

## APPLICATION ON NOTIFICATION – CROWN DEVELOPMENT

<b>Type of development:</b>	SECTION 49 - STATE AGENCY DEVELOPMENT
<b>Development Number:</b>	711/V026/18
<b>Applicant:</b>	SA Water
<b>Nature of Development:</b>	Installation of solar photo voltaic cells, single access tracking system, approximately seven power conversion stations within all weather proof structure and a battery energy storage system. Associated works comprising site clearance, earthworks, electrical cabling, access tracks, laydown areas and security fencing.
<b>Subject Land:</b>	1764 Randell Road, Palmer
<b>Development Plan:</b>	Mid Murray Council Development Plan
<b>Zone / Policy Area:</b>	Rural and Service Centre Zones/ Murray Plains Policy Area 16
<b>Contact Officer:</b>	Janine Philbey
<b>Phone Number:</b>	7109 7062
<b>Consultation Start Date:</b>	30 January 2019
<b>Consultation Close Date:</b>	21 February 2019
<p><b>During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders St, Adelaide, during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).</b></p>	

Written representations must be received by the close date (indicated above) and can either be posted, hand-delivered, faxed or emailed to the State Commission Assessment Panel (SCAP). A representation form is provided as part of this document.

**Any representations received after the close date will not be considered.**

Postal Address:  
The Secretary  
State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5001

Street Address:  
Development Division  
Department of Planning, Transport and Infrastructure  
Level 5, 50 Flinders Street  
ADELAIDE

Email Address: [scapreps@sa.gov.au](mailto:scapreps@sa.gov.au)

Fax Number: (08) 8303 0753

**DEVELOPMENT ACT, 1993  
S49/S49A – CROWN DEVELOPMENT  
REPRESENTATION ON APPLICATION**

**Applicant:** SA Water  
**Development Number:** 711/V026/18  
**Nature of Development:** Installation of solar photo voltaic cells, single access tracking framework, 7 power conversion stations within all weather proof structure, battery energy storage system and associated works.  
**Zone / Policy Area:** Rural and Service Centre (Palmer) Zones/Murray Plains Policy Area 16  
**Subject Land:** 1764 Randell Road, Palmer  
**Contact Officer:** Janine Philbey  
**Phone Number:** 7109 7062  
**Close Date:** Thursday 21 February 2019

My Name: \_\_\_\_\_ My phone number: \_\_\_\_\_

Primary method(s) of contact: \_\_\_\_\_ Email: \_\_\_\_\_  
Postal Address: \_\_\_\_\_ Postcode: \_\_\_\_\_

**You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard by the State Commission Assessment Panel in support of your submission.**

- My interests are:  
*(please tick one)*
- owner of local property
  - occupier of local property
  - a representative of a company/other organisation affected by the proposal
  - a private citizen

**The address of the property affected is:** \_\_\_\_\_  
Postcode \_\_\_\_\_

- My interests are:  
*(please tick one)*
- I support the development
  - I support the development with some concerns
  - I oppose the development

**The specific aspects of the application to which I make comment on are:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- I:**
- wish to be heard in support of my submission
  - do not wish to be heard in support of my submission
- (please tick one)*      *(Please tick one)*

- By:**
- appearing personally
  - being represented by the following person
- (please tick one)*      *(Please tick one)*

**Signature:** \_\_\_\_\_  
**Date:** \_\_\_\_\_



## **DEVELOPMENT ACT 1993**

### **SECTION 49 - STATE AGENCY DEVELOPMENT**

#### **NOTICE OF APPLICATION FOR CONSENT TO DEVELOPMENT**

Notice is hereby given that an application has been made by **SA Water** for consent to establish a solar generation plant for the purposes of power generation. The works comprise the installation of solar photovoltaic cells, with single axis tracking system, seven conversion stations within weather proof structures and a battery energy storage system on 24 hectares of land. Associated works will comprise site clearance, earthworks, electrical cabling, access tracks, laydown areas and security fencing. Development Number: **711/V026/18**.

The subject land is situated at 1764 Randell Road, Palmer (Allotment 77, DP110986: CT 6178/117; and A79, DP110976: CT 6178/119).

The development site is located within the Rural Zone [Murray Plains Policy Area 16] and Service Centre (Palmer) Zone of the Mid Murray Council Development Plan (Consolidated, 23 August 2018).

The application may be examined during normal office hours at the office of the State Commission Assessment Panel (SCAP), Level 5, 50 Flinders Street, Adelaide and at the office of Mid Murray Council, 49 Adelaide Road, Mannum. Application documentation may also be viewed on the SCAP website [http://www.saplanningcommission.sa.gov.au/scap/public\\_notices](http://www.saplanningcommission.sa.gov.au/scap/public_notices).

Any person or body who desires to do so may make representations concerning the application by notice in writing delivered to the Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 **NOT LATER THAN Thursday 21 February 2019**. Submissions may also be emailed to: [scapreps@sa.gov.au](mailto:scapreps@sa.gov.au)

Each person or body making a representation should state the reason for the representation and whether that person or body wishes to be given the opportunity to appear before the SCAP to further explain the representation.

Submissions may be made available for public inspection.

Should you wish to discuss the application and the public notification procedure please contact Janine Philbey on 7109 7062 or [Janine.Philbey@sa.gov.au](mailto:Janine.Philbey@sa.gov.au)

Alison Gill  
**SECRETARY**  
**STATE COMMISSION ASSESSMENT PANEL**  
[scapreps@sa.gov.au](mailto:scapreps@sa.gov.au)

16 November 2018

Attention: Ben Williams, DPTI  
State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5000

Dear Ben

**Development Application – Section 49 (Crown Development) for Solar PV installation at Mannum to Adelaide Pipeline Pumping Station No.2**

SA Water is seeking Development Approval for the installation of solar PV arrays and associated battery storage facilities along with ancillary equipment within the Mannum to Adelaide Pipeline Pumping Station No.2 ('Mannum PPS.2') land. The proposed works at Mannum PPS.2 form part of the *Zero Cost Energy Future* project, where Solar Photovoltaic (PV) cells and Battery Energy Storage Systems (BESSs) are planned for installation across SA Water's key sites.

Please find attached copies of the completed development application form and associated supporting documentation. In line with discussions between DPTI personnel and representatives of SA Water on the 14<sup>th</sup> August 2018, a number of details surrounding the technology type/model specifications and other design and construction items are subject to confirmation by SA Water's construction partner. These details will be provided for consideration by SCAP as part of forthcoming Detailed Designs. Notwithstanding this, the attached supporting documentation has been prepared to the highest level of accuracy possible and reflects 'upper limit estimates' where appropriate.

SA Water has developed a Community and Stakeholder Engagement Strategy to identify key stakeholders and is committed to ensuring a high level of engagement in order to manage expectations, community concerns and any other issues associated with the project. Members of SA Water's Environment and Heritage Services team met with Mid Murray Council Development Services team members on 30<sup>th</sup> August 2018 to discuss the proposed development at Mannum PPS.2, as well as other identified sites within this council region. Mid Murray Council staff expressed broad ranging support for the project. Continued correspondence between this council and SA Water throughout the Development Assessment process will ensure that any potential concerns can be addressed as efficiently as possible.

SA Water have engaged the services of Aurecon Australia Pty Ltd in order to facilitate the process of obtaining Development Approval for each of the planned Solar PV installations. Should you have any queries in relation to the applications or proposed works please feel free to contact Lauren Nicholson (Aurecon – on behalf of SA Water) on (08) 8237 9762 or [lauren.nicholson@aurecongroup.com](mailto:lauren.nicholson@aurecongroup.com) .

Yours Sincerely,



Lauren Nicholson (Aurecon)  
Consultant, Environment and Planning

\*For billing purposes, please address all tax invoices (fee requests) as follows:

South Australian Water Corporation  
Attn: John Hart (Senior Project Manager- *Zero Cost Energy Future*)  
250 Victoria Square  
GPO Box 1751  
ADELAIDE SA 5001

# SECTION 49 & 49A – CROWN DEVELOPMENT DEVELOPMENT APPLICATION FORM

**PLEASE USE BLOCK LETTERS**

**COUNCIL:** Mid Murray Council

**APPLICANT:** SA Water Corporation

**ADDRESS:** 250 Victoria Square, Adelaide SA 5000

**CROWN AGENCY:** South Australian Water Corporation

**FOR OFFICE USE**

DEVELOPMENT No: \_\_\_\_\_

PREVIOUS DEVELOPMENT No: \_\_\_\_\_

DATE RECEIVED:        /        /

**CONTACT PERSON FOR FURTHER INFORMATION**

Name: Lauren Nicholson (Aurecon - on behalf of SA Water)

Telephone: 08 8237 9762 [work] 0478550440 [Ah]

Fax: \_\_\_\_\_ [work] \_\_\_\_\_ [Ah]

Email: lauren.nicholson@aurecongroup.com

<input type="checkbox"/> Complying <input type="checkbox"/> Merit <input type="checkbox"/> Public Notification <input type="checkbox"/> Referrals	Decision: _____ Type: _____ Finalised:        /        /
--	--

**NOTE TO APPLICANTS:**

(1) All sections of this form must be completed. The site of the development must be accurately identified and the nature of the proposal adequately described. If the expected development cost of this Section 49 or Section 49A application exceeds \$100,000 (excl. fit-out) or the development involves the division of land (with the creation of additional allotments) it will be subject to those fees as outlined in Item 1 of Schedule 6 of the *Development Regulations 2008*. Proposals over \$4 million (excl. fit-out) will be subject to public notification and advertising fees.

(2) Three copies of the application should also be provided.

