

Northern Water Project Environmental Impact Statement



Executive Summary

September 2026



ACKNOWLEDGEMENT OF COUNTRY

The Department for Infrastructure and Transport and JBS&G Australia Pty Ltd acknowledge the Traditional Custodians of the Country throughout South Australia and recognise their continuing connection to land and waters.

We pay our respects to the diversity of cultures, significance of contributions and to Elders past, present and emerging.

In particular, we acknowledge the Traditional Custodians of the Country on which the Northern Water Project is proposed, being the Barngarla and Kokatha people, and pay our respects to their ongoing contribution and custodianship of that Country.

DISCLAIMER

The Northern Water Project Environmental Impact Statement (EIS) has been prepared by JBS&G Australia Pty Ltd – A Geosyntec Company (JBS&G) on behalf of the Department for Infrastructure and Transport for submission to the South Australian Minister for Planning under the *Planning Development and Infrastructure Act 2016* and the Commonwealth Minister for Environment under the *Environment Protection and Biodiversity Conservation Act 1999*. The EIS has been prepared for that purpose only and the information contained in the EIS should not be relied upon by any other person to make any decision.

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EIS EXECUTIVE SUMMARY

The EIS Executive Summary has been produced to provide a high level but comprehensive understanding of the Northern Water Project and a concise summary of the assessment of the key associated environmental, social and economic impacts undertaken in the EIS.

The EIS Documentation and Proponent Information chapter of the full EIS document provides the EIS Table of Contents, a full list of the EIS Supporting Documents and Technical Reports and a list of the Abbreviations, Glossary and Definitions used in the EIS.

Detailed information including descriptions and maps of the Project location, in-depth descriptions of Project infrastructure, construction and operation, the technical studies undertaken, potential impacts assessed and how impacts are proposed to be avoided or managed are provided in the full EIS document and appended documents.

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1 INTRODUCTION

The Northern Water Project

The Northern Water Project (the Project) aims to provide a secure, climate resilient water source for industry in South Australia's Upper Spencer Gulf (USG) and Far North.

Delivery of the Project will involve the construction and operation of a seawater reverse osmosis desalination plant and associated marine structures on the USG, a water transfer system connecting to the Far North and electricity supply infrastructure. The proposed desalination plant location is on the western shore of the USG at Mullaquana Station, south-west of Whyalla, and the transfer system runs generally north from the desalination plant to delivery points at the Olympic Dam and Carrapateena copper-gold mines.

Key elements of the Project

The Project comprises the following key elements:

- a 51 GL/y seawater reverse osmosis desalination plant located at Mullaquana Station, on the Upper Spencer Gulf approximately 25 km south-west of central Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into the Spencer Gulf
- seawater intake with associated intake structure and pumps
- outfall pipe and diffuser structures for discharge of return water into the Spencer Gulf
- a transfer system approximately 406 km in length consisting of:
 - approximately 360 km of main transfer pipeline, largely constructed underground, from the desalination plant and terminating at the delivery point at the Olympic Dam copper-gold mine.
 - approximately 46 km of lateral branch pipeline (which may be constructed above or below ground) to a delivery point at the Carrapateena copper-gold mine
 - associated pump stations and water storage
- high voltage electricity supply including new transmission lines and network and facility substations to provide power to the desalination plant and transfer pump stations
- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

The Project Proponent

The Project is being proposed by the Department for Infrastructure and Transport (DIT). In addition to being the Project proponent and progressing State and Commonwealth planning and environmental assessments, DIT is responsible for pre-delivery activities and procurement including procurement of the design, build, operate and maintain (DBOM) contract for the Project. DIT will also likely remain as the responsible agency for the purpose of the design and build phase of the contract.

Aim of the Project

A water supply project to the Far North has been on the South Australian infrastructure agenda for several decades and while several iterations of the Project have been considered previously, none have progressed to development. The Project aims to:

- support the continued development of South Australia's key mining resources to unlock globally significant deposits of strategic and critical minerals, to support economic growth and global decarbonisation efforts
- unlock sustainable growth in the key future industries which will contribute to decarbonisation initiatives, sovereign capability and enable employment / regional growth
- increase environmental sustainability by reducing reliance on environmental water sources including the Great Artesian Basin (GAB), local water aquifers and the River Murray
- preserve culturally and economically significant water sources for First Nations communities in South Australia.

Project benefits for South Australians

If approved, the Project would potentially deliver a range of benefits for South Australians including:

- Increased economic activity:
 - Unlocking mineral resources in the Gawler Craton through reliable access to Project water, and the resulting increased investment and expanded mining sector activity is expected to create employment and economic growth for the region and State
 - Between 2026 and 2062, Gross Regional Product (GRP) in Northern South Australia could be approximately \$3 billion larger on average and Gross State Product (GSP) \$3.3 billion larger on average
 - In average annual terms, between 2026 and 2062, an additional 2,000 Full Time Equivalent positions (FTEs) are expected to be employed across South Australia, with 1,600 in Northern South Australia
- Provision of an alternative, climate resilient water supply for industry, that may create opportunities for future reductions in reliance by industry on existing water sources, creating an opportunity to support the long-term protection of culturally significant water sources such as GAB mound springs
- Improved liveability for communities in the Whyalla and Northern South Australia regions associated with increased economic growth.

Project timing

Construction of the Project would commence subject to a final investment decision (FID) by the South Australian Government and once all necessary environmental and development approvals are received and access to land is obtained. It is anticipated that construction may commence in 2028 with first water expected to be available in 2032. The operational life of the Project is expected to be 100 years.

2 SELECTING LOCATIONS FOR PROJECT INFRASTRUCTURE

Key considerations when determining the location of the desalination plant included:

- proximity to the ocean for the seawater intake and outfall
- marine features that could provide the required intake water quality and where the return water can be rapidly mixed and dispersed
- accessibility and constructability of a water supply pipeline
- proximity to a power supply, roads, and telecommunications infrastructure
- existing land features and compatibility of land use
- sensitivity of terrestrial and marine environments and in particular marine parks
- community concerns.

Location of the proposed transfer system considered:

- provision of water at the required delivery points
- topography and a hydraulic engineering outcome that would result in fewer pump stations and water storage locations and lower operational energy use associated with pumping
- connection with other Project infrastructure and location in parallel with or utilising existing and previously disturbed areas where possible
- minimising interaction with existing services, to reduce potential landholder, environmental and Aboriginal cultural heritage impacts.

Alternatives considered in the design and location of the Project

Supply / capacity alternatives

Previous studies completed since 2009 assessed multiple water supply options to meet industrial growth projections and increased water demand. Options considered were not limited to desalination and included increased or new groundwater extraction, use of River Murray allocations and sourcing water from the Adelaide Desalination Plant. Options considered also involved different scales, capacities, locations, staging approaches, pipeline alignments and water quality arrangements. These studies concluded that a coastal desalination plant was the preferred option.

Different demand scenarios and capacity options have since been considered to determine the preferred supply capacity option to be considered in the Environmental Impact Statement (EIS). The outcome of this was a desalination plant with a design capacity of 51 GL/year (with future-proofing to 73 GL/year) located on the Spencer Gulf or the Eyre Peninsula, with a transfer pipeline extending north to Olympic Dam.

Site alternatives

Once the preferred configuration was determined, ten possible desalination plant sites (which had access to seawater and proximity to potential end users) were identified on Spencer Gulf and the Eyre Peninsula for further feasibility assessment. Following multiple phases of multi-criteria analysis Mullaquana Station was ultimately selected as the confirmed site because:

- the location meets strategic Project objectives due to its proximity to demand in the Upper Spencer Gulf and the Far North
- the location is close to potential water off-takers, industry, workforce and infrastructure, aligning favourably with the State's aspirations to grow the economy of the Upper Spencer Gulf and Far North
- it will be cost effective to build and operate at the site due to proximity to the available workforce, suppliers and transport infrastructure
- the site provides favourable ground conditions for both the onshore and offshore construction environments.



Northern Water Project location

3 ENVIRONMENTAL ASSESSMENT AND APPROVALS PROCESS

The *Planning, Development and Infrastructure Act 2016* (PDI Act) governs the planning system in South Australia and sets out the process and pathways for granting development approvals, including approvals for major developments.

Following the submission of a Crown Development Application under the PDI Act by DIT (as the Project Proponent) on 4 December 2025, the South Australian Minister for Planning directed on 22 December 2025 that an EIS was to be prepared for the Project.

The National Environmental Protection Agency also have a role in the assessment and approvals process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A referral for the Project under the EPBC Act was submitted to the Commonwealth for a decision as to whether there was the potential for significant impacts to Matters of National Environmental Significance (MNES) on 11 December 2025. On 5 February 2026 the Project was declared to be a 'controlled action' and therefore subject to assessment under the EPBC Act. The relevant protected matters for the controlled action assessed in the EIS are listed threatened species and communities and listed migratory species.

The Commonwealth Environment Minister has accredited the South Australian environmental assessment process under the PDI Act to assess the controlled action for the Project. On this basis one EIS has been prepared, one period of public consultation is being undertaken and one Response Document and Assessment Report will be developed to satisfy the legislative requirements of each jurisdiction.

Project-specific EIS Assessment Requirements (ARs) were released by the State Planning Commission (SPC) on 30 June 2026 and are publicly available on the PlanSA Portal¹ and provided at Appendix A-1 of the EIS. The ARs set out the key issues and potential impacts associated with the proposed development that require assessment, and the level of detail and investigation that should be given to those issues in preparation of the EIS. The State and Commonwealth governments liaised on the draft ARs for the EIS to ensure they met the requirements of South Australian and Commonwealth legislation.

