the unsealed criteria) to arrive at 10^9 Bq.

If the activity level of the waste material being disposed of over the life of the mine is calculated to exceed 10^9 Bq it would need to be referred as a nuclear action. The same schedule lists the 'Activity concentration value of natural uranium as 1 Bq/g:

The total amount of natural uranium in the waste should therefore not exceed 10^9 grams or 1,000 tonnes.

The amount of uranium detected in brine from the Williamson pit that was tested (which has already been concentrated to some degree) was below the detection level of 0.005mg/L.

Assuming that mining is undertaken over a period of 5 years and that 6GL of brine will be extracted and concentrated every year and that the uranium content is all transferred to through to the final waste product for disposal, contained natural uranium would amount to at most 150kg if the uranium content was at the detection limit. In other words, under the worst possible assumptions the activity level in the waste will be approximately 1/6,667th of the level that would trigger a requirement to undertake a referral.

8.2.2 Assessment

The uranium content of the brine is expected to be below detection limits when extracted and the radioactivity level associated with the cumulative total of uranium over the entire life of the project is over two orders of magnitude below the amount classed as radioactive and therefore requiring a referral.

9 Cumulative Impact Assessment

SO4 has designed the demonstration project in areas around previous operations and disturbance associated with Blackham's operations and tenure. SO4 has also taken into account the social, environmental and cultural requirements to effectively minimise the impact of the project and taken these into account through exclusion or placing infrastructure to minimise the direct and indirect impacts.

10 Conclusion

The project does not pose a significant environmental risk and has a limited disturbance footprint. Where there is the potential that the Project could impact the surrounding environment, SO4 has identified mitigation and management measures to successfully manage the potential impact of the project.

From this it can be concluded that the residual risk for each factor is considered below the point where formal assessment under the *EP Act* is warranted.

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