	Decision required	Fees	Receipt No	Date
Planning:	_____	_____	_____	_____
Land Division:	_____	_____	_____	_____
Additional:	_____	_____	_____	_____
<b>Minister's Approval</b>				

**EXISTING USE:** Agriculture (Cropping) and associated sheds

**DESCRIPTION OF PROPOSED DEVELOPMENT:** The installation of solar Photovoltaic arrays and associated infrastructure including battery storage equipment within the land described below (in connection with SA Water's Mannum PPS.2), along with required earthworks for construction.

**LOCATION OF PROPOSED DEVELOPMENT:** \_\_\_\_\_

House No: 1764 Lot No: 77 Street: Randell Road Town/Suburb: Palmer

Section No [full/part] \_\_\_\_\_ Deposited Plan: 110976 Volume: 6178 Folio: 117

Section No [full/part] \_\_\_\_\_ Hundred: Tungkill Volume: \_\_\_\_\_ Folio: \_\_\_\_\_

**LAND DIVISION:**


Site Area [m<sup>2</sup>] \_\_\_\_\_ Reserve Area [m<sup>2</sup>] \_\_\_\_\_ No of existing allotments \_\_\_\_\_

Number of additional allotments [excluding road and reserve]: \_\_\_\_\_ Lease:        YES         NO

**DEVELOPMENT COST** [do not include any fit-out costs]:        \$ 10,800,00.00

**POWERLINE SETBACKS:** Pursuant to Schedule 5 (2a)(1) of the *Development Regulations 2008*, if this application is for a building it will be forwarded to the Office of the Technical Regulator for comment unless the applicant provides a declaration to confirm that the building meets the required setback distances from existing powerlines. The declaration form and further information on electricity infrastructure and clearance distances can be downloaded from the DPLG website ([www.dac.sa.gov.au](http://www.dac.sa.gov.au)).

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the *Development Act 1993*.

**SIGNATURE:** 

Dated: 16/11/2018

DEVELOPMENT REGULATIONS 2008  
Form of Declaration (Schedule 5 clause 2A)



Government  
of South Australia

**To:** State Commission Assessment Panel (SCAP)

**From:** South Australian Water Corporation (C/- Aurecon  
Australasia Pty Ltd )

**Date of Application:** 16/11/2018

**Location of Proposed Development:** land surrounding Mannum PPS.2

House No: 1764 Lot No: 77 Street: Randell Road

Town/Suburb: Palmer

Section No (full/part): \_\_\_\_\_ Hundred: Tungkillo

Volume: 6178 Folio: 117

**Nature of Proposed Development:**

Installation of Solar PV arrays, Battery Storage facilities and associated equipment within the above allotment. Energy generation and storage capabilities for the direct benefit of ongoing water treatment and pumping operations by SA Water.

I Lauren Nicholson (of Aurecon Australasia) **being a person acting on behalf of the applicant (delete the inapplicable statement) for the development described above declare that the proposed development will involve the construction of a building which would, if constructed in accordance with the plans submitted, not be contrary to the regulations prescribed for the purposes of section 86 of the Electricity Act 1996. I make this declaration under clause 2A(1) of Schedule 5 of the Development Regulations 2008.**

Signed: 

Date: 16/11/2018



**Note 1**

This declaration is only relevant to those development applications seeking authorisation for a form of development that involves the construction of a building (there is a definition of 'building' contained in section 4(1) of the Development Act 1993), other than where the development is limited to –

- a) an internal alteration of a building; or
- b) an alteration to the walls of a building but not so as to alter the shape of the building.

**Note 2**

The requirements of section 86 of the Electricity Act 1996 do not apply in relation to:

- a) an aerial line and a fence, sign or notice that is less than 2.0 m in height and is not designed for a person to stand on; or
- b) a service line installed specifically to supply electricity to the building or structure by the operator of the transmission or distribution network from which the electricity is being supplied.

**Note 3**

Section 86 of the Electricity Act 1996 refers to the erection of buildings in proximity to powerlines. The regulations under this Act prescribe minimum safe clearance distances that must be complied with.

**Note 4**

The majority of applications will not have any powerline issues, as normal residential setbacks often cause the building to comply with the prescribed powerline clearance distances. Buildings/renovations located far away from powerlines, for example towards the back of properties, will usually also comply.

Particular care needs to be taken where high voltage powerlines exist; or where the development:

- is on a major road;
- commercial/industrial in nature; or
- built to the property boundary.

**Note 5**

An information brochure: 'Building Safely Near Powerlines' has been prepared by the Technical Regulator to assist applicants and other interested persons.

This brochure is available from council and the Office of the Technical Regulator. The brochure and other relevant information can also be found at [sa.gov.au/energy/powerlinesafety](http://sa.gov.au/energy/powerlinesafety)

**Note 6**

In cases where applicants have obtained a written approval from the Technical Regulator to build the development specified above in its current form within the prescribed clearance distances, the applicant is able to sign the form.





**Development Application**

**Mannum to Adelaide PPS.2**

***Zero Cost Energy Future***

**Solar Photovoltaic Project**

**Version: 2**

**Date : 16/11/2018**

**Status: Final**

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**Government of  
South Australia**

# Document Controls

## Version History

Version	Date	Author	Comments
1.0	14/11/2018	Lauren Nicholson	Draft
1.2	16/11/2018	Jackie Griggs	SA Water Environment, Land and Heritage comments incorporated
1.3	16/11/2018	John Hart	SA Water Project Lead sign off
Final	16/11/2018	Lauren Nicholson	Submitted to DPTI for Approval

Template: Report Version 4.0 31/07/17

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## Executive Summary

Electricity costs comprise a significant operating cost across all SA Water assets.

SA Water has recently developed an Energy Management Framework which includes a range of strategies for reducing operating energy costs. An important component of this framework is energy generation via the use of solar panels and associated energy storage, installed at key SA Water sites around South Australia.

This report contains a description of the proposed installation of solar PV cells and associated works in connection with the Mannum to Adelaide Pumping Station No.2; herein referred to as 'Mannum PPS.2'. This is accompanied by a summary of the relevant planning considerations and the potential impacts and associated management and mitigation measures to support the development assessment process.

# 1 Introduction

## 1.1 Project overview

Electricity costs comprise a significant operating cost across all SA Water assets. Recent increases in the cost of electricity present a risk for SA Water with impacts on SA Water's operating budget and the associated cost of service provision to SA Water customers. Currently SA Water is a wholesale (spot) market participant and as such is exposed to spot market price risk. The electricity price risk is mitigated through SA Water's own power generation, curtailment of consumption and other hedging strategies.

SA Water has recently developed an Energy Management Framework which includes a range of strategies for reducing operational energy costs. A key component of this overarching framework is the installation of solar Photovoltaic (PV) cells and Battery Energy Storage Systems (BESSs) across a number of SA Water's sites with greatest energy needs to facilitate their operations.

The proposed installation of solar PV cells and BESSs at key SA Water operating sites, such as the Mannum PPS.2 site, will immediately reduce the operating energy costs for the site and reduce exposure to increases in electricity costs. Importantly, the generating capacity of the proposed solar PV cells is to be balanced against the provision of a BESS to ensure electrical stability is maintained and to allow greater security and reliability for the continued supply of power to the site.

The works and activities contributing to the proposed installation of solar PV cells and BESSs across key SA Water sites is being completed under the project banner of *Zero Cost Energy Future*. SA Water have identified several sites within the Mid Murray Council area that are being considered for the installation of solar PV cells and associated infrastructure. Components within each respective Development Application for these installations will be largely consistent across the broader project, while other details will be more site specific. Accordingly, visual distinction has been made through report formatting (blue background for selected pages) to more clearly identify the site specific information within each planning report lodged as supporting information to these applications. This has been applied in order to assist the State Commission Assessment Panel (SCAP), local Councils and other referral bodies in the assessment process for subsequent applications.

## 1.2 Proponent

The proponent for the project is SA Water, which is a government enterprise, wholly-owned by the Government of South Australia, and established by the proclamation of the South Australian Water Corporation Act 1994 on 1 July 1995.

SA Water has engaged the services of Aurecon Australasia Pty Ltd in order to manage the process of obtaining all required approvals for the construction and ongoing use of land for the proposed development herein described within this report.

The primary point of contact for any and all correspondence relating to this development application is listed below:

Ms Lauren Nicholson

Town Planner

Aurecon (on behalf of SA Water)

Ph: 08 8237 9762

Email: [Lauren.Nicholson@aurecongroup.com](mailto:Lauren.Nicholson@aurecongroup.com)

The primary point of contact for all applicable project finance matters, including the issuing of invoices, is listed below:

Mr. John Hart  
Senior Project Manager- *Zero Cost Energy Future*  
SA Water  
Ph: 0436 682 042  
Email: [John.Hart@sawater.com.au](mailto:John.Hart@sawater.com.au)

## 1.3 Approval Pathway

Section 32 of the *Development Act 1993* states that any Acts or Activities defined as development (for example; a change in the use of land, building work, or land division) can only be undertaken with a development approval. State Government activities are subject to the approval processes set out under Section 49 of the Act (Crown Development and Public Infrastructure). This project is being submitted for assessment and approval in accordance with Section 49 of the Act.

## 1.4 Project Timing

The proposed timing for the installation of the photovoltaic panels at the site is currently being finalised, but at a high level, will proceed as follows:

- Tender Review: October 2018
- Tender Award: November 2018
- Detailed Design: January 2019
- Solar PV Installation and Connection: May-September 2019
- Site Acceptance Tests/Panels Operational: October 2019
- Battery Energy Storage Systems (BESS) installation, connection & commissioning: December 2019

## 2 Project Site

### 2.1 Site location and details

#### Background : Mannum to Adelaide Pipeline Pumping Station No. 2 (Mannum PPS.2)

The existing SA Water owned land comprises the second pumping station situated along the Mannum to Adelaide Pipeline. The Mannum to Adelaide Pipeline was the first major pipeline built from the River Murray to serve the needs of Adelaide. The pipeline began operating in March 1955. The pipeline is 60km long and is utilised for bulk raw water transfer from the River Murray with offtakes supplying the Mannum WTP, Palmer WTP, Mt Pleasant WTP, Anstey Hill WTP, Warren Reservoir transfer main, Little Para Reservoir dissipater, and discharges to the Torrens River at Mt Pleasant and Angus Creek and to Millbrook Reservoir. The pipeline serves approximately 67,000 SA Water customers. The Mannum Adelaide Pumping Station No.2 is located at Palmer and is comprised of a pump house, three 9.09ML concrete storage tanks, dissipators, valves and an electrical sub-station. The Palmer WTP, including a small treated water storage tank is located on the same land parcel. and is shown in relation to the surrounding locality in Figure 1, below.