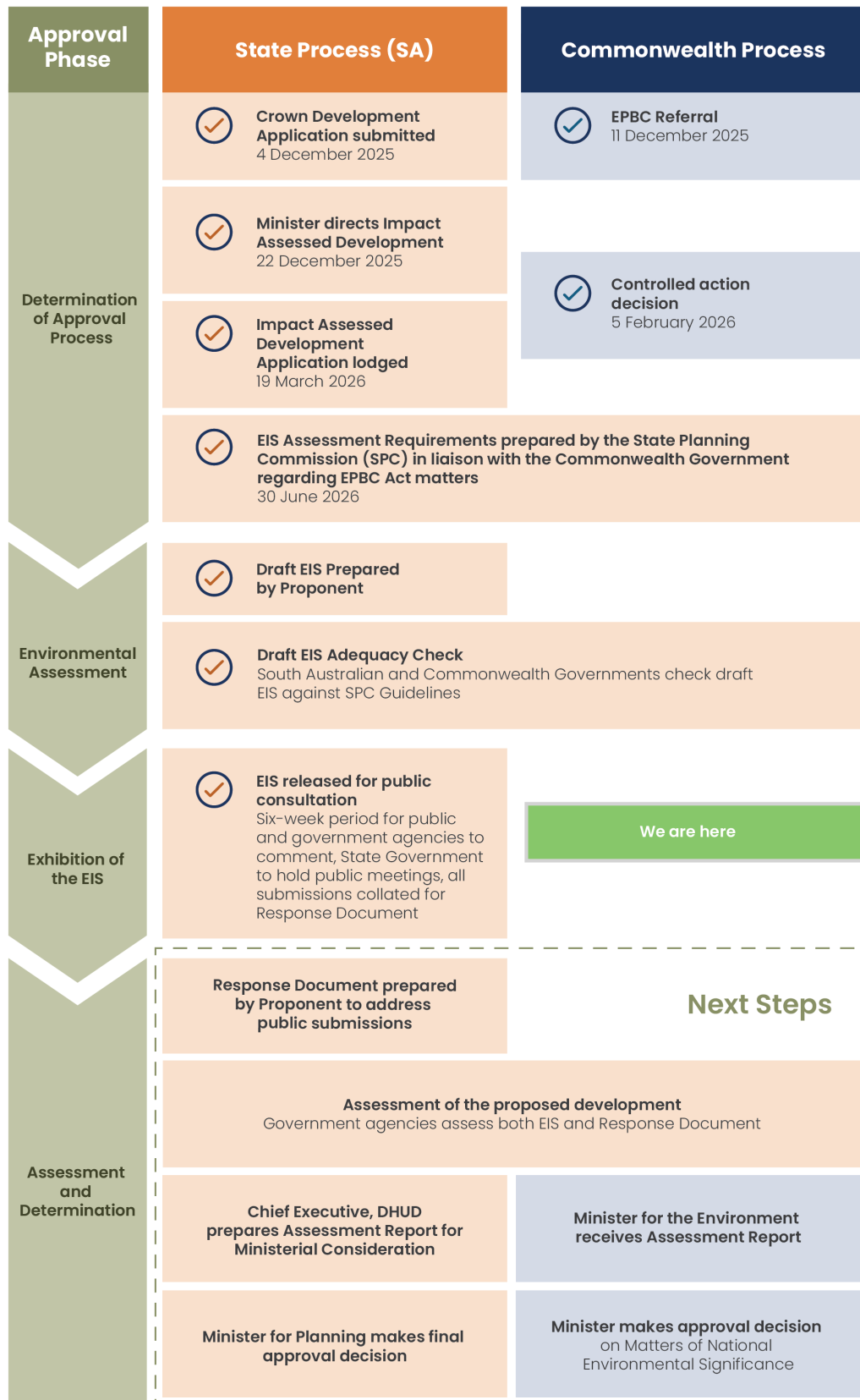
The Northern Water Project EIS will be on exhibition for public comment for a period of at least six weeks (30 business days) on the PlanSA Portal. Copies of the EIS are also available for public inspection in places which have been nominated by the Minister for Planning. Interested persons are invited to make written submissions on the EIS within the timeframe defined by the Minister for Planning.

Following public exhibition, the EIS, including the Response Document, public submissions and comments from local councils, agencies and other referral bodies will be assessed and an Assessment Report will be prepared for the Minister for Planning. The Response Document and Assessment Report will also be provided to the Commonwealth Environment Minister for consideration in accordance with the accredited assessment approach.

The Minister for Planning will make a final decision on the Project in accordance with Section 115 of the PDI Act. The EIS and Assessment Report will be used by the Commonwealth

¹ https://plan.sa.gov.au/development_applications/state_development/impact-assessed-development/majors/major_projects/majors/northern-water-mullaquana

Environment Minister to make a separate decision on whether or not to approve the proposed action under Part 9 of the EPBC Act.



Overview of the Northern Water Project application and assessment process

4 DESCRIPTION OF THE PROJECT

Reference Design

A Reference Design for the Project has been used for the description of the key Project components for the purposes of State and Commonwealth assessments and impact assessment presented in this EIS. The Reference Design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue.

The Project can be broadly divided into the following main components:

- **Desalination plant** – the facility covering pre-treatment, reverse osmosis and post-treatment and pumping of product water and return water
- **Desalination plant marine infrastructure** – including intake / outfall tunnel(s), seabed intake and diffuse structures
- **Transfer system** – comprising an approximately 360 km transfer pipeline from the desalination plant to the Olympic Dam mine delivery point, approximately 46 km lateral branch to the Carrapateena mine delivery point, transfer pump stations and water storages
- **Electricity supply** – provision of power to the desalination plant and pumping stations, including transmission lines and substations to connect to the grid, and potential solar arrays.

Desalination plant

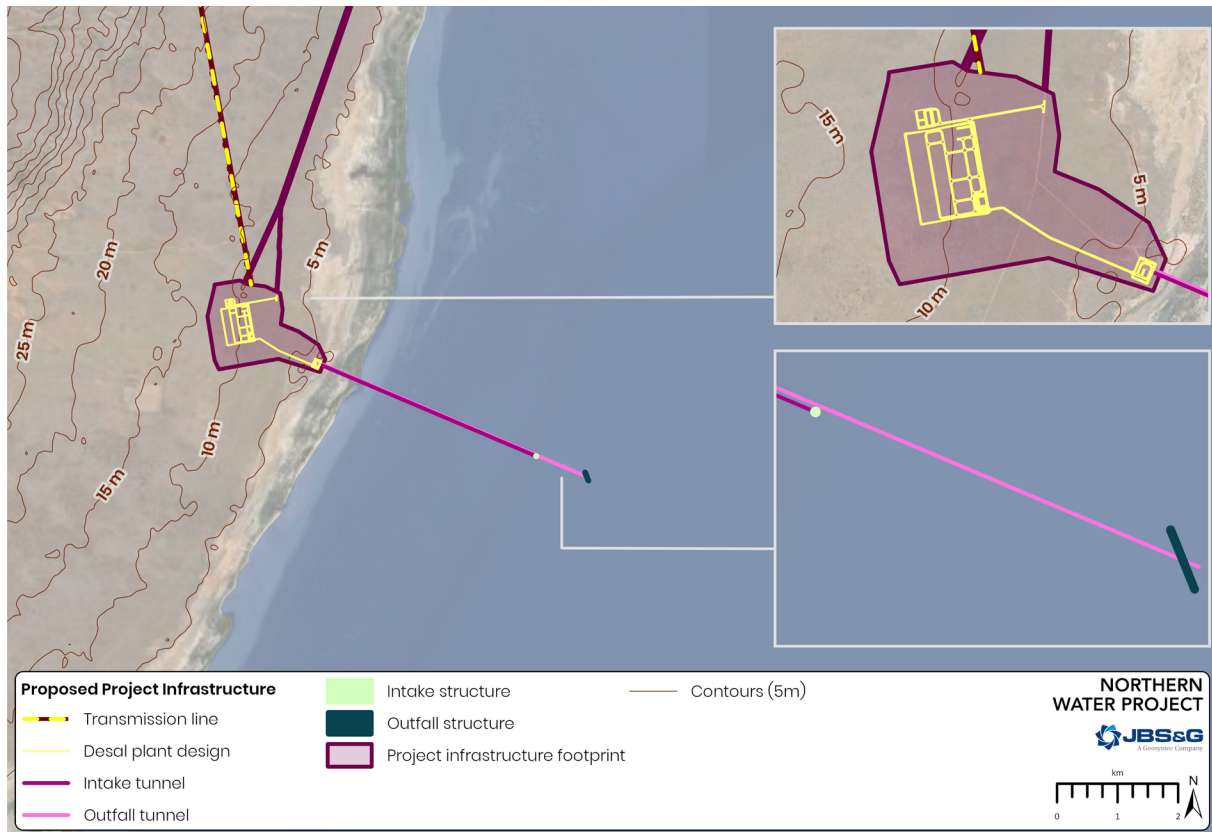
Plant location and description

The desalination plant site on Mullaquana Station is located approximately 14 km east of the Lincoln Highway and 1.5 km from Spencer Gulf coastal waters.

Approximately 200 ha of land would be required for construction of the plant. The site will be accessed via Eight Mile Creek Road from Whyalla during both the construction and operation periods. A new access is also likely to be established via a 6 km road constructed adjacent to the proposed pipeline alignment, connecting Eight Mile Creek Road to the Lincoln Highway. This access would limit the use of Horseshoe Road, Mullaquana Road and the northern section of Eight Mile Creek Road.

The site will accommodate all temporary works (i.e. works required for construction) and permanent works (i.e. the facilities). Major temporary works will include the tunnel boring machine (TBM) launch box, laydowns, construction water storage and spoil drying areas. Permanent site components include the desalination plant, product water storage, high voltage switchyard, intake and outlet pump station areas, stormwater management systems and land for the future-proofing capacity.

The final placement of the desalination plant and marine infrastructure within the proposed site will be the subject of detailed design. However, there will be no construction in the adjacent coastal dunes, mangroves or intertidal areas.



Desalination plant site location (contours in mAHD)

Plant capacity

The design capacity for the desalination plant, and the production capacity for which approval is being sought, is 51 GL/y.

Some aspects of the desalination plant and transfer system design and construction may (largely through a function of the construction method), accommodate a production capacity of greater than the proposed 51 GL/y. Any increase in production capacity to that currently proposed, however, would be subject to separate design development, assessment processes and associated approvals at that time.

Desalination process

Key desalination process infrastructure includes:

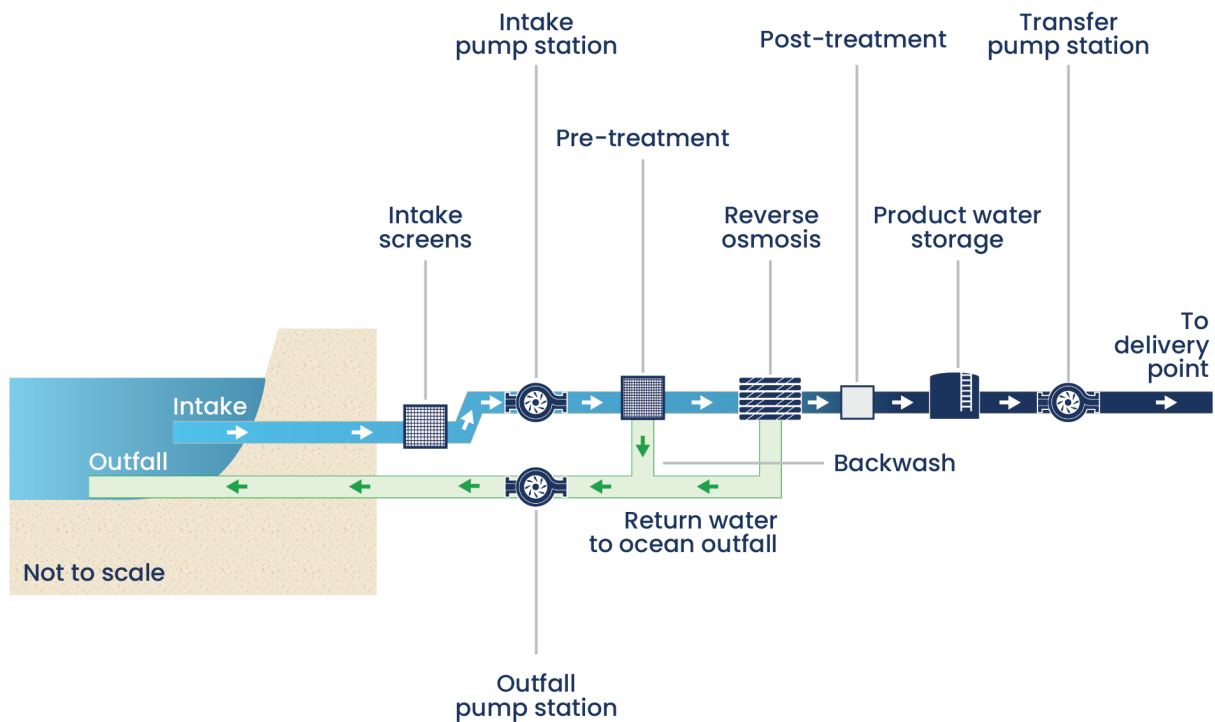
- seawater intake pump station
- desalination treatment process (pre-treatment and reverse osmosis (RO) systems)
- product water storage tank(s) and / or earth bank storage(s)
- facilities for post-treatment of desalinated water (product water), return water and ancillary equipment
- facilities and power infrastructure at the plant.