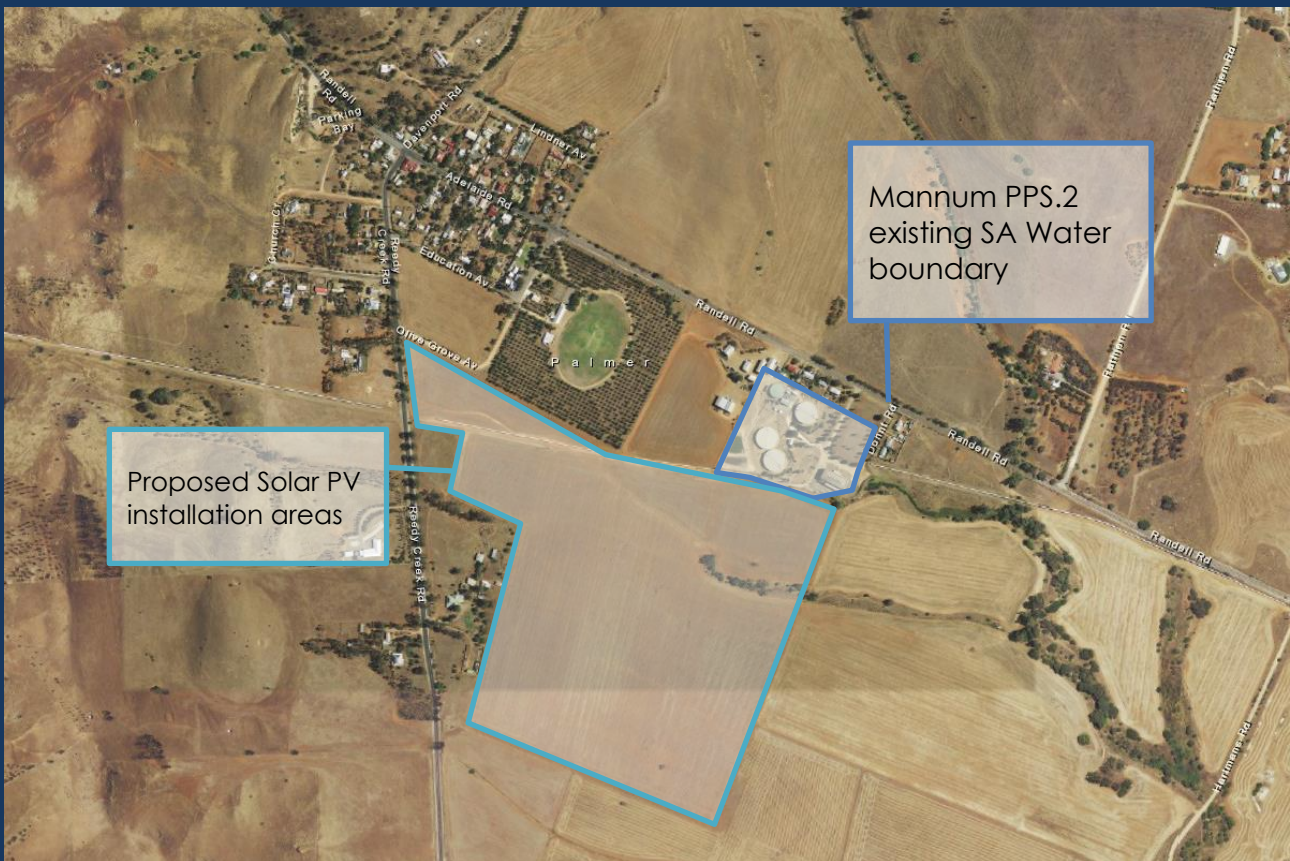
**Figure 1. The Mannum to Adelaide Pipeline Pumping Station No. 2.** Note: boundaries are approximate and shown for illustrative purposes only. Base image source: Location SA Map Viewer, <http://location.sa.gov.au/viewer/>



## Surrounding Land Uses

The existing Mannum PPS.2 site is located at the southeastern perimeter of Palmer Township, and is situated within a generally flat landscape, broken by the Eastern Mounty Lofty Ranges which provide a significant topographical element and visual backdrop to the west of the township area. The land supporting the existing pump station equipment is accessed via Randell Road, though is largely screened from the view of motorists travelling along this route due to the presence of residential allotments along the northern perimeter of the SA Water landholding. Adjoining land to all remaining perimeters of the pumping site comprises agricultural purposes, including open fields for cropping and associated sheds to the northeast.

Residential land uses are predominately contained within the central Palmer Township, with the exception of scattered dwellings associated mainly with larger rural landholdings. The nearest identified community land use is the Collier Park recreational space located approximately 250m to the west of the SA Water land, adjoining Randell Road. Dense plantings of olive trees surround the oval and recreation space of Collier Park. The existing pumping station and proposed development location with relation to the nearest identified points of interest is outlined in Figure 2.



**Figure 2. Mannum to Adelaide PPS.2. - Existing site boundary and proposed solar PV installation area, with nearest points of interest identified.** Note: boundaries are approximate and shown for illustrative purposes only. Base image source: Location SA Map Viewer, <http://location.sa.gov.au/viewer/>

## Subject Area

Land to the south-southwest of the existing Mannum PPS.2 site has been identified as the preferred positioning of the proposed development, comprising the installation of solar PV arrays and associated infrastructure. This land is predominantly utilised for agricultural (cropping) purposes, with associated sheds and other built form positioned near to the Randell Road entrance, generally west of the pumping station. Additionally, this land does not form part of existing site operations, nor future upgrade/ expansion plans in connection with the Mannam PPS.2 site.

The proposed solar PV installation area avoids existing native vegetation, which has largely been cleared previously for agricultural purposes. An isolated stand of vegetation is present within the development subject land, directly south of the pumping station, and situated within an existing watercourse / drainage channel.

The proposed installation of solar PV infrastructure is to be situated wholly within the property at 1764 Randell Road Palmer. This land has the legal description of Lot 77, Deposited Plan 110976, Certificate of Title Volume 6178, Folio 117, in the Hundred of Tungkillo. A Certificate of Title is attached at Appendix A.

The land which is proposed to accommodate the development described herein is presently under private ownership. A total of approximately 24 hectares is required to facilitate the proposed installation. SA Water are working directly with the current land owner to ensure that the proposed development is appropriately positioned to allow for existing site operations within the subject land to continue as far as possible, as well as ensure an appropriate location in the context of minimising impact to surrounding land uses.

The proposed location and formation of the solar PV arrays is exemplified in Figure 3. The proposed development will be installed across available cleared space within the subject land and positioned so as to avoid impact upon existing infrastructure, easements and other site elements listed below:

- Existing plant/ equipment/ operational elements
- Public roadways and internal access tracks
- Areas of biodiversity/ heritage value
- Watercourses, stormwater catchments and drainage channels
- Electrical easements
- Sewage/ waste water pipelines



**Figure 3. Proposed area for development ('Areas 1 to 4'), south of Mannum PPS.2.** Excerpt from Appendix B- Design Drawings. Base image source: Location SA Map Viewer, <http://location.sa.gov.au/viewer/>

Site photos and Nearmap streetview imagery obtained in proximity to the existing pumping station and proposed development area allow for greater understanding of the surrounding landscape, as evidenced in Figures 4-6 below.

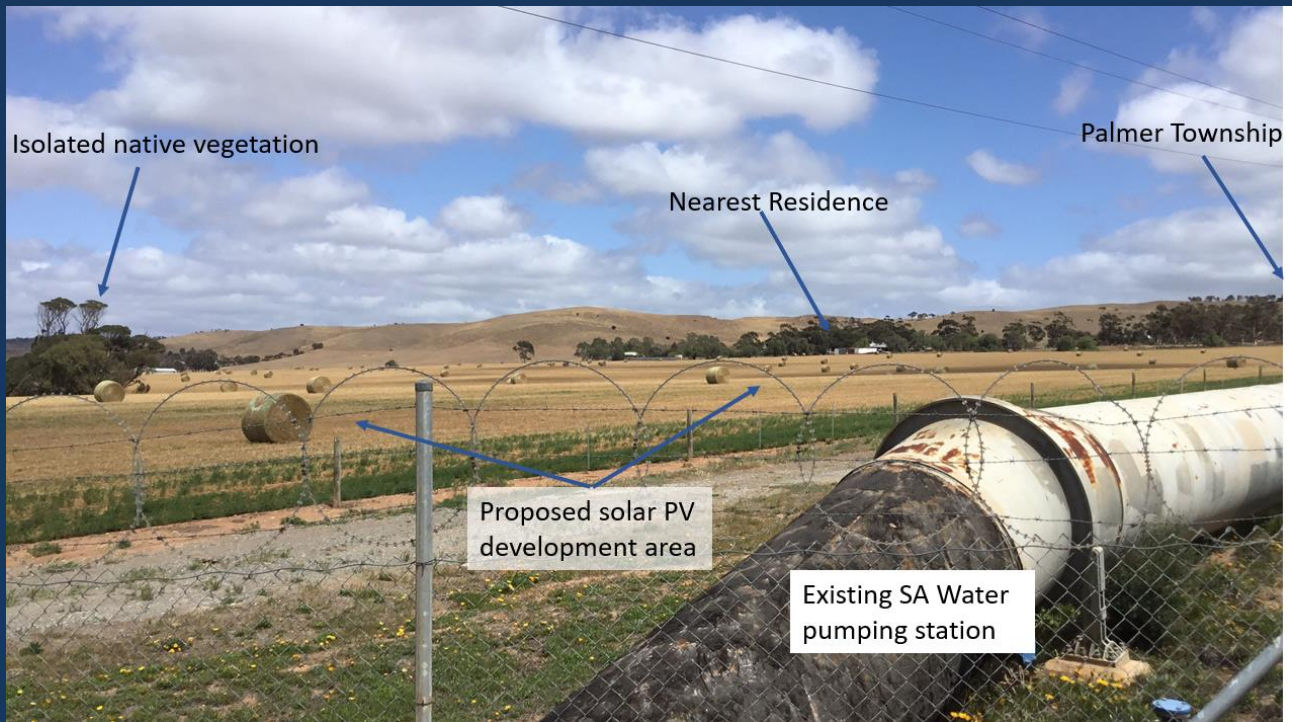


Figure 4. Mannum PPS.2 solar PV site photo, taken from southern perimeter of existing SA Water pumping station, looking southwest over proposed development area.

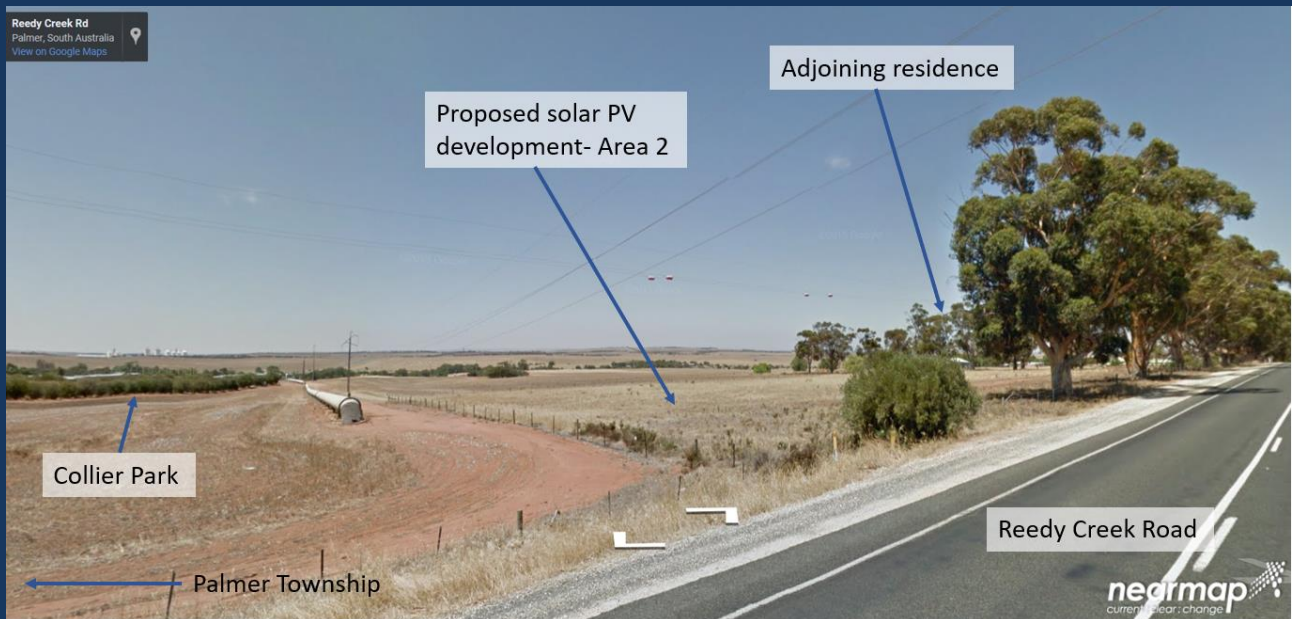


Figure 5. Mannum PPS.2 solar PV development area. Positioned on Reedy Creek Road, looking over Area 2 of proposal, facing southeast. Base image source: Nearthmap imagery <http://maps.au.nearthmap.com/>



**Figure 6. Mannum PPS.2 solar PV development area**, positioned on Randell Road, looking south-southwest towards proposed development. Base Image source: Nearmap imagery <http://maps.au.nearmap.com/>

## 3 Proposed Development

### 3.1 Description of Proposal

The proposed development of a ground-mounted solar generation plant involves the below components;

- Approximately 34,680 individual solar PV cells, each measuring approximately 1900mm long x 992mm wide and 50mm in base (Note: final panel size and configuration will be subject to detailed design and panel supplier selection processes);
- Associated Single Access Tracking (SAT) framework for the solar panels (indicative framework design illustrated in Figure 10);
- Approximately seven (7) Power Conversion Stations (PCSs), installed within shipping containers (or similar) for weather proofing;
- Battery Energy Storage Systems (BESS) equipment (model specifications to be confirmed by construction partner);
- Associated groundworks and levelling, including the provision of a lay-down area for construction;
- Electrical cabling, installed via underground trenching;
- Surface upgrades to existing access tracks to ensure all-weather access;
- Upgrades to existing security fencing (where required).

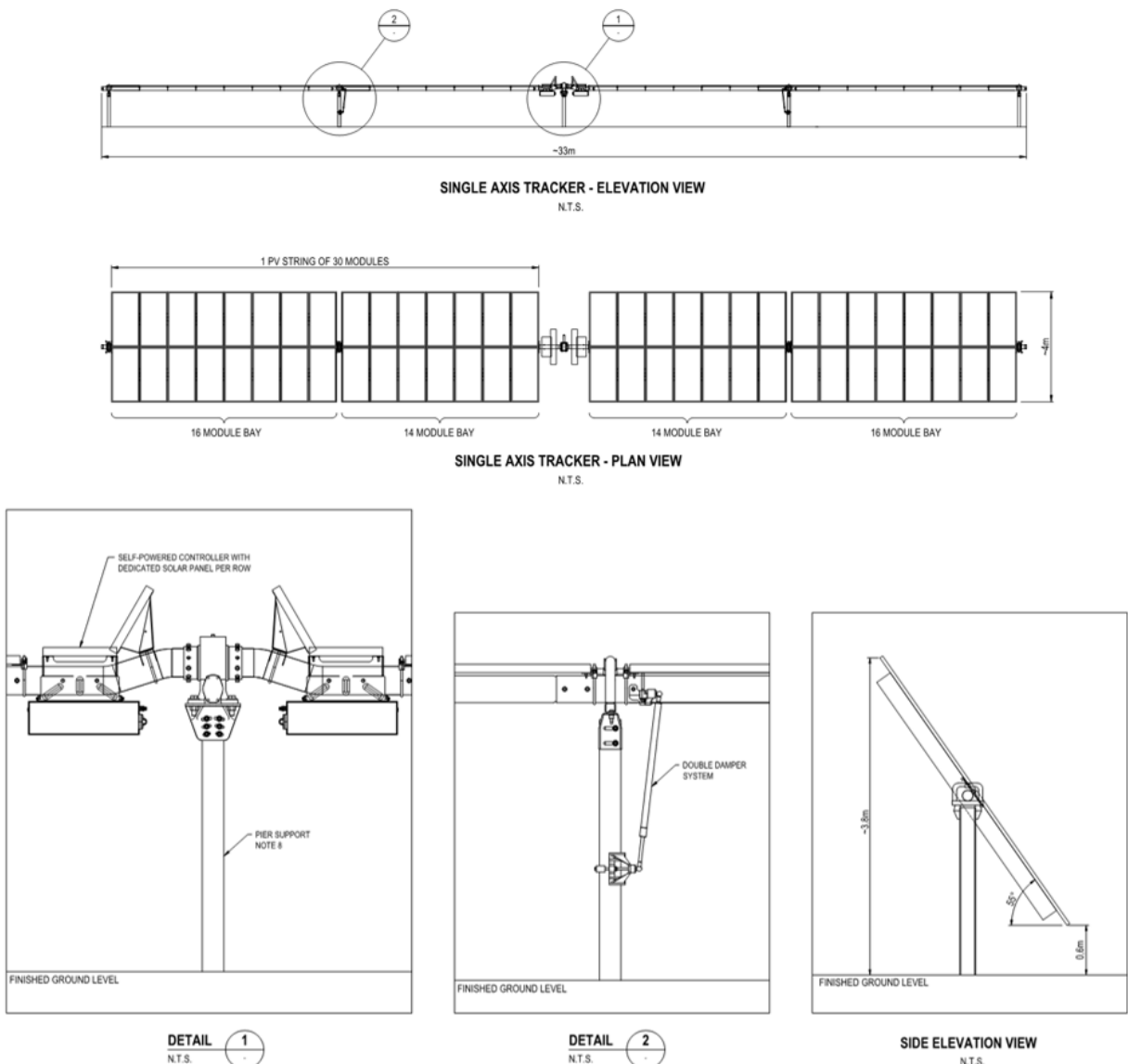
The exact number of solar panels and power conversion stations will be determined upon confirmation of the technology type to be utilised at this site. This factor is subject to confirmation by the construction partner, with further information able to be provided within forthcoming detailed designs.

In total, the proposal requires approximately 24 hectares of land for the installation of solar PV arrays and associated infrastructure within the property at 1764 Randell Road, Palmer, immediately south of the existing Mannum PPS.2 site.

Individual solar panels are installed on tracking tables, which are aligned with an axis in a North-South orientation, with a tracking range of +/- 55° in an East-West direction (pending confirmation of technology type). An indicative maximum height of 3.8 metres from ground level to the top of the solar panels (when positioned at the highest angle) is provided within the attached plans (Appendix B- Design Drawings. NB: details to be confirmed within final designs).