The proposed desalination process is seawater reverse osmosis which is a well-established, proven and mature technology and commonly adopted globally.

Under this process, seawater enters the system through an intake and passes through a pre-treatment stage, where material that could damage the desalination membranes are

removed. The pre-treated water is then pumped into the RO unit, where high pressure forces it through semi-permeable membranes. These membranes allow only clean water to pass while rejecting salts and impurities, producing two streams – desalinated (product) water and return water. The desalinated (product) water is stabilised post-treatment and stored to make it appropriate for distribution, while the return water is discharged via the outfall back to the ocean.

A simplified representation of the desalination plant process is shown below.



NORTHERN
WATER PROJECT
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Simplified desalination plant process

Desalination plant marine infrastructure

Intake and outfall tunnels

Underground concrete-lined intake and outfall tunnel(s) will be constructed using TBMs and extend offshore into Spencer Gulf waters. The intake tunnel will be an indicative length of 4 km while the outfall tunnel will be an indicative length of 5 km. Internal diameter of both tunnels will be in the order of 3.2 m (subject to detailed design).

TBMs will be launched via box cut, decline and launch facilities constructed onshore and located as close as practicable to the marine environment while avoiding dune systems and intertidal zones. The TBMs will progressively tunnel under the dune systems, intertidal zones and the seabed to the required distance offshore, excavating and lining the tunnels with precast concrete sections. The material excavated from the tunnel (TBM spoil) will be transported above ground and stockpiled for drying as required. It is anticipated that spoil will be suitable for reuse on the desalination plant site.

Due to the complexities and potential environmental impacts of removing the TBM from the end point of the tunnel, salvageable TBM and other tunnel construction components would be removed while the TBM cutterhead and shield would be abandoned, and concrete-encased permanently within the tunnels.

In order to reduce the length of tunnels beyond an appropriate distance, the option of 'float and sink' methodology (which is currently contemplated for installation of the outfall diffuser) may be also considered for a section of the outfall pipeline infrastructure. This methodology for underwater pipeline installation involves fusion welding lengths of High-Density Polyethylene (HDPE) pipe at a nearby onshore facility (e.g. Whyalla Port), towing and floating the assembled pipeline into position and then sinking it slowly by filling it with water. Ballast weights are used to help sink and hold the pipe in its intended location on the seabed, where it would be secured and connected to the tunnelled outfall pipeline.

If the float and sink methodology is adopted, the disturbance footprint would be designed to be located beyond the extent of the *Posidonia* spp. seagrass.



Example of slurry TBM (left) and earth pressure balance TBM (right)



Desalination plant intake and outfall pipelines using float and sink methodology



Proposed intake and outfall alignment (Bathymetry is in mAHD)

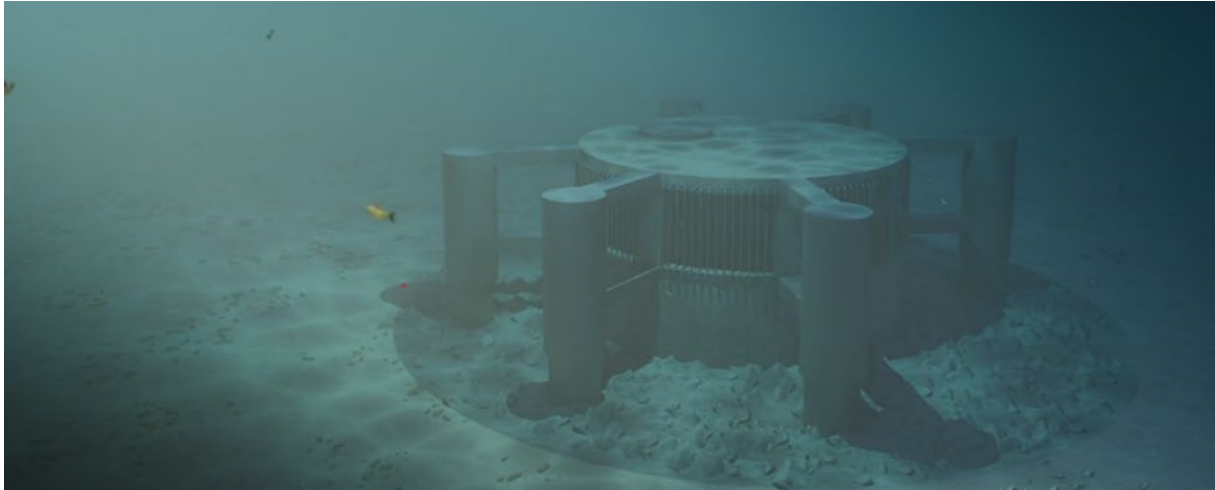
Intake structure(s)

The intake structure collects the seawater for processing in the desalination plant and is likely to be located in shallower water and closer to shore than the outfall structure. The intake will also need to be a sufficient distance from the outfall to avoid unacceptable recirculation of return water back into the plant.

The intake structure(s) include a riser connecting the intake structure to the intake tunnel, a precast concrete structure and screened intake head. A jack-up-barge (JUB) (which is a non-powered floating platform with legs extending into the sea floor) will be established offshore, to support construction of the intake and outfall structures.

The proposed intake structure is approximately 6 m above the seabed and requires a water depth of no shallower than 13 m from Lowest Astronomical Tide (approximately -15m AHD) to address wave height and vessel navigation requirements. The structure would be comprised of a precast concrete caisson, stainless steel intake grills and precast concrete cap and placed on a 1.5 m thick bedding layer of rockfill, trenched below existing surface levels.

A maximum intake velocity for seawater of 0.15 m/s will minimise entrainment of marine organisms as the low velocity of the water entering the intake allows marine life to swim in, out and around the structure. A maximum grill width on the intake of 0.15 m also limits larger marine fauna entering the intake structure.



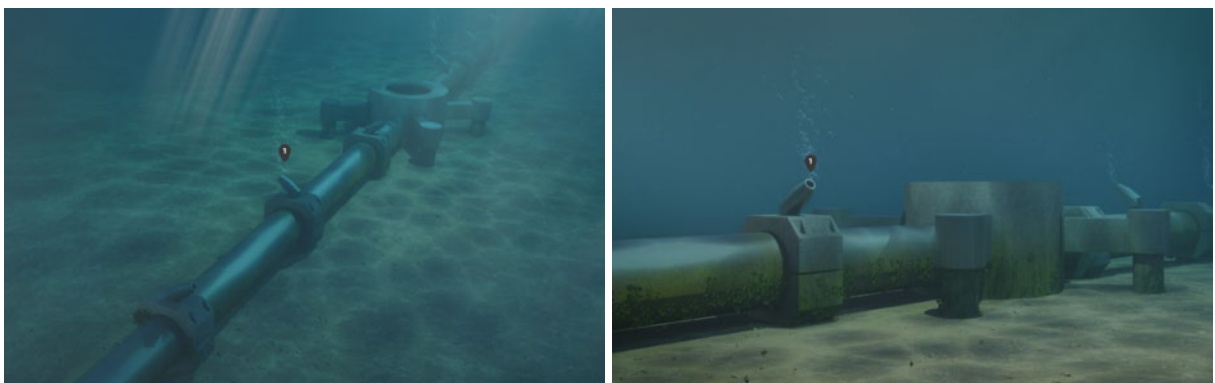
Concept of potential intake structure design

Outfall structure

After the desalination process, the return water will be discharged back into Spencer Gulf through an outfall tunnel connected to a diffuser system (or similar arrangement) via a riser.

The outfall diffuser structure has a series of nozzles attached to the end of the outfall pipe constructed using a float and sink methodology. The diffuser structure will be floated into position before the structure is flooded, sunk into place and secured to the seafloor, using piles, rather than being excavated into the seabed.

Design of the outfall structure and diffuser system will ensure that the return water is effectively mixed and dispersed into the marine environment in accordance with approval conditions and licensing requirements. Key drivers of the location of the diffuser system will be sufficient depth of water to ensure the outfall discharge does not breach the surface (referred to as breakthrough) and avoidance of unacceptable impacts to seagrass communities.



Concept of potential outfall / diffuser design (subject to detailed design)

Transfer system

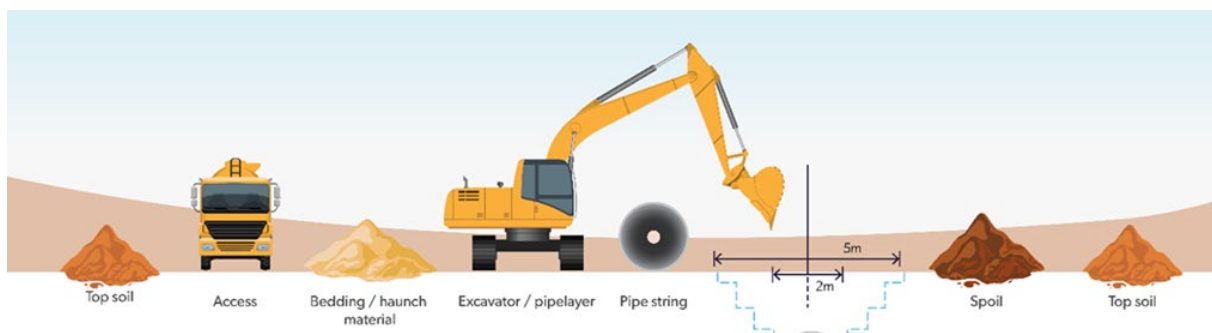
Pipeline

The main component of the transfer system is a 360 km pipeline from Mullaquana Station to Olympic Dam Mine Site with a 46 km lateral branch connecting the Carrapateena Mine to the main pipeline which follows this route:

- **Desalination plant (Mullaquana Station) to Whyalla** – alignment heads generally north following Eight Mile Creek Road and other existing tracks / fencelines on rural land skirting Whyalla to the west. The alignment then veers north-east following the Lincoln Highway.
- **Whyalla to Port Augusta** – alignment traverses a section of the Cultana Training Area following the Lincoln Highway heading north, before meeting the Stuart Highway alignment via a small section of the Eyre Highway.
- **Port Augusta to Pimba** – alignment generally follows the Stuart Highway, with portions following the former Stuart Highway alignment, and paralleling the existing Department of Defence Port Augusta to Woomera water pipeline.
- **Pimba to Olympic Dam** – generally follows the Olympic Dam Highway with the pipeline diverting to the east to avoid Woomera township.
- **Carrapateena mine lateral branch** – heads north-west from the main transfer pipeline, south of Lake Windabout. Construction of the Carrapateena mine lateral branch above ground has been considered as an alternative option in the EIS.