The positioning of the proposed solar arrays will incorporate sufficient setback from each of the property boundaries to allow for the free-movement of vehicles associated with ongoing maintenance as well as with the continued operations at Mannum PPS.2. An approximate setback distance of 10 metres from all allotment perimeters has been included within the attached site plans. Appropriate setbacks of approximately 30m have also been provided from the existing High Voltage overhead powerlines, as well as identified watercourse features.

The actual panel size and weight will be determined by the successful contractor and the panels selected by them. The installation of the required solar PV panels will be fully engineered to ensure that the panel frames can withstand all loading, including wind loading.



**Figure 7 . Typical Ground-mounted, Single Access Tracking (SAT) Solar Panel Layout** (see Appendix B- Design Drawings for greater detail)



**Figure 8. Typical Ground-mounted Solar Panel Layout**



**Figure 9. Typical Ground-mounted Solar Panel Layout**

## **3.2 Environmental management**

A preliminary Project Environmental Management Plan (PEMP) is included in Appendix D. The plan addresses the potential environment and heritage impacts associated with key construction activities and outlines the minimum controls and monitoring responsibilities to ensure compliance with the requirements of the project environmental controls.

The successful contractor will be required to review, refine and adopt this PEMP prior to the commencement of site works. SA Water's Environmental and Heritage Services team will monitor compliance with the PEMP throughout the life of the project through regular surveillance, site visits and environmental audits.

## **3.3 Site works and Construction**

The expected site works will include:

- Earthworks including minor levelling works as preparation for panel installation.
- Trenching/ installation of new High-voltage and Low-voltage electrical cabling. This may consist of both aboveground (i.e within cable support systems) and underground cable routes.
- Site works will include installation of the framework to support the panel arrays, with a layout, height and configuration similar to that shown in Figure 7 above.
- The earth works will include drainage works to manage stormwater run-off, with some upgrades to the existing drainage network potentially required.
- Upgrades will be required of SA Water's electrical infrastructure to facilitate connecting the array to a High Voltage (HV) switchboard.
- All construction work and equipment installation at the site will take approximately 20 weeks. This includes commissioning of the solar plant, which involves connection and testing works. The BESS will be installed post procurement and will take approximately 8 weeks to be installed and tested.

An upgrade to SA Water's security systems are being investigated. Where it is identified that security fencing will be required (additional to that presently in situ), this information will be included within the final Detailed Designs.



### 3.4 Stakeholder engagement

SA Water has developed a community and stakeholder engagement strategy to identify key stakeholders, potential project impacts and highlight key messages for communication. SA Water will seek to secure stakeholders' understanding of the need for the project, the expected timing and the construction methodology.

SA Water is committed to ensuring a high level of stakeholder engagement in order to manage expectations, concerns and any other stakeholder issues associated with the project.

The proposed construction work for the broader project has potential to cause temporary disturbances to adjacent land uses. The Stakeholder Engagement Team will ensure that consultation is ongoing throughout design and construction to minimise any impacts.

In the case of Mannum PPS.2, the level of disturbance is expected to be minimal given the significant separation of the subject land from the nearest township, as well as allowing appropriate separation from scattered residences associated with larger rural allotments.

The SA Water Stakeholder Engagement Team will monitor the progress and effectiveness of the stakeholder engagement strategy and provide regular reports to the Project Manager on issues and opportunities identified through the stakeholder engagement process.

Members of SA Waters' Environmental and Heritage Services team, along with an Aurecon representative, met with Mid Murray Council staff on 30<sup>th</sup> August 2018 to discuss the proposed development at Mannum PPS.2, as well as the role this site plays within SA Waters' *Zero Cost Energy Future*. A number of additional SA Water sites within the Mid Murray Council region were also identified as forming part of SA Waters' *Zero Cost Energy Future* project. Through these discussions, Mid Murray Council staff expressed in-principle support for the proposal and broader project objectives. Continued correspondence between Aurecon (on behalf of SA Water) will be maintained throughout the development process to ensure Mid Murray Council are made aware of any important milestones, and so that we can more readily address any items raised by Council staff.

## 4 Planning Assessment

The site of the proposed development is located within the Mid Murray Council area, accordingly The Mid Murray Council Development Plan (consolidated 23 August 2018) is the relevant Development Plan. As delineated within Zones Map Mi/Mu48 and Policy Areas Map MiMu/95 of the Mid Murray Council Development Plan, the proposal lies across two zones;

- Service Centre (Palmer) Zone; and
- Rural Zone – Pastoral Policy Area 16.

The vast majority of the proposal is situated within the latter of these; the Rural Zone. The exception to this is provided by 'Area 4' of the proposal.

The table below outlines the objectives and principles of development control considered to be relevant to the assessment of the proposed development. These reflect items within the General Section of the Development Plan, as well as those appearing within the relevant Zone and Policy Area provisions.

**Table 1. Relevant Development Plan Provisions**

Council Wide		
	Objectives	Principles of Development Control
Form of Development	1,7	1
Movement of People and Goods	15, 16	41
Public Utilities	17	44, 45
Appearance of Land and Buildings	18, 19	61, 63, 67, 68, 72, 76, 77
Interface Between Land Uses	25	85, 86, 87
Rural Development	51, 52	
Siting and Visibility	54	162, 163, 166, 168
Natural Resources	55, 58, 59, 60, 62, 64, 67, 68	170, 171, 200, 205
Energy Efficiency	75	224
Hazards	91, 92	377, 378
Bushfire Protection	101, 102	394, 397
Renewable Energy	103, 104, 105	401
Noise		92
Flooding		218

Zone Specific		
<b>Rural Zone</b>	Objectives	3, 5, 6, 21, 22, 23
	Principles of Development Control	1, 2, 18, 20
<b>Murray Plains Policy Area 16</b>	Principles of Development Control	1
<b>Service Centre (Palmer)</b>	Objectives	3
	Principles of Development Control	1, 6, 8, 9, 10, 12, 16, 17, (Palmer – 25, 27, 28, 29, 30) 43, 47, 48, 50, 51

## 4.1 Form, Appearance, Siting and Visibility

The proposal will utilise design elements contributing to a coordinated appearance typical to solar PV installations. These elements include; relatively low heights maintained by the panels (approximately 3.8 metres at highest positioning), consistent orientation of and spacing between 'strings', or rows, as well as the careful positioning of associated equipment (such as battery facilities and power conversion stations) to ensure that a high visual standard of development is achieved.

The proposed development is well separated from surrounding sensitive land uses, and is appropriately positioned towards the perimeter of the Palmer Township with reasonable separation from residential and community uses. The development utilises existing vegetation within the broader locality to minimise the potential for visual impact where possible, particularly that along adjoining roadways. Additionally, the development proposes the establishment of a vegetation buffer along the portion of the southwestern boundary abutting to the nearest residence in order to mitigate against visual impact concerns.

Views towards the proposed development from areas of recreation / scenic value are restricted by physical separation and vegetation, for example, the vegetation surrounding the sports oval within Collier Park to the northwest of the site. An existing vegetation buffer, and built form at the existing SA Water Mannum PPS.2 site, with frontage to Randell Road, will assist with screening the views of passing motorists. The potential for visual impact to motorists travelling along Randell Road is further minimised through the off-centre orientation of the proposed solar PV 'strings' in relation to this roadway, reducing opportunities for direct views and glare.

Accordingly, the proposal is considered to be broadly consistent with the below Development Plan provisions;

### **Form of Development**

**Objective 1:** Orderly development with the economic extension of services and facilities in accordance with Structure Plan for the District Map MiMu/1 (Overlay 2).

**Objective 7:** Development safe from natural or man-made hazards and to be compatible with land capability.

### **Principles of Development Control**

**1** Orderly Development in accordance with the Structure Plan Maps MiMu/1 (Overlay 1) and Enlargements A to M and MiMu/1 (Overlay 2).

## **Appearance of Land and Buildings**

**Objective 18:** Amenity of localities not impaired by the appearance of land, buildings and structures including landscape.

**Objective 19:** Development of a high architectural standard that responds to and reinforces positive aspects of the local environment and built form.

## **General Design and Appearance**

### **Principles of Development Control**

**61** Building form should not unreasonably restrict existing views available from neighbouring properties and public spaces.

**63** The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties, drivers or cyclists.

**67** Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.

**68** Development should be landscaped in a manner that:

- (a) visually screens unattractive buildings and enhances desirable views;
- (b) screens car parking areas from pedestrian areas;
- (c) provides shade, and softens the effect of large areas of paved surface;
- (d) enhances privacy;
- (e) creates a buffer between incompatible development; and
- (f) integrates the elements of streetscape.

**72** Trees, other vegetation and earth mounding should be retained or provided as part of the development where the environment will be visually improved by such a provision.

**76** Development should take place in a manner which will minimise alteration to the existing land form.

**77** Excavation and earthworks should take place in a manner that is not extensively visible from surrounding localities.

## **Siting and Visibility**

**Objective 54:** Protection of scenically attractive areas, particularly natural, rural and riverine landscapes.

### **Principles of Development Control**

**162** Development should be sited and designed to minimise its visual impact on:

- (a) the natural, rural or heritage character of the area;
- (b) areas of high visual or scenic value, particularly rural areas, the natural character of the Mount Lofty Ranges and its skyline, and riverine areas;
- (c) views from the River Murray, public reserves, tourist routes, walking trails and scenic routes that are identified in Map MiMu/1 (Overlay 2).

**163** Buildings should be sited in unobtrusive locations and, in particular, should:

- (a) be grouped together; and
- (b) where possible be located in such a way as to be screened by existing vegetation when viewed from public roads and especially the River Murray.

**166** The nature of external surface materials of buildings should not detract from the visual character and amenity of the landscape.

**168** Driveways and access tracks should be designed and surfaced to blend sympathetically with the landscape and to minimise interference with natural vegetation and landforms.

## 4.2 Transport, Access and Public Utilities

The proposed development has been appropriately sited and designed to ensure that existing infrastructure is utilised wherever possible. This includes the use of existing access arrangements and internal movement systems, as well as the existing electrical sub-station at Mannum PPS.2. The proposed solar PV array positioning ensures adequate separation from existing utility easements to avoid the potential for impact upon these, as well as allowing for the continued use of SA Water land in the treatment and pumping of water.

The existing access arrangement for Mannum PPS.2 off Randell Road will be utilised throughout the construction of the solar PV arrays and associated infrastructure, subject to confirmation by SA Waters construction partner. Ongoing access throughout the life of the solar infrastructure will be limited to any required maintenance/ replacement or cleaning of the panels and other equipment and is expected to be of relatively low frequency.

Some minor upgrades to existing internal gateways and access tracks within the agricultural allotment at 1764 Randell Road may be required to allow for safe access and movement through the site, particularly for larger vehicles associated with construction. This information will be provided as part of the Detailed Designs, once confirmed by SA Waters' construction partners.

Accordingly, the proposal is considered to be broadly consistent with the below Development Plan provisions;

### **Movement of People and Goods**

**Objective 15:** Provision of a system of scenic routes serving the district and their protection from inappropriate development

**Objective 16:** Free flow of traffic on roads by minimising interference from adjoining development.

### **Principles of Development Control**

**41** Driveways, access tracks and parking areas should:

- (a) follow the natural contours of the land;
- (b) follow the geometric pattern of plantings;
- (c) be designed and constructed with a minimum amount of excavation and/or fill;
- (d) be designed and constructed to minimise the potential for erosion from run-off; and
- (e) not involve the removal of existing vegetation.

### **Public Utilities**

**Objective 17:** New development serviced with adequate public infrastructure commensurate with projected demands at the cost of the proponent.

### **Public Utilities and Servicing**

#### **Principles of Development Control**

**44** Provision and maintenance of utility services and easements should be undertaken in such a way that any existing or potentially adverse visual or environmental effects are minimised.

**45** Infrastructure required for development should:

- (a) be able to be economically provided;
- (b) be of a sufficient standard, design and capacity to accommodate the proposed development;
- (c) not have a detrimental impact on the environment qualities and the amenity of the area;
- (d) not necessitate the removal of native vegetation;
- (e) not increase the level of risk to public health;

(f) be provided at full cost to the developer without public subsidy;

(g) not compromise the level of service to other existing users;

(h) not be at risk of damage by flood waters; and

(i) not materially affect places of heritage value identified in Table MiMu/6 - State Heritage Places and Table MiMu/7 - Local Heritage Places.

## 4.3 Natural Resources

The proposed development will not require the clearing of native vegetation to allow for the installation of solar PV arrays and associated infrastructure, as the subject land is largely void of native vegetation. A small cluster of vegetation exists within the path of creekline within this subject land and has been excluded from the development area.

The proposed installation of solar PV arrays and associated infrastructure within the Mannum PS.2 land will require relatively limited alteration to the existing landform by way of earthworks as the site is already largely flat with little variation across the terrain. Development will seek to minimise the introduction of impermeable surfaces in order to protect natural ecological systems and preserve existing site hydrology with respect to the movement of surface waters across the land in high rainfall events.

A minimum setback distance of 30m from identified watercourses, as well as a minimum setback of 10m from all property perimeters, further ensures that existing site hydrology is protected and stormwater run off can be contained within the subject land.

As well as not proposing the removal of vegetation, the proposal includes for the establishment of a suitable vegetation buffer along the southwestern perimeter. While exact planting details are to be determined, efforts will be made to ensure that locally indigenous species are utilised.

Given these considerations, the proposal is considered to be broadly consistent with the below Development Plan provisions;

### **Natural Resources**

**Objective 55:** Retention, protection and restoration of the natural resources and environment.

**Objective 58:** Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.

**Objective 59:** Development consistent with the principles of water sensitive design.

**Objective 60:** Development sited and designed to:

(a) protect natural ecological systems;

(b) achieve the sustainable use of water;

(c) protect water quality, including receiving waters;

(d) reduce runoff and peak flows and prevent the risk of downstream flooding;

(e) minimise demand on reticulated water supplies;

(f) maximise the harvest and use of stormwater;

(g) protect stormwater from pollution sources.

**Objective 62:** Native flora, fauna and ecosystems protected, retained, conserved and restored.

**Objective 64:** Minimal disturbance and modification of the natural landform.

**Objective 67:** Protection of the scenic qualities of natural and rural landscapes.

**Objective 68:** Preservation of the River Murray landscape and environment.

### **Principles of Development Control**

**170** Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.

**171** Development should ensure that South Australia's natural assets, such as biodiversity, water and soil, are protected and enhanced.

**200** Development should retain existing areas of native vegetation and where possible contribute to revegetation using locally indigenous plant species.

**205** Where native vegetation is to be removed, it should be replaced in a suitable location on the site with locally indigenous vegetation to ensure that there is not a net loss of native vegetation and biodiversity.

## 4.4 Interface Between Land uses

The proposed development has been sited within land predominantly used for agricultural purposes within the Rural Zone and, to a far lesser extent, the Service Centre Zone. The chosen location is well separated from the main Palmer Township and surrounding road networks, as well as from native vegetation and residential land uses.

The development is designed and located to minimise the potential for adverse impact upon the existing amenity within this locality and to support the continued operation of desired land uses. The positioning of the proposed development towards the perimeter of the township and in proximity to existing established public infrastructure uses (such as the SA Water pumping station) allows for appropriate separation from surrounding sensitive land uses. The proposal utilises existing vegetation and built form along each of the property perimeters to mitigate against visual impact concerns beyond the subject land. Views from the nearest residence, located off Reedy Creek Road, will be further screened through the establishment of a vegetation buffer.

A minimum setback distance of ten (10) metres, measured from the outer property perimeter to the commencement of the solar arrays/ other infrastructure, has been incorporated within the proposed designs. This setback distance will allow for existing vegetation within the subject land to be retained for the purposes of screening the proposed development. Where it is required, and where it is consistent with local vegetation profiles, infill planting within the perimeter setback area may be undertaken to improve the level of screening provided.

The total area upon which the solar PV arrays and associated infrastructure will be constructed is limited to that required for sufficient power generation in support of the operational needs of SA Water infrastructure at Mannum PPS.2. The proposed layout and positioning of the proposed development has been determined in consultation with the landowner of 1764 Randell Road, Palmer.

The potential for adverse impacts upon the surrounding locality is minimised through the relatively inoffensive nature of the development, which requires little ongoing maintenance and operational activities. The greatest potential for adverse impacts such as noise and dust nuisance are largely limited to that associated with the construction period. Appropriate mitigation measures will be employed by SA Waters construction partner to ensure that the potential for adverse impacts throughout the construction period is suitably minimised.

The proposal is consistent with the provisions of the respective zones and will not impact upon the continued operations within the pumping site, nor the ability of surrounding land uses to achieve the relevant provisions of respective adjoining zones.

The proposed development is therefore considered to be broadly consistent with the below provisions;

### **Interface Between Land Uses**

**Objective 25** Development located and designed to prevent adverse impact and conflict between land uses.

### **Principles of Development Control**

**85** Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:

(a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants;

(b) noise;

(c) vibration;

(d) electrical interference;

(e) light spill;

(f) glare;

(g) hours of operation; or

(h) traffic impacts.

**86** Development should be designed and sited to minimise negative impact on existing and potential future land uses considered appropriate in the locality.

**87** Development adjacent to a Residential Zone or residential area within a Country Township, Service Centre or Settlement Zone should be designed to minimise overlooking and overshadowing of nearby residential properties.

### **Rural Development**

**Objective 51:** Retention of rural areas for agricultural and pastoral purposes.

**Objective 52:** Maintenance of the character of rural areas.

### **Noise**

#### **Principles of Development Control**

**92** Development should be consistent with the relevant provisions in the current Environment Protection (Noise) Policy.

## **4.5 Hazards**

The proposed development has been sited within land outside of the River Murray Protection Area / Floodplain Area, as identified within *Map MiMu/1 (Overlay 3)- Development Constraints (Water Management Areas)* of the Mid Murray Council Development Plan (consolidated 23 August 2018). However, through the same assessment, the land is identified as positioned within the *River Murray Protection Area – Tributaries Area*, accordingly, the proposed development has been appropriately positioned away from areas that are vulnerable to the risk of natural hazards such as flooding.

As noted within previous sections of this report, the installation of solar PV arrays and associated infrastructure involves relatively minor alterations to the existing land form by way of earthworks and will seek to maintain existing surface hydrology as far as possible. The proposal will seek to minimise the addition of impermeable ground surfaces to the subject land, pending confirmation by SA Waters construction partners within forthcoming detailed designs. Onsite management of stormwater, both during construction and operation, in order to prevent offsite soil erosion and transport, is recognised as an important element that will be addressed in the detailed design stage by SA Waters construction partner.

A minimum setback distance of 30m from identified watercourses within the subject land has been included within the proposed designs in order to mitigate against the risk of flooding and to ensure the proposal does not interfere with existing natural processes.

The proposed development is sited within a Medium Bushfire Risk area, as shown on *Bushfire Protection Area Figure MiMu(BPA)/4* of the Mid Murray Council Development Plan (consolidated 23 August 2018). Accordingly, the proposed development will incorporate the use of existing and proposed access arrangements to ensure that vehicles, including emergency services vehicles, can be permitted safe and convenient access to the site and ensure free movement through the subject land. Further, the proposed development does not involve the storage of hazardous materials and the solar pv arrays and associated support frames will utilise a relatively open design to minimise the opportunity for debris to become trapped within the associated strings, or rows.



The following provisions are therefore considered to be broadly achieved by the proposed development;

### **Hazards**

**Objective 91:** Maintenance of the natural environment and systems by limiting development in areas susceptible to natural hazard risk.