Construction of the pipeline will likely occur from south to north with two work fronts operating at most. Clearance of vegetation and grading of topsoil, initially with rolling of vegetation, then excavation, trenching, stringing (i.e. laying pipeline alongside trench) is expected to occur within the designated construction corridor.

The pipeline will be buried underground for the majority of the alignment. Sections which cross creeks will generally be constructed underground using open trench excavation in dry conditions. There will also be some locations which will require trenchless construction and others will require above-ground crossings. Highway crossings will most likely be constructed using trenching methodology with the pipe installed within an encasing pipe. Rail crossings are proposed to be constructed via trenchless methodology, with the pipe installed within an encasing pipe.



Typical construction layout for pipeline

The ultimate construction corridor width will be dependent on the outcomes of detailed design and related construction methodology. The maximum width for standard installation would be 40 m, however, the disturbance footprint may be narrowed in some locations due to construction constraints, or where extra workspace may be required in others.

Rehabilitation will commence following completion of construction activity and will be implemented progressively along the pipeline construction corridor as works are complete. Rehabilitation will involve respreading cleared topsoil and vegetation to encourage natural regeneration. Additional rehabilitation methods (e.g. direct seeding) would only be implemented where required to supplement natural regeneration, following approximately 12 months of low intervention.

Pump stations and storage

The transfer system includes a series of transfer pump stations and product water storages (e.g. tanks, earth bank storage or other similar solutions) to move product water along the length of the main transfer pipeline.

Proposed pump stations, storages and tanks

Facility Name	Location
Mullaquana Station pump station	Mullaquana Station
Lincoln Gap pump station and storage	Lincoln Gap (Stuart Highway)
Kalaya pump station and storage	Kootaberra Station (Stuart Highway)
Mangata pump station and storage	Oakden Hills Station (Stuart Highway)
Carrapateena storage	Carrapateena Mine
Bimba storage (at the overall high point)	Arcoona Station (south of Pimba) (Stuart Highway)

Electricity supply infrastructure

New transmission lines, new network substations and upgraded substations are required to provide power to the desalination plant and the transfer pump stations. Facility substations would also be constructed within the pump station compounds incorporating electrical control rooms, electrical transformers and equipment.

Proposed Project electricity transmission infrastructure

Project electricity transmission infrastructure	Voltage
New transmission lines	
Mullaquana Station (desalination plant)	132kV
Pandurra (Lincoln Gap pump station)	275 kV
Bookaloo (Kalaya pump station)	132kV
Oakden Hills (Mangata pump station)	33kV
New network substations	
Mullaquana Substation (desalination plant)	132 kV
Kootaberra substation (Kalaya pump station)	275kV

Project electricity transmission infrastructure	Voltage
Upgraded existing network substation	
Corraberra Hill substation (Lincoln Gap pump station)	275kV
Mount Gunson substation (Mangata pump station)	33 kV
Solar array and battery system	
Bimba (supply to Bimba storage)	n/a

It is likely that construction activities will proceed on several concurrent work fronts. Again, clearance of vegetation and grading of topsoil will commence with rolling of the vegetation and stockpiling of topsoil for use in rehabilitation. Following establishment of access and clearing, concrete footings transmission towers will be constructed followed by the construction of substation infrastructure, and erection and dressing of structures and later stringing of towers. For transmission lines, an average disturbance footprint of 20 m per linear metre of transmission line is expected. Rehabilitation will occur as described previously for the transfer system construction.

Lattice towers are expected to be partially fabricated off-site and transported to the tower locations in sections for final assembly and erection. Monopoles will be delivered to the Project works sites in sections. Large crawler cranes will be used to lift tower sections into place for final assembly.

The substation sites will house primary plant such as gantries, switch gear, transformers, control buildings, lighting and lightning masts and will be surrounded by a palisade perimeter fence. Substation construction activities typically include site clearance (i.e. removal of vegetation and topsoil), earthworks (i.e. bench formation, drainage and foundation construction) and installation of transformers and other electrical works.

Areas of temporary disturbance would be cleaned up and rehabilitated in accordance with requirements of the Project Construction Environmental Management Plan(s) (CEMP) and Restoration and Rehabilitation Plan.

5 STAKEHOLDER CONSULTATION

Engagement to date

Comprehensive community and stakeholder engagement has been undertaken progressively since project commencement in 2022 to support planning and design, land access and investigations. Concerns, suggestions and benefits raised by stakeholders have been considered and influenced the planning of the EIS and Project design.

Key stakeholders relevant to the Project were identified early in the planning and site selection process. As the Project progressed and more information became available about site locations, potential impacts and benefits, and stakeholder concerns, the stakeholder list was updated, and a range of meetings, workshops, surveys, reference groups and forums were undertaken.

Engagement and communication activities have included a broad range of methods tailored to different stakeholder groups and stages of the Project such as meetings, emails,

phone calls, community events, stakeholder briefings and registrations of interest. The engagement has involved Traditional Owners, Aboriginal communities and stakeholders across government, industry, business, fisheries and aquaculture, environmental organisations, landholders, local residents (including shack owners) and the wider community.

The most frequently raised engagement topics during the late 2024 – August 2026 period related to:

- desalination plant options and preferred site selection
- marine and coastal environment considerations
- Project timing and assessment pathways
- environmental investigations and impact assessment processes
- employment and local business participation opportunities.

6 IMPACT ASSESSMENT

In addition to ensuring each Assessment Requirement is addressed, the EIS is required to provide a clear and comprehensive analysis of the proposed development, the existing environment in which it will be located (physical and socio-economic), the likely impacts of the development and how those impacts will be addressed.

The following key issues were identified by the SPC to be addressed in the EIS:

- effects on marine flora and fauna, ecological processes, and marine-based industry including recreational and commercial fisheries and aquaculture
- effects on terrestrial flora and fauna
- effects on MNES under the EPBC Act including listed threatened species and communities
- effects on Aboriginal cultural heritage
- economic and social effects for local and regional communities, and the State.

Land Use and Site Considerations

Use of land

The existing land uses in the Project Area are dominated by pastoral grazing over native vegetation (i.e. has not been extensively cleared for agriculture) and mining operations. The main forms of land tenure which interface with the Project Area include freehold, Crown lease and Crown Record (including State and Commonwealth land) as well as a number of resource and renewable energy tenements which interface with the Project.

Both the Kokatha People and Barngarla People have had areas of Native Title determined by the Federal Court in the Project Area. Native Title exists over much of the area associated with the transfer system between Whyalla and Olympic Dam, including pastoral leases and the Department of Defence's Cultana Training Area, but has been extinguished over Mullaquana Station and other adjacent Perpetual Crown Leases. It also continues to exist within coastal Crown land adjacent to Mullaquana Station.

Existing major infrastructure in the vicinity of the Project includes high voltage overhead transmission lines and substations, renewable energy facilities, water and hydrocarbon transmission pipelines, State and council-maintained roads, railway lines, and regional airports and airstrips.

Over the ~406 km of the Project, there is a realistic potential for Project activities to temporarily (during construction) or permanently (due to operations) affect some existing and future land uses.

The *Northern Water Project (Land and Infrastructure) Act 2026*, is special purpose legislation which provides a Project-specific framework for access to land and the acquisition of interests in land required for delivery of the Project. The Act was passed by the Parliament in September 2026 and will commence on a day to be fixed by proclamation.

Key findings

- The majority of the Project's footprint (both in construction and operation) will be for the pipeline. Occupation for construction in any one location will generally be for days or weeks. In operation, the pipeline will be largely below ground and will require establishment of an easement, with limited impact on prior land use.
- Land Access Management Plans and property-specific Land Management Plans developed in consultation with landholders will minimise the potential for disruption to landholder operations, amenity and property infrastructure during the construction phase.
- Impacts to land use from land disturbance from pipeline and transmission line construction will be minimised by post-construction reinstatement and landholder consultation.
- DIT is engaging with the representatives of the Barngarla and Kokatha Peoples with the aim of negotiating the terms of Indigenous Land Use Agreements in accordance with the Commonwealth Native Title Act to enable the Project to proceed within their Native Title determination areas.

Use of marine waters

The USG supports key commercial fisheries, tourism, recreational boating and fishing, aquaculture, and major shipping and port infrastructure. Significant commercial and recreational fisheries in the vicinity of the Project include Western King Prawn, Snapper, King George Whiting, Garfish and Blue Swimmer Crab. Nursery sites for juvenile prawns, Snapper and King George Whiting are also recognised in the area.

There are no marine protected areas within 8 km of the marine Project Area. The EPBC Act listed Cuttlefish Coast Sanctuary Zone National Heritage Place is located approximately 34 km north-east of the outfall diffuser at the desalination plant. There are no marine aquaculture zones within 40 km of the desalination plant site.

Spencer Gulf waters offshore from the desalination plant site are an important shipping lane for export of bulk goods and petroleum products from Whyalla, Port Pirie and Port Bonython. The shipping navigation channel ('the recommended track') is located approximately 7 km east of the likely location of any of the Project's seabed infrastructure.

A marine exclusion zone of approximately 112 ha (which represents approximately 0.006% of Spencer Gulf waters), will be established around the location of the intake and outfall infrastructure to ensure the safety of the infrastructure located on the seabed, as well as construction vessels and operators, and other marine users.

Key findings

- Desalination plant design and implementation of a Marine and Coastal Environmental Construction and Operations Management Plans will minimise impacts to nearby marine parks.
- The marine exclusion zone will be necessary to protect desalination plant marine infrastructure and the safety of nearby users of marine waters. However, in the context of Spencer Gulf, the exclusion zone will have a negligible impact on the area available for marine activities including commercial fisheries.