**Objective 92:** Development located away from areas that are vulnerable to, and cannot be adequately and effectively protected from the risk of natural hazards.

#### **Principles of Development Control**

**377** Development should be excluded from areas that are vulnerable to, and cannot be adequately and effectively protected from, the risk of hazards.

**378** There should not be any significant interference with natural processes in order to reduce the exposure of development to the risk of natural hazards.

### **Bushfire Protection**

**Objective 101:** Development should minimise the threat and impact of bushfires on life and property while protecting the natural and rural character.

**Objective 102:** Buildings and intensification of non-rural land uses directed away from areas of high bushfire risk.

#### **Principles of Development Control**

**394** Building and structures should be located away from areas that pose an unacceptable bushfire risk as a result of one or more of the following:

- (a) Vegetation cover comprising trees and/ or shrubs;
- (b) Poor access;
- (c) Rugged terrain
- (d) Inability to provide an adequate building protection zone; or
- (e) Inability to provide an adequate supply of water for fire-fighting purposes.

**397** Buildings and structures should be designed and configured to reduce the impact of bushfire through using simple designs that reduce the potential for trapping burning debris against the building or structure, or between the ground and building floor level in the case of transportable buildings.

### **Flooding**

#### **Principles of Development Control**

**218** Development, including earthworks associated with development, should not do any of the following:

- (a) impede the flow of floodwaters through the land or other surrounding land;
- (b) increase the potential hazard risk to public safety of persons during a flood event;
- (c) aggravate the potential for erosion or siltation or lead to the destruction of vegetation during a flood;
- (d) cause any adverse effect on the floodway function;
- (e) increase the risk of flooding of other land;
- (f) obstruct a watercourse.

## 4.6 Energy Efficiency and Renewables

SA Water is one of the largest power users in the State. The proposed development will directly contribute towards significant advancements in the energy efficiency of Mannum PPS.2, as well as the wider SA Water infrastructure network, through the onsite generation of solar power.

The chosen location, siting and design of the proposed development has sought to minimise the potential for adverse impacts through its positioning within an appropriate zone (predominantly Rural Zone, minimising extent of development within adjoining Service Centre Zone). The ongoing use of SA Water land as a pumping facility is directly supported by the proposal. The proposed siting and design (further confirmation available within forthcoming Detail Designs) will ensure that the generating capacity of the solar PV arrays is maximised by securing a north-facing site with minimal shading/ over-shadowing from existing built form and mature trees. Further, positive impacts of the development are maximised through the provision of onsite energy storage capabilities via batteries (technical specifications / model type to be confirmed by construction partner).

The proposal is therefore considered to be broadly consistent with the provisions listed below;

### **Energy Efficiency**

**Objective 75:** *Development that provides for on-site power generation including photovoltaic cells and wind power.*

#### **Principles of Development Control**

**224** *Public infrastructure, including lighting and telephones, should be designed to generate and use renewable energy*

### **Renewable Energy**

**Objective 103:** *Development of renewable energy facilities that benefit the environment, the community and the state.*

**Objective 104:** *The development of renewable energy facilities, such as wind farms and ancillary development, in areas that provide opportunity to harvest natural resources for the efficient generation of electricity.*

**Objective 105:** *Location, siting, design and operation of renewable energy facilities to avoid or minimise adverse impacts on the natural environment and other land uses.*

### **Renewable Energy Facilities**

#### **Principles of Development Control**

**401** *Renewable energy facilities, including wind farms and ancillary development, should be:*

(a) *located in areas that maximize efficient generation and supply of electricity; and*

(b) *designed and sited so as not to impact on the safety of water or air transport and the operation of ports, airfields and designated landing strips.*

## 4.7 Zone Specific Provisions

### Rural Zone

The Rural Zone envisages the continuation of agriculture and broader primary production activities as the predominant land use within the zone, along with developments associated with primary production purposes. The Rural Zone also envisages the establishment of windfarms and ancillary development as a desired land use within the zone, so long as they are located outside of the Barossa Valley Character Preservation district. Murray Plains Policy Area 16 envisages the land is used for "dryland farming although in proximity of the River Murray Zone where it is economical to reticulate River water, horticultural development of a variety of types is undertaken compared to other agricultural regions". It further notes that "there are a number of large stands of the original Mallee vegetation of the Plains which should be preserved".

While solar PV installations are not specifically listed as an envisaged use for the zone or policy area, the proposed development is directly supportive of the continued operations of critical SA Water infrastructure within the Mannum PPS.2 pump station that serves communities along the Mannum to Adelaide pipeline within the Mid Murray Council region and beyond. The proposal has been carefully sited and designed to ensure that it minimises impact upon existing and future planned operations within Mannum PPS.2, and has also been designed to ensure maximum energy generating capacity is achieved, thereby solidifying it's important functionality to the plant. Once operational, the solar PV infrastructure will deliver significant and immediate benefit to the Mannum PPS.2 operations by reducing operational costs and allowing for greater security in the provision of ongoing reliable power.

The proposal is therefore considered to be broadly consistent with the following zone specific provisions;

### Stormwater

**Objective 3:** Maintenance of natural hydrological systems and environmental flows.

#### Principles of Development Control

2 No adverse impact on natural hydrological systems and environmental flows.

### Vegetation and Landscape Character

**Objective 5:** Retention and maintenance of wetlands and existing native vegetation for its conservation, biodiversity, and habitat value and environmental management function.

**Objective 6:** Maintenance and enhancement of the landscape character.

### Built Form and Design

**Objective 21:** Buildings and structures compatible with the environmental qualities, built form and character of the surrounding area and landscape.

#### Principles of Development Control

18 Buildings and structures which have:

(a) a design scale, appearance and site to enhance the positive environmental qualities, built form and character of the locality;

(b) a site which is unobtrusive and screened from public roads and adjoining properties by:

(i) natural landforms;

(ii) existing vegetation;

(iii) planting of appropriate vegetation;

(c) a requirement for minimal excavation or filling of land;

(d) a requirements for minimal removal of existing vegetation; and

(e) sites which are grouped together.

**20** Sites should be provided with a safe and convenient means of access which:

(a) avoids unreasonable interference with the flow of traffic on adjoining roads;

(b) accommodates all types and the volume of traffic likely to be generated by the development or land use; and

(c) is located and designed to minimise any adverse impact on the occupants of visitors to neighbouring properties

### **Form of Development**

#### **Principles of Development Control**

1 Development should not be undertaken unless it is consistent with the desired character and acceptable forms of development for the zone and the relevant policy area.

### **Infrastructure**

**Objective 22:** Economic provision of infrastructure in an environmentally sensitive manner.

**Objective 23:** Development provided with an adequate level of appropriate services and infrastructure without excessive cost to the community.

### **Murray Plains Policy Area 16**

#### **Principles of Development Control**

1 Development should not be undertaken unless it is consistent with the desired character for the policy area

### **Service Centre**

The Service Centre Zone envisages there to be "a number of small settlements which comprise predominantly detached dwellings and a range of small commercial and service industry development".

Palmer is one of two townships within the Zone which has an additional policy. The Service Centre Zone notes Palmer as a "small isolated township located on the Adelaide to Mannum Road, at the base of the eastern escarpment of the Mount Lofty Ranges....The allotments and road pattern are well laid out and of reasonable proportions with a considerable number of vacant allotments suitable for development. Compatible minor rural activities are suitable for large allotments."

The aims of the Structure Plan are:

(a) consolidation of the settlement through residential use of existing allotments within the living area;

(b) provision for expansion and improvement of local service facilities in the vicinity of the town centre;

(c) protection of the amenity value of the eastern escarpment of the Mount Lofty Ranges which form a scenic backdrop to the town; and

(d) scope for residential uses on small rural allotments in the Urban/Rural Fringe area."

While solar PV installations are not specifically listed as an envisaged use for the zone or policy area, the portion of the proposed development to be situated within the Service Centre Zone has been minimised as far as practicable. The positioning of the proposal in this zone ensures appropriate separation from adjoining roadways and residences in order to minimise impact wherever possible. Additionally, the proposed development is directly supportive of the continued operation of critical public infrastructure which serves the community of Palmer, as well as the broader Mid Murray Council region and beyond.

The proposal is therefore considered to be broadly consistent with the following zone specific provisions;

## **Facilities**

**Objective 1:** *Small-scale services and facilities grouped together to service the requirements of the local community and the visiting public.*

### **Principles of Development Control**

**6** *Development should not be undertaken unless it is consistent with the desired character and acceptable forms of development for the zone.*

**7** *Local service facilities should be grouped together in proximity to existing facilities.*

## **Character**

**Objective 3:** *Development that contributes to the desired character of the zone.*

### **Principles of Development Control**

**12** *Non-residential development should be confined to modest expansion of existing uses and where such development will not cause nuisance to residential development in the locality of the proposed use.*

**16** *In undeveloped areas of the zone, clearance of trees and other vegetation should be minimised and used where possible to screen proposed buildings or structures.*

**17** *Buildings and structures should:*

*(a) be sited in an unobtrusive location, not on visually prominent sites, ridge-tops or similar visually exposed locations particularly when viewed from public roads;*

*(b) be clustered to ensure that the majority of any site remains free from buildings and structures;*

*(c) maximise the retention of mature vegetation;*

*(d) take advantage of favourable climatic and solar energy consideration;*

*(e) have surfaces which are not reflective;*

*(f) be not higher than two-storey (6 metres) and their roof lines and overall profile should complement the natural form of the land; and*

*(g) incorporate large eaves, verandahs and pergolas into their design so as to create shadowed areas which reduce their bulky appearance.*

**19** *Out-buildings, structures, above ground water tanks, should be located below ridgelines, out of view from public roads and screened with landscaping.*

## **Palmer Township (specifically)**

**Objective 3:** *Development that contributes to the desired character of the zone.*

### **Principles of Development Control**

**25** *Development should be primarily for the low density residential use of land.*

**27** *Development should not interfere with the residential amenity.*

**28** *Development should not interfere with the safe and efficient flow of traffic along, nor gain access to, the Adelaide to Mannum Road.*

## 5 Environmental Considerations

SA Water is committed to ensuring the Mannum PPS.2 project is constructed in a sustainable manner which minimises impacts to the surrounding environment- a commitment which extends to all installations within the *Zero Cost Energy Future* project. A detailed environmental impact assessment has been undertaken which has identified potential impacts of the project on the existing environment and community. An overview of potential construction activities and associated environmental impacts with the upgrade works are detailed in Table 2 below.