Physical Environment

Coastal processes

Coastal zone ecosystems are influenced by a range of dynamic interactions and forces including wave action, tides, currents, sediment transport and storm surges. Understanding these processes is essential for assessing impacts from proposed coastal infrastructure projects.

At Mullaquana Station, the coastal zone comprises a low coastal plain which is subject to tidal inundation. The coastal area is largely saltmarsh, with beach ridges and short tidal channels with areas of mangrove behind extensive areas of low-tide sand and inter-tidal seagrass.

The subtidal environment at Mullaquana Station is generally sandy and flat with large seagrass beds that transition to sandy habitats in deeper water. Dense *Posidonia* seagrasses dominate the shallower areas to approximately -13 m depth (AHD), then transition to *Zostera* seagrass out to approximately -16 m depth (AHD). Beyond -16 m (AHD) bare sand dominates.

Onshore and marine construction activities particularly those that disturb the seabed have the potential to impact the coastal environment at Mullaquana Station.

Key findings

- There will be no construction in the active coastal zone, intertidal areas, coastal dunes, mangroves or *Posidonia* seagrass at the desalination plant site.
- The preferred TBM spoil strategy involves dewatering of TBM spoil via retention and sedimentation basins on land adjacent to the Mullaquana Station construction site.
- Some localised seabed disturbance and turbidity may occur surrounding the marine construction zones but is unlikely to impact upon coastal processes.
- There will be no ongoing impact to coastal processes or the coastal environment from the presence of the intake and outfall structures due to their significant distance from the coast and their depth.

Soils, landform and geology

Due to the nature of construction activities and the geographic coverage of the Project, a variety of landforms and soils will be subject to the effects of land disturbance. Key issues with the potential to affect soil and landform during Project construction include erosion potential, soil salinity, potential acid sulfate soils and localised contamination risk. The temporary but significant earthworks and vegetation clearance required for construction of the pipeline also have the potential to impact soils and landform if not managed appropriately.

Key findings

- Best practice erosion and sedimentation control measures will be implemented to minimise risk to soils and surface waters, maintain soil viability and minimise loss of topsoil.
- Pipeline construction methodology and appropriate management will prevent mobilisation of known and encountered acid sulfate soils and previously contaminated soil.
- Design of the transfer system and the desalination plant intake and outfall box cut and tunnels has considered risks of soil stability and ground subsidence over infrastructure design life.
- Implementation of appropriate storage and handling of fuels and chemicals and proactive spill management will minimise risks of soil contamination during construction and operation.

Surface water

Across the Project Area surface water features are scarce and include predominantly ill-defined or ephemeral watercourses, salt lakes and clay pan depressions. Surface water is typically absent for long periods, with flows occurring only after significant rainfall. Water quality is therefore highly variable ranging from fresh during rainfall runoff events to highly saline as evaporation concentrates salts.

Construction of the transfer system pipeline (and watercourse crossings in particular) and site run-off at the desalination plant are the primary potential sources of impacts to surface water.

Key findings

- There are no watercourses within the desalination plant site. Topography is generally sloping towards the east and clean runoff from upstream of the Project site will be diverted around the desalination plant and directed to a clay pan south-east of the site.
- Stormwater management at the desalination plant site is designed to separate stormwater catchments by potential contaminants to allow the most appropriate treatment for each catchment. Stormwater management for substations and pump stations will follow the same principles.
- All of the more than 200 watercourses crossed by the pipeline are ephemeral allowing construction to be undertaken while dry to prevent impacts to surface water and

aquatic ecosystems. Control strategies are proposed to prevent run-off from impacting upon surface water if present.

Groundwater

The box cut, decline and TBM launch facilities at the desalination plant site are predicted to intersect the groundwater table while trenching of the pipeline and excavation of shafts for trenchless construction have the potential to intersect areas of shallow groundwater, most likely near watercourses.

Inflows of groundwater into excavations during construction have the potential to lower the groundwater table and reduce the water available to surrounding users, including groundwater dependent ecosystems (GDEs). Unmitigated reduction in groundwater levels from areas of potential acid sulfate soils (PASS) have the potential to allow oxidation leading to formation on sulphuric acid in these soils.

Key findings

- There is potential for short-term groundwater inflows and drawdown during installation of construction shafts (for pipeline trenchless construction) and pipeline trenching activities at some watercourses, highways and railway crossings.
- Short-term groundwater drawdown is expected at the desalination plant site during construction of the box cut, decline and TBM launch facilities. Proposed mitigation and management measures will be effective in ensuring there are no unacceptable impacts from PASS, and no unacceptable impacts to GDEs, threatened ecological communities or registered groundwater users.
- Any short-term reduction in groundwater levels due to dewatering from pipeline excavations is not expected to impact GDEs or registered groundwater users.

Biological Environment

Biosecurity

Terrestrial / aquatic

Key Project activities with potential to increase the level of pest fauna species include inappropriate management of waste (creating a food source for pest species), temporary increase in available surface water during construction (providing a new water source), and creation of access tracks and linear infrastructure (creating preferential corridors for pest species to travel).

During construction, vehicle movements present a possible source of weeds on tyres and vehicles which could introduce weeds into new areas. Ground disturbance can also remove established plant species making it easier for weed species to colonise an area. Buffel Grass has been noted as a specific concern by a number of stakeholders and there are known records in the Project Area, particularly along the Stuart, Eyre and Lincoln Highways.

Key findings

- Project activities and the presence of access tracks and other operational infrastructure are not expected to result in an increase in the existing level of pest

species as existing access tracks will predominantly be utilised to access the Project during construction.

- Pest management would be carried out in consultation with landholders, the Eyre Peninsula and South Australian Arid Lands Landscape Boards, local councils and PIRSA as required. A specific focus will be on ensuring that pest risks are managed across the length of the pipeline and across Landscape Regions.
- Best practice vehicle hygiene during Project activities will be implemented to minimise the risk of introducing or spreading weeds, pests or pathogens, with a specific focus on preventing spread across Landscape Regions.

Marine

New invasive species may be introduced to the site via biofouling of Project vessels and equipment, or via external sources such as infected vessels.

Disturbed habitats, including marine construction sites, are particularly suitable settling habitat for invasive marine species and the introduction of new artificial habitat (the intake and outfall structures) would provide suitable settling substrate for opportunistic species.

Key finding

- The impact to marine ecology from the introduction, establishment or spread of marine invasive species during construction and operation will be effectively mitigated and managed. Appropriate and industry standard strategies would be adopted to mitigate invasive marine species (to be confirmed as part of detailed design and in operational management plans).

Marine flora and fauna

Key marine environmental values relevant to the Mullaquana Station site include mangroves, intertidal flats and seagrass beds, some of which provide key nursery and recruitment areas for important fisheries (particularly Western King Prawn, Snapper and Whiting) and marine water quality. Potential impacts to the marine environment at Mullaquana Station and its values have been assessed through detailed baseline studies and an impact assessment including ecotoxicology investigations and marine hydrodynamic modelling.

Operation of the Project involves seawater extraction and discharge of desalination plant return water into Spencer Gulf waters. Environmental considerations have been critical in driving the design and siting of the desalination plant.

Key findings

Construction

- The tunnelling construction methodology for the intake and outfall has been adopted to minimise impacts on sensitive intertidal and benthic habitats (intertidal mangroves, tidal flats and Posidonia dominated seagrass beds are avoided).
- The Reference Design requires a small area (0.25 ha) of Zostera seagrass disturbance to allow for construction of the intake (including 0.1 ha of temporary clearance from which this opportunistic species is expected to rapidly recover).

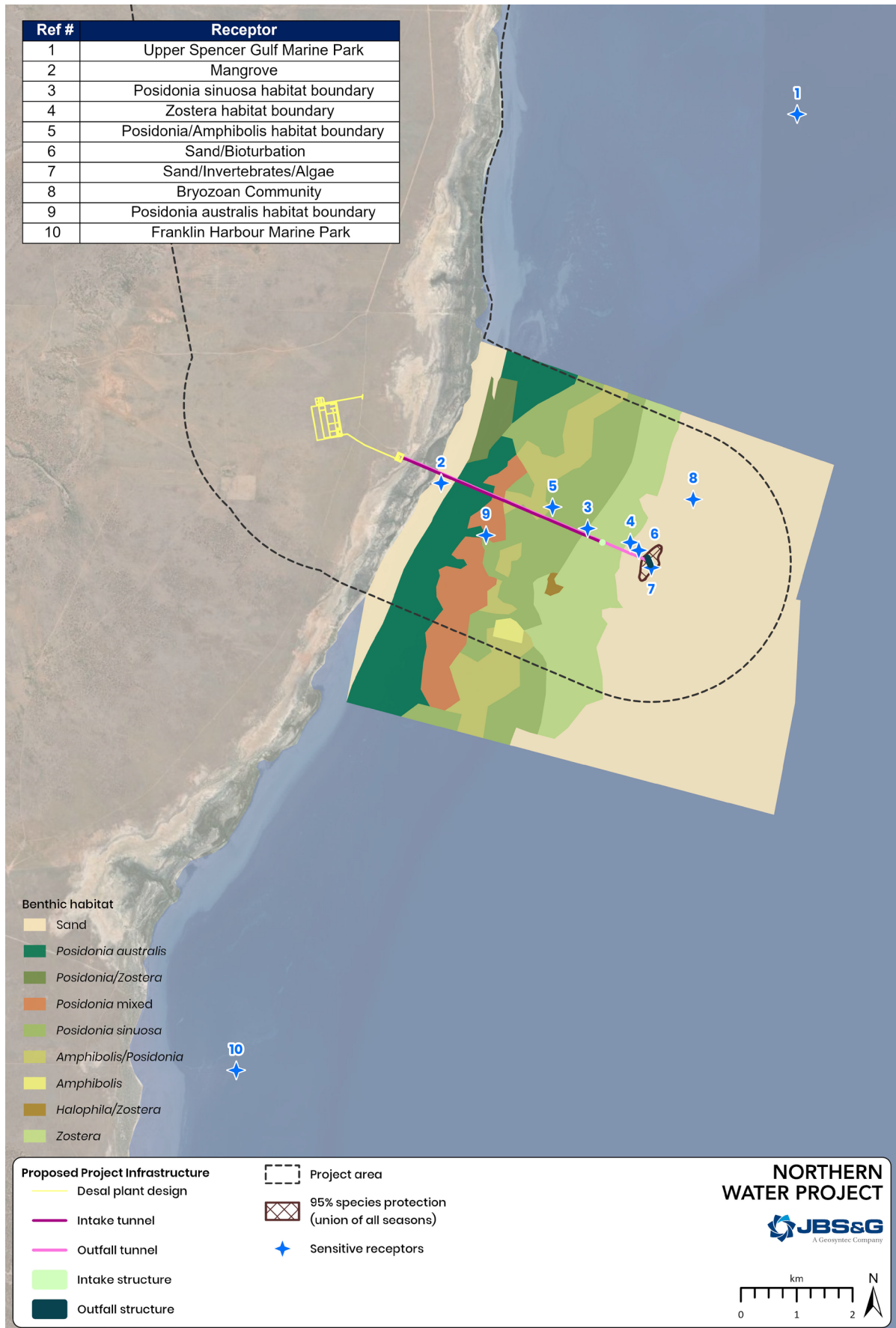
- There may be short-term localised disturbance associated with construction of the intake and outfall structures including intermittent underwater noise, dredging, limited marine construction wastewater discharges and increased construction vessels in the vicinity.

Operation

- During operation, potential return water impacts are expected to be localised to the immediate vicinity around the diffuser, and predominantly over sandy habitats. Seagrass and mangrove communities will not be affected.
- The return water has a limited zone of potential ecological effect.²
- 95% of species would be protected from chronic impacts associated with the return water beyond 370 m of the diffusers.
- Salinity beyond the immediate vicinity of the diffusers would remain within the range of natural seasonal variability (38 and 41 g/L) for most of the year.
- In addition to the limited zone of potential ecological effect and that salinity changes are within natural seasonal variability, fish and other mobile marine fauna generally have the ability to move away from the diffuser or osmoregulate in response to elevated salinity.
- Most of the sessile fauna recorded in the EIS marine study area have a tolerance for higher salinity than would be found near the diffuser (as inferred from their distribution in the USG).
- Of the few species that are potentially less tolerant of changes in salinity, most inhabit the seagrass habitat, throughout which more than 99% of species would be protected from chronic impacts associated with the return water.
- Duration and extent of potential stratification as a result of the return water would be insufficient to impact near bed dissolved oxygen concentrations.
- Total suspended solids modelling results conclude that discharging desalination plant backwash into the outfall/return water will have no impact on the receiving environment as modelled changes in total suspended solids are small and within natural variation.
- The gulf wide assessment predicted that far-field salinity changes are within the range of natural salinity variability within the gulf.
- Under conservative worst-case scenarios, the proportion of larvae in Spencer Gulf predicted to be entrained into the desalination plant intake is very low: **0.13%** for Prawn, **0.0002%** for King George Whiting, and **0.019 to 0.24%** for Snapper.

Key marine aspects of the EIS have undergone an independent peer review process. Each of the independent peer reviewers have provided the results of their review in Appendix G-17.

² The 'zone of potential ecological effect' is defined as the union of the 10th percentile dilution contours for 95% species protection levels for all seasons at 51 GL/y (refer Chapter 11 for more details).



Sensitive receptors in relation to the zone of potential ecological effect (51GL/y - union of the 10th percentile dilution contours for 95% species protection levels for all seasons)

Terrestrial flora and fauna

The key terrestrial flora and fauna values in the Project Area are the extensive vegetation communities, fauna habitats and small number of threatened species that are present. The Project Area has not been subject to broadscale clearance and supports native vegetation in generally in moderate to good condition. Vegetation is dominated by chenopod shrublands and low open woodlands, with extensive areas of very low open shrublands on stony tableland near Woomera, and low open woodlands in dunefields at the northern end. The vegetation types present are common and widespread, and other than the coastal saltmarsh adjacent to the desalination plant site (outside the disturbance footprint), none are listed as threatened. No EPBC-listed threatened flora species (and very few State-listed threatened flora species) have been detected in field surveys or are likely to occur.

The Project Area traverses widespread habitat for a small number of EPBC-listed threatened fauna species, including Western Grasswren (listed as Vulnerable), which is present in the southern section, and Plains Mouse (Vulnerable), which has not been detected, but suitable habitat is present in stony tableland north and south of Woomera. The Project Area contains very limited suitable habitat for migratory species. Declared weeds are generally uncommon, however Buffel Grass is known to occur, mainly along highways.

Key findings

The Project has used the avoidance and mitigation hierarchy (avoidance, minimisation, rehabilitation, offset) as a driving principle to minimise impacts on terrestrial flora and fauna.

General

- Approximately 1,992 hectares of terrestrial native vegetation will be cleared during construction along the approximately 406 km length of the Project. The majority of this is temporary and represents a very small proportion of native vegetation in the region traversed by the Project. It will be offset by achieving a 'Significant Environmental Benefit' in accordance with the *Native Vegetation Act 1991*.
- Progressive rehabilitation of temporary disturbance following construction will be undertaken in accordance with the Project's rehabilitation framework and management plans and will reduce the long-term impact of vegetation clearance.
- Route selection has prioritised avoidance of conservation areas. There are no areas protected under the *National Parks and Wildlife Act 1972* or areas under native vegetation heritage agreement under the *Native Vegetation Act 1991* at the desalination plant site or on the transfer system alignment.

Threatened species and ecological communities

- There are no Critically Endangered or Endangered TECs present and there is no expected impact to TECs listed as Vulnerable under the EPBC Act.
- The Project will not impact any State-listed TECs.
- There are no impacts expected to any EPBC-listed flora.
- The project is not expected to have a significant impact on any species of EPBC-listed fauna except Western Grasswren (Commonwealth Vulnerable). It may have a residual significant impact on this species which will be compensated for by implementation of offsets. No long-term impacts to EPBC-listed fauna are expected.

- No significant impacts to EPBC-listed migratory fauna are expected.
- No significant or long-term impacts to State-listed flora and fauna are expected.

Indirect impacts

- The Project will not significantly increase habitat fragmentation.
- Indirect impacts to vegetation and fauna habitats will be short term and limited in extent.
- Lighting at the desalination plant during operation will not have a significant impact on any species and lighting effects at camps and other sites during construction will be short term and localised and will not have a significant impact on fauna.
- Noise disturbance during construction will be temporary and localised and will not have a significant impact on fauna.
- Noise generated during operation at the desalination plant and pump station sites during operation will be localised and will not have a significant impact on fauna.
- Measures will be implemented to minimise the incidence of fauna injury or mortality during construction. Any impacts would be short term and localised to the work front and are not likely to have a significant impact on any species.
- Potential for collision with transmission line infrastructure is not expected to have a significant impact on any species.
- Construction activities may temporarily displace fauna species with no expected long-term population impacts.
- The potential for cumulative impacts with other proposed projects is limited. There is some potential for cumulative impact on Western Grasswren, however with rehabilitation and implementation of offsets, any impact is likely to be short-term.

Amenity and Environmental Quality

Air quality

Existing air quality in the Project Area is mainly influenced by pastoral land uses, vehicle movements on unsealed roads, occasional dust storms and industrial, mining, and port activities around Whyalla, Olympic Dam and Carrapateena. Sensitive receptors potentially include rural homesteads, townships, public rest areas, commercial premises and historic sites. The nearest receptor to the desalination plant is Mullaquana Station homestead, more than 4 km west of the site.

Project construction and operation activities are potential sources of particulate matter and other emissions (including odour) which if not appropriately managed can have adverse health or amenity effects on nearby sensitive receptors including people, flora and fauna.

Key findings

Construction

- Potential air quality impacts will primarily be related to dust associated with soil disturbance due to vegetation clearance, earthworks (including temporary stockpiling), vehicle movements on unsealed roads and general construction activities for the desalination plant and transfer system infrastructure.

- Although dust will be generated by construction activities, the region traversed by the Project is generally sparsely populated, with only three locations where sensitive receptors are within 250 m of construction activities (including potential laydown locations).
- With implementation of industry standard control measures, air quality impacts due to nuisance dust, PM₁₀ and PM_{2.5} emissions at these sensitive receptor locations are expected to be minor and short-term.
- Due to the distance of the nearest sensitive receptor from the desalination plant storage areas for saturated marine sediments (greater than 4 km), no odour impacts are expected during construction.

Operations

- Plant design and appropriate waste management procedures will minimise the potential for odour impacts from storage of fine solids received via the seawater intake during operations.
- Impacts of operational air emissions are expected to be negligible and limited to minor short-term dust from regular but infrequent Project inspection, maintenance and monitoring activities. These impacts will be typical of existing light vehicle movements on unsealed roads.

Noise and vibration

The existing acoustic environment is typical of rural and remote South Australia, with low background noise levels and intermittent localised noise sources. Existing noise sources at the desalination plant site include wind, insects and birds, with occasional vehicle and agricultural noise. Along the transfer system and electricity infrastructure corridor, existing noise sources include road traffic, rail movements, mining and industrial activity, generators at homesteads and outstations, and occasional aircraft or defence-related noise near Woomera.

Potential sensitive receptors include residential receptors (e.g. homesteads at Mullaquana Station and Lincoln Gap, residents at Pimba, Woomera, Roxby Downs and Olympic Dam Village), and public use areas, such as highway rest areas.

Project construction and operation activities are potential sources of noise and vibration which if not appropriately managed can have adverse health or amenity effects on nearby sensitive receptors including people, fauna and structures.

Key findings

- Potential impacts to the amenity of sensitive terrestrial receptors due to construction noise will be minimised through implementation of noise mitigation measures in Project design and construction activity planning.
- Laydown areas and construction camps along the transfer system alignment have been located away from sensitive receptors and adverse amenity impacts are not expected.
- Construction (including piling) at the desalination plant is unlikely to impact sensitive receptors due to the separation distance and adherence to Australian Standards.

- Impacts from the operation of the desalination plant will be below recognised thresholds for amenity noise with proposed mitigations in place.
- Noise and vibration from operation of the pump stations along the transfer system are not expected to adversely impact sensitive receptors due to the short-term nature of exposure (Kalaya pump station) or absence of sensitive receptors (Mangata pump station).
- Noise mitigation measures proposed for the pump station at Lincoln Gap will minimise adverse noise impacts at the nearest sensitive receptor.
- Vibration levels are expected to remain below human comfort thresholds. Short duration perceptible effects may occur during close-proximity activities but these are not expected to result in exceedance of acceptable limits.

Traffic and transport

Road

Key arterial routes that will be affected by the Project include the Lincoln, Eyre, Stuart, Olympic Dam and Iron Knob highways, all of which carry a mix of general traffic and relatively high proportions of heavy vehicles. Local access to the desalination plant site is currently via Horseshoe Road, Mullaquana Road and Eight Mile Creek Road, however a new access from Lincoln Highway to Eight Mile Creek Road following the pipeline alignment is considered in the EIS.

Key findings

- A Construction Traffic Management Plan (CTMP) will be developed by the Design Build, Operate Maintain (DBOM) Contractor in consultation with DIT and relevant councils to minimise the impacts of Project vehicle movements within towns, and on highways and local roads.
- Impacts to community amenity due to construction traffic will be managed through the CEMP and the CTMP. Impacts (with mitigations in place) are expected to be short-term and minor.
- Peak traffic volumes during construction and operation of the Project are likely to be well within the capacity of roads on proposed transport routes and impacts on the existing traffic network are expected to be minor.
- Movement of Oversize Overmass (OSOM) vehicles will be in accordance with National Heavy Vehicle Regulator (NHVR) requirements and the Project CTMP. Road condition audits and inspections will minimise the potential for impacts to road pavements from heavy and OSOM (Oversize Overmass) vehicle movements.
- The Project will consider implementation of enhanced turn treatments at specific Project site access intersections on the Lincoln, Eyre, Stuart and Olympic Dam highways to improve road safety.