**Table 2. Construction Activities and Associated Environmental Impacts**

Activity / Aspect	Potential Environmental Issues/Impact
Use of vehicles, equipment & plant	<ul style="list-style-type: none"> <li>• Noise creating nuisance</li> <li>• Property damage from vibration</li> <li>• Emissions to air from equipment</li> <li>• Introduction/spread of weed seeds or plant pathogens</li> <li>• Fire (hot works or use near dry vegetation)</li> <li>• Nuisance to neighbours – access, light spill etc.</li> </ul>
Storage of materials, maintenance and refuelling of machinery and equipment	<ul style="list-style-type: none"> <li>• Spills leading to pollution and contamination of soil, water</li> <li>• Damage to vegetation and fauna</li> <li>• Emissions of noxious / toxic gases</li> </ul>
Washdown of equipment/plant	<ul style="list-style-type: none"> <li>• Pollution to water (watercourses or stormwater)</li> <li>• Introduction/spread of weed seeds or plant pathogens</li> <li>• Damage to vegetation and fauna</li> </ul>
Excavation and earthworks	<ul style="list-style-type: none"> <li>• Damage to vegetation and fauna</li> <li>• Disturbance or damage to Aboriginal and non-Aboriginal Heritage</li> <li>• Discovery/management of soil or groundwater contamination</li> <li>• Dust</li> <li>• Erosion of exposed surfaces</li> <li>• Pollution to water (watercourses or stormwater)</li> </ul>
Stockpiling / spoil management	<ul style="list-style-type: none"> <li>• Damage to vegetation and fauna</li> <li>• Pollution to water bodies from poor location / erosion /runoff</li> <li>• Water management and flooding</li> <li>• Dust</li> <li>• Inappropriate waste disposal/landfill</li> <li>• Contamination</li> <li>• Amenity of the estuarine/beach environment for water/beach users</li> </ul>
Waste Management and Disposal	<ul style="list-style-type: none"> <li>• Aesthetics – litter/ debris</li> <li>• Inappropriate waste disposal/landfill</li> <li>• Resource use</li> </ul>
Import of fill material	<ul style="list-style-type: none"> <li>• Introduction of weeds and diseases (phytophthora)</li> <li>• Contamination (imported)</li> </ul>
Site / compound establishment	<ul style="list-style-type: none"> <li>• Aesthetics – visually intrusive structures</li> <li>• Inappropriate waste management, litter</li> <li>• Access impacts and nuisance to neighbours</li> <li>• Noise creating nuisance</li> </ul>
Dewatering or other discharges/ water released from site	<ul style="list-style-type: none"> <li>• Pollution</li> <li>• Water management and flooding</li> </ul>

	<ul style="list-style-type: none"> <li>• Contamination</li> <li>• Damage to vegetation</li> </ul>
Management of contaminated or hazardous materials	<ul style="list-style-type: none"> <li>• Pollution to soil or water</li> </ul>

## 5.1 Surface waters, stormwater and hydrogeology

SA Water understands the importance of managing water quality impacts both during construction and on an on-going basis. This understanding is integrated into the Corporate Project Management Methodology as well as within PEMP documents. The proposed development has been designed to integrate with this existing infrastructure.

SA Water will ensure that the successful contractor will appropriately manage stormwater during the construction phase in accordance with the preliminary PEMP. A Soil Erosion and Drainage Management Plan will be developed by the Construction Contractor to ensure spoil is managed appropriately in accordance with the *Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government*.

## 5.2 Noise and Air Quality

The project will involve a range of construction activities that will generate noise. Such noise sources include construction vehicle movements and activities (ie. light vehicles, generators, and delivery of materials and general traffic). Impacts to adjacent residents associated with noise during construction will be temporary and unlikely to be significant provided controls are in place, including:

- Construction activities should be in accordance with the EPA Construction Noise Information Sheet (EPA 425/10):
  - 7.00 a.m. to 7.00 p.m. Monday to Saturday inclusive; and
  - 9.00 a.m. to 5.00 p.m. on Sundays and public holidays (only where required).
- All construction traffic movement will be undertaken at speeds typically 25-40 km/h, the use of exhaust breaks will be minimised where safe to do so
- Further, all plant and equipment required to be maintained in good order to meet the stringent noise pollution requirements including appropriate mufflers, silencers and/or enclosures fitted.

Some localised dust may be generated as a result of the construction works, including within disturbed areas and access tracks. Impacts associated with dust will be short term and managed through the Contractors Environmental Management Plan.

## 5.3 Biodiversity

The area proposed for the siting of the solar arrays and associated infrastructure comprises previously disturbed land which has been largely cleared as part of past agricultural operations. No existing native vegetation has been identified within the proposed development footprint. Where it is identified that native vegetation must be cleared, advice will be sought from an accredited consultant in order to understand what level of assessment may be required for the purposes of obtaining the required clearance permit, in accordance with the *Native Vegetation Act 1991*.

## 5.4 Heritage

The land comprising of the Mannum PPS.2 is on the 'Country' of the Peramangk. The significance of land and waters of this area is central to their lives: at birth, death, ceremonies and socially, whilst hunting, gathering camping, and travelling.

A check has been undertaken of the relevant databases and there are no Aboriginal Heritage Sites and Objects recorded on the Aboriginal Affairs Register for the SA Water owned land or adjacent land which is being purchased. However, while the land has been cleared, it is undeveloped, so it is possible heritage artefacts could exist below the surface.

The construction contractor will be required to comply with SA Water's Standard Operating Procedure for the Discovery of Aboriginal Sites during the construction work in the event heritage items are encountered beyond the identified buffer areas and construction employees will be inducted into the requirements of this procedure.

Additionally, a search of relevant post-European settlement heritage databases has revealed no State or local heritage items located in the project area, nor within the surrounding locality.

## **5.5 Waste management**

The construction waste will be managed under the *Environment Protection (Waste to Resources) Policy 2010*, which aims to achieve sustainable waste management by applying the waste management hierarchy consistently with the principles of ecologically sustainable development set out in Section 10 of the *Environment Protection Act 1993*.

## **5.6 Traffic management**

SA Water understand the importance of minimising the interruption to local traffic movements during the delivery and installation of the solar PV panels and associated components. This requirement has been integrated into the Project Management Methodology. Accordingly, SA Water propose to implement temporary traffic management controls in accordance with relevant Australian Standards and commit to appropriate refurbishment of the roadside infrastructure post the construction period where this is required. Greater detail surrounding this approach will be available through consultation with the construction partner, and can be included within Detailed Designs.



## 6 Conclusion

The proposed installation of solar PV arrays at key SA Water operating sites, such as the Mannum to Adelaide Pipeline Pumping Station No. 2, will immediately reduce the operating energy costs for the site and reduce SA Water's exposure to increases in electricity costs.

The proposed development is well separated from sensitive land uses, and will not conflict with the ongoing operations at Mannum PPS.2 but will instead directly contribute to increased energy efficiency for such operations, and is also considered to have appropriately mitigated against potential impacts to adjoining land uses. The development has been designed to minimise longer term impacts, although it is recognised that short term impacts will occur during the construction period.

On this basis, the proposed development is considered to be broadly consistent with the relevant provisions of the Mid Murray Council Development Plan (Consolidate 23 August 2018), and therefore to warrant planning consent with appropriate conditions that address the short term impacts.

# Appendix A Certificate of Title

REAL PROPERTY ACT, 1886



The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.



## Certificate of Title - Volume 6178 Folio 117

**Parent Title(s)** CT 5739/587  
**Creating Dealing(s)** RTC 12525319  
**Title Issued** 02/08/2016      **Edition** 2      **Edition Issued** 06/08/2018

### Estate Type

FEE SIMPLE

### Registered Proprietor

COLIN GEOFFREY WACHTEL  
OF CARE PO PALMER SA 5237

### Description of Land

ALLOTMENT 77 DEPOSITED PLAN 110976  
IN THE AREA NAMED PALMER  
HUNDRED OF TUNGKILLO

### Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON D110976 (T 1731873)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED B ON D110976 TO TRANSMISSION LESSOR CORPORATION OF 1 UNDIVIDED 2ND PART (SUBJECT TO LEASE 9061500) AND ELECTRANET PTY. LTD. OF 1 UNDIVIDED 2ND PART (T 1922269)

### Schedule of Dealings

Dealing Number	Description
12813033	LEASE TO NBN CO LIMITED (ACN: 136 533 741) COMMENCING ON 05/10/2017 AND EXPIRING ON 04/10/2037 OF PORTION (AREA X IN F252695)

### Notations

<b>Dealings Affecting Title</b>	NIL
<b>Priority Notices</b>	NIL
<b>Notations on Plan</b>	NIL

### Registrar-General's Notes

APPROVED FILED PLAN FOR LEASE PURPOSES FX252695

<b>Administrative Interests</b>	NIL
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# Appendix B Design Drawings



### LEGEND

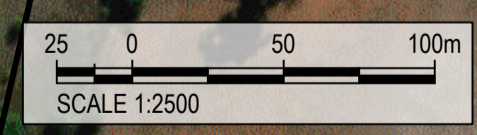