Marine

Maritime activity in the USG includes commercial shipping, harbour support vessels, commercial fishing, tourism operators and recreational boating. Existing vessel traffic offshore from Mullaquana Station is low, and the main shipping navigation channel is located well east of the proposed desalination plant marine infrastructure area.

Key findings

- A minor localised and temporary increase to overall maritime vessel traffic is expected during marine construction, however, due to the small number of Project vessels and low frequency of vessel movements, impacts to existing maritime users are not expected.
- Implementation of the Marine and Coastal Construction Environmental Management Plan (MCCCEMP) will minimise impacts to marine operations due to Project construction vessel movements.
- A marine exclusion zone will be implemented for construction and operation of the desalination plant marine intake and outfall structures to protect Project infrastructure and public safety. Due to the low level of marine vessel traffic in the vicinity of the exclusion zone and its small area in the context of the Spencer Gulf, impacts to vessel movements are not expected.

Rail

The region contains several rail assets, including the transcontinental rail line through Port Augusta and Pimba, the Whyalla to Port Augusta rail line, the SIMEC iron ore rail line serving the Middleback Range and Whyalla Port, and the Pimba spur line. These rail lines support interstate passenger services, interstate and regional freight, iron ore haulage and emerging logistics opportunities.

Key findings

- Impacts to railway freight and passenger services are not expected due to use of trenchless pipeline construction methodology at rail line crossings. Methodology and timing will be developed in consultation with railway operators to ensure design, construction and safety standards and requirements are met.

Air

Regional air services are provided through airports at Whyalla, Port Augusta and Olympic Dam. Smaller registered and unregistered airstrips occur throughout the broader region, associated with mining, pastoral, tourism, defence and emergency service activities.

Key findings

- Use of air services by Fly-in Fly-out (FIFO) construction workforce is not expected to negatively impact the capacity and cost of flights to and from Whyalla, Port Augusta and Olympic Dam.
- Air transport planning will be undertaken by the DBOM Contractor in collaboration with airport operators, owners and carriers to ensure that potential cost and capacity impacts on the community are minimised.
- The potential for wire strike or other collision with new transmission lines by low-flying aircraft will be mitigated through industry standard controls (e.g. marking of transmission line conductors), consultation with the Civil Aviation Safety Authority and operation of air safety regulations.

Landscape character and visual amenity

Landscape and visual impact refers to how a proposed development may affect landscape character or a view and the way that people perceive that change. There will be a range of perceptions and opinions in the community about the scenic quality of the landscape, sensitivity of particular locations to change and the acceptability of the visual changes associated with the Project. It is acknowledged that the impact levels presented in the EIS may not align with the views of all community members, landholders or residents. In some cases, individuals may perceive the visual effects of the Project as more significant than indicated by the assessment due to the connection to or value they place on particular landscapes, views or places.

Key findings

- Changes to visual amenity will be experienced at sensitive visual receptors in the vicinity of construction activities. This will largely be due to the presence and movement of heavy equipment and vehicles at, and to and from the site, lighting of construction sites and an overall increase in the number of people present.
- Once constructed, the desalination plant, new transmission line and substation have been assessed as having a minor impact overall on landscape character and visual amenity for some onshore and offshore sensitive receptor locations. Depending on the location, these include Cowleds Landing, Nonowie Station homestead, travellers on the Lincoln Highway, and users of marine waters. Impacts of the desalination plant are generally mitigated by the distance from sensitive receptors.
 - Mullaquana Station is the closest sensitive receptor and will therefore experience the most significant change to visual amenity both as a working pastoral property and place of occupation.
- Outside both the 5km and 10km Zones of Theoretical Visual Impact, the desalination plant and the north-south alignment of the Mullaquana transmission line will have no discernible impact on the wider landscape and be a largely inconsequential feature within panoramic views from publicly accessible vantage spots.
- Transfer system construction phase impacts will be limited to the short period that construction activities will be underway in a particular location.
- Pump stations, storages and transmission lines will be visible and in some cases prominent when viewed from major highways, however visual impacts will largely be fleeting and temporary for the majority of visual receptors.

Social and Community

Aboriginal cultural heritage

Protection of Aboriginal cultural heritage has been a significant focus in Project planning and design and will continue to be during Project construction and operation. There are many areas of South Australia which have never been the subject of comprehensive Aboriginal heritage survey, meaning that there is potential for Aboriginal heritage to be revealed or discovered where there is no other indication of its presence.

The key stakeholders for Aboriginal cultural heritage are the Traditional Owners and Native Title parties across the Project Area. The Kokatha and Barngarla Peoples have had areas of Native Title determined by the Federal Court and are the primary Traditional Owners for consultation on the Project and the undertaking of cultural heritage surveys.

Engagement and consultation activities with the Barngarla and Kokatha include initial engagement and consultation, protocols and agreement-making and cultural heritage surveys.

It is recognised that the Project may also be of interest to Aboriginal people and communities beyond the two recognised Native Title holders. Consultation with these groups has commenced and will continue as the Project progresses.

Key findings

- Due to appropriate infrastructure site and alignment selection, engagement with Traditional Owners and the undertaking of cultural heritage surveys, no known cultural heritage will be impacted by the Project.
- The Project construction and operational activities have been designed so as not to impact Aboriginal cultural heritage, as long as agreed cultural heritage management measures are implemented appropriately.
- Inadvertent discovery of Aboriginal sites, objects or ancestral remains during construction, operations or maintenance will be addressed by the heritage management processes agreed through Indigenous Land Use Agreement (ILUA) negotiations.
- CHMPs will be prepared in consultation with, and for endorsement by, the relevant Recognised Aboriginal Representative Bodies (RARB) / Traditional Owners. They will address both Design and Build, as well as Operate and Maintain phases of the Project.
- To create greater certainty for the Project in the event that unexpected cultural heritage discoveries occur during works, an authorisation under the Aboriginal Heritage Act will be sought subsequent to the ILUA negotiation process.

Non-Aboriginal cultural heritage

Post-European contact, the Eyre Peninsula and Far North regions reflect a long history of exploration and pioneering agricultural, pastoral, maritime and mining settlement and enterprise. Listed cultural heritage sites and places in these regions reflect this history and include buildings, maritime infrastructure and shipwrecks, and sites of special geological interest. More recently Defence facilities established around Whyalla and Woomera have introduced new heritage and historical values to the region.

Key findings

- Project infrastructure siting and alignment selection has avoided known sites and places of non-Aboriginal cultural heritage significance.
- As there are no Commonwealth, National, State or Local heritage places mapped within 5 km of the Project Area, impacts to known non-Aboriginal heritage due to Project construction are not expected.

- Sites or objects that may be discovered during construction activities will be managed by implementing unexpected discovery procedures in the CEMP and in accordance with relevant legislation and guidelines.
- Unexpected finds of historic shipwreck material will be managed by implementing procedures in the Marine and Coastal Construction Environmental Management Plan and in accordance with relevant legislation and guidelines.

Social environment

Maximising the benefits and understanding and reducing potential negative social impacts of the Northern Water Project to local and regional communities is a key focus in the design and management of the Project and is the driver of ongoing engagement with affected landholders and other key stakeholders.

Poorly managed construction impacts can affect quality of life, community wellbeing and perceptions of the Project. Key concerns raised in community engagement related to protection of the marine environment, roads and transport, noise and vibration, landscape and visual amenity, workforce accommodation pressures and broader community impacts associated with construction activity.

While social impact assessment includes addressing the potential impacts of the Project on the existing lifestyles and amenity of local communities, landholders and individuals, there is also a clear interrelationship between economic impacts and benefits, and community and social wellbeing.

Key findings

- The Project has the potential to contribute to broader economic revitalisation and to reinforce community confidence, sense of place and resilience across the Project Area.
- The Project represents a significant economic opportunity for the Upper Spencer Gulf and Far North, generating substantial demand for labour, goods and services across an extended construction period. Project requirements for local procurement will benefit local communities by providing opportunities for local industries, businesses service providers and workforce.
- Early and ongoing engagement with local communities will minimise the potential for impacts to social cohesion due to the presence of the construction workforce.
- The Project will seek to minimise impacts on local housing availability and affordability by accommodating the majority of non-local construction workers in a combination temporary workforce accommodation, existing short-stay accommodation, and where appropriate, marine-based accommodation facilities.
- Impacts to local housing availability and affordability from the operational workforce will be negligible due to the relatively small number of long-term staff required.
- Presence of construction workforce is not expected to negatively impact access to local services.
- Impacts to community amenity (e.g. air quality, noise, traffic, visual and the marine environment) have been assessed in the EIS and with proposed mitigation measures in place the overall impacts to community amenity are expected to be minor.

Local Regional and State Economies

Economic environment

The Project is designed to support economic growth through the provision of a new, sustainable, climate resilient water source for industry in the Upper Spencer Gulf and the Far North regions of South Australia. In maximising the economic benefits of the Project across these regions and the State more broadly, there is also a commitment to reducing or avoiding potential negative economic impacts.

The Project seeks to deliver tangible local employment and business participation outcomes, while also protecting industries such as commercial fishing, aquaculture, tourism, agriculture and associated local supply chains.

Key findings

- The Project will have a significant economic benefit to the local communities in the Upper Spencer Gulf and northern South Australia with a State benefit to cost ratio of 1.25, and to the Australian economy with a national BCR of 1.75 (meaning the benefits outweigh the costs).
- Between 2026 and 2062, Gross Regional Product (GRP) in Northern South Australia could be approximately \$3 billion larger on average and Gross State Product (GSP) \$3.3 billion larger on average as a result of the Project.
- In average annual terms, between 2026 and 2062, an additional 2,000 FTEs are expected to be employed across South Australia, with 1,600 in Northern South Australia.
- Economic impacts to commercial fisheries and aquaculture from Project construction and the ongoing presence of Project infrastructure are expected to be negligible.
- Ongoing engagement with local business, workforce and industry stakeholders will maximise local employment, procurement and business participation in the Project.

Climate Change and Resource Efficiency

Climate change adaptation

Any proposed development is increasingly required to demonstrate resilience to the impacts of a changing climate in the longer term. In the context of the Project, consideration of climate change adaptation includes securing the coastal environment against increased coastal erosion and flooding, reducing risk and building resilience to more frequent and severe bushfires, storms, floods and heatwaves.

Key findings

- The primary climate variables with potential to impact the Project are increased ambient temperatures, increased frequency and intensity of heatwaves, increased rainfall intensity and surface water flooding, and changing marine conditions. Climate adaptation design and system controls have been planned and incorporated into the Project design.
- No residual extreme or high risks for the Project are expected from projected climate change impacts. Climate adaptation design and system controls are already planned and incorporated into the Project.

- Under a continued high-emissions scenario (RCP 8.5), regional climate-driven salinity increase is predicted to substantially exceed the contribution from the desalination plant alone. Any changes to background conditions would have proportional impacts on desalination plant outfall return water and are not expected to result in any cumulative impacts.
- Residual risks from climate change to the Project have been assessed as Low to Medium and acceptable.
- During detailed design, further consideration will be given to changing climate conditions relevant to Project infrastructure components and evaluation of the appropriateness of design and engineering changes.

Greenhouse gas (GHG) emissions

Increasing concentrations of GHGs in the atmosphere are known to contribute to climate change. Reducing these emissions across the life cycle of the Project would reduce the potential of the Project to contribute to GHG-related climate change.

Key findings

- Project construction is estimated to result in approximately 1.14 MtCO₂e (mega tonnes of carbon dioxide equivalent) emissions, largely due to the manufacturing of pipeline and other construction materials. Opportunities to reduce GHG emissions during construction through use of low emission construction materials such as low emission concrete are being investigated.
- Electricity use, primarily for water treatment and distribution, is the largest GHG contributor during operations. The emission impacts of this energy use will be mitigated through the Project's commitment to use 100% renewable electricity during operations, reducing total life of project emissions from 4.8 MtCO₂e to approximately 3.2 MtCO₂e.
- Use of renewable electricity during operations will enable emissions reduction of over 33% compared to a case in which electricity was procured from the regular SA grid mix.
- Whilst the Project will result in an increase in the State's GHG emissions overall, it will provide a climate-resilient water supply to enable the continued operation and growth of industries that will contribute to decarbonisation efforts such as production of copper and critical minerals.

Sustainable use of resources

The Project is committed to supporting positive sustainability outcomes and long-term benefits. In developing its sustainability framework and key sustainability objectives the Project has drawn from State and Commonwealth legislative and policy drivers, and globally recognised sustainability standards and frameworks.

Sustainable procurement and efficient use of resources require consideration of inputs of natural resources, energy and water and the pollution produced from the manufacture, use and disposal of goods and biodiversity loss resulting from removal or alteration of natural resources.

Key findings

- Sustainability objectives have been integrated into the DBOM contract to ensure they are considered throughout the life of the Project.
- The primary contribution of the Project to the South Australian circular economy and sustainability in the use of resources is by avoiding or optimising the use of raw materials.
- Specific circular economy strategies and sustainability principles have been integrated into the Project including design (climate resilience, efficiency and longevity), low emission / sustainable / locally sourced materials, water and energy conservation and emissions reduction.

Waste management

Minimising waste and disposal, and recovering materials for reuse, re-manufacturing and recycling are key sustainability considerations.

Key findings

- Project waste streams will be managed in accordance with the Waste Management Hierarchy which underpins the objectives of the EPA's Wastes to Resources Environment Protection Policy and is in line with South Australia's Waste Strategy. A Waste Management Plan will be prepared for Project construction and operation.

Hazards and Risks

The assessment in the EIS has considered hazards from bushfire, flooding, site and groundwater contamination, and dangerous substances (including marine spill management). A range of other hazards have also been considered including Harmful Algal Bloom (HAB), seismicity and unexploded ordnance.

Key findings

Bushfire

- There is a medium risk of Project construction activities accidentally causing a bushfire. Industry standard control strategies set out in the Bushfire Risk Management Plan will reduce this risk to as low as reasonably practicable (ALARP).

Flooding

- Historical flooding risk at the desalination plant site is low. Desalination plant design will ensure that stormwater management will not increase the flood risk compared to existing conditions.
- Pump stations and substations have been located to minimise the risk of flooding and impacts to surface water flows.
- The pipeline will generally be located underground and will not change the flood risk to people, property, infrastructure, and the environment along the alignment.
- Stormwater management will not increase the flood risk at Project sites compared to existing baseline conditions.

Site and groundwater contamination

- There is a low risk of impacts to the environment caused by disturbance of existing known contamination during Project construction or operations.

Dangerous substances (including marine spill management)

- Transport, storage and disposal of dangerous substances will be in accordance with industry standard practice to reduce the risk to public safety to ALARP.
- Due to implementation of appropriate storage and handling of fuels and chemicals, there is a low risk of marine spills associated with the Project. In the event of a marine spills from a construction vessel industry standard control and mitigation measures will be implemented.
- Public exposure to the risk of uncontrolled blasts will be avoided through transport, storage and use of explosives in accordance with relevant legislation, standards and codes of practice.

Harmful algal bloom

- The Project design includes measures to remove algal organic matter and high suspended solids to maintain effective plant operation in case of a bloom.
- Localised changes to marine water quality during construction or operation are highly unlikely to result in conditions that would contribute to the onset of a HAB.

Department of Defence land

- Hazards management and emergency response in relation to Department of Defence land will be in accordance with the Project's broader health, safety and environmental management frameworks, and the Third Party Agreement between the Project and Defence.
- Exclusion zones will ensure no members of the public are close enough to construction to be impacted by potential UXO on former Defence land.

Electrocution

Hazard identification and mitigation is part of the ongoing detailed engineering design. Only one hazard assessed as part of the EIS is categorised as a high risk (after control strategies have been implemented) relating to risk of electrocution from high voltage transmission infrastructure (note, this is a rare likelihood and the risk is no different to all other high voltage transmission infrastructure within the State). The control strategies proposed have reduced the risk to As Low As Reasonably Practicable (ALARP).

Planning and Design Quality

The Project was assessed against relevant Zones, Subzones, Overlays and General Development Policies of the Planning and Design Code and the relevant State Planning Policies and Regional Plans.

Planning assessment

Key findings

- The Project overall is consistent with strategic planning instruments including the SPPs and applicable Regional Plans.
- The Project overall is not inconsistent with the Code.
- The Project as a whole is consistent with the Remote Areas Zone, which hosts the majority of Project infrastructure.
- The Project as a whole is readily consistent with the relevant Hazards Overlays, including both bushfire and flooding Overlays.
- In areas where inconsistencies with applicable Zones, Subzones or Overlays are observed, no broader adverse impact is likely on the functionality or desired outcomes outside the Project's construction footprint.

7 CONCLUSION

The Northern Water EIS provides a comprehensive assessment of the Project and the expected effects on the receiving environment at a local, regional, state and national level. The EIS process is the highest level of assessment under the PDI Act and enables the holistic consideration of projects that are considered to be of economic, social or environmental importance to South Australia.

The Commonwealth Environment Minister has accredited the EIS process under the PDI Act to assess the controlled action for the Project. The State and Commonwealth governments liaised on the draft ARs for the EIS to ensure they met the requirements of South Australian and Commonwealth legislation. One EIS has been prepared, one period of public consultation is being undertaken, one Response Document and one Assessment Report will be developed to satisfy the legislative requirements of each jurisdiction.

The EIS is based on a significant body of technical studies and assessments. All of the EIS Assessment Requirements set by the State and Commonwealth governments have been addressed through the application of sound science, evidence and reasoning.

Secure and reliable water supply is a critical constraint on development in regional South Australia, identified in SA's *Copper Strategy* and the State Government's *Water Security Statement 2022 – Water for Sustainable Growth*. Both strategies identify long-term water security as fundamental to economic growth and climate adaptation in South Australia.

If approved, the Northern Water Project would provide a climate-resilient water source to northern South Australia while delivering benefits to the USG and Far North regions of the state. Project benefits include:

- Increased economic activity
- Reduced reliance on existing water sources including the Great Artesian Basin, creating an opportunity to support the long-term protection of culturally significant water sources such as GAB mound springs and water pumped from the River Murray
- Improved liveability for communities in the Whyalla and Northern South Australia regions associated with increased economic growth.

Baseline studies, surveys, modelling and assessments have been undertaken to identify all potential environmental, social and economic impacts. Measures proposed to avoid, minimise, manage and offset those impacts are identified throughout the EIS and will be further developed as part of detailed design and incorporated into Project-specific environmental management plans.

Protection of the marine environment is a high priority for the local community and understanding how the Project is likely to interact with the marine environment is a key focus for the Project. Extensive marine studies and surveys have informed the Reference Design of the desalination plant marine infrastructure with consideration given to the presence of sensitive marine habitats and key commercial fishery species in the vicinity of the marine infrastructure. Overall the assessment demonstrates that the Project is expected to have only minor effects within a highly localised zone around the diffuser, with negligible impacts beyond that area.

Stakeholder and community engagement for the Project has been wide-ranging, inclusive and ongoing, involving government departments, local councils, industry, key stakeholders, Traditional Owners and local communities and businesses. Early and ongoing engagement with local providers of goods and services has provided a good understanding of the opportunities to maximise local employment, procurement, business participation and economic benefit to the community.

Engagement with Traditional Owners has resulted in agreements for ongoing Project engagement and processes for working collaboratively on identification and management of areas of cultural heritage significance, economic development and skills, training and employment opportunities.

Consultation with affected and interested parties will be ongoing.

The conclusion from the EIS, is that the environmental and social impacts of the Project are considered acceptable, including in relation to the relevant Matters of National Environmental Significance under the *Environment Protection Biodiversity Conservation Act 1999* identified by the Commonwealth. The EIS also demonstrates that the Project would be consistent with the objects of the *Environment Protection Act 1993* as well as the general environmental duty and relevant environment protection policies under that Act.

If approved, the Project will provide a significant positive impact to regional and State economic performance and regional prosperity, expected to last well beyond the initial investment in the Project.

LIMITATIONS

Scope of services

This Environmental Impact Statement ("the EIS") has been prepared by JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This EIS is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the EIS ("the data"). Except as otherwise expressly stated in the report, JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the EIS ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. JBS&G has also not attempted to determine whether any material matter has been omitted from the data. JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to JBS&G. The making of any assumption does not imply that JBS&G has made any enquiry to verify the correctness of that assumption.

The EIS is based on conditions encountered and information received at the time of preparation of this EIS or the time that site investigations were carried out. JBS&G disclaims responsibility for any changes that may have occurred after this time. This EIS and any legal issues arising from it are governed by and construed in accordance with the law as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this EIS has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made, including to any third parties, and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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Document Distribution

Rev No.	Copies	Recipient	Date
2	Electronic – Northern Water EIS	DIT – Toby Carter / Lexi Schwarz	30-09-2026

Document Status

Rev No.	Author	Reviewers	Approved for issue		
			Name	Signature	Date
2	JBS&G – A Geosyntec Company	Andrew Querzoli / Steve Milne / DIT	Andrew Querzoli – Senior Principal		30-09-2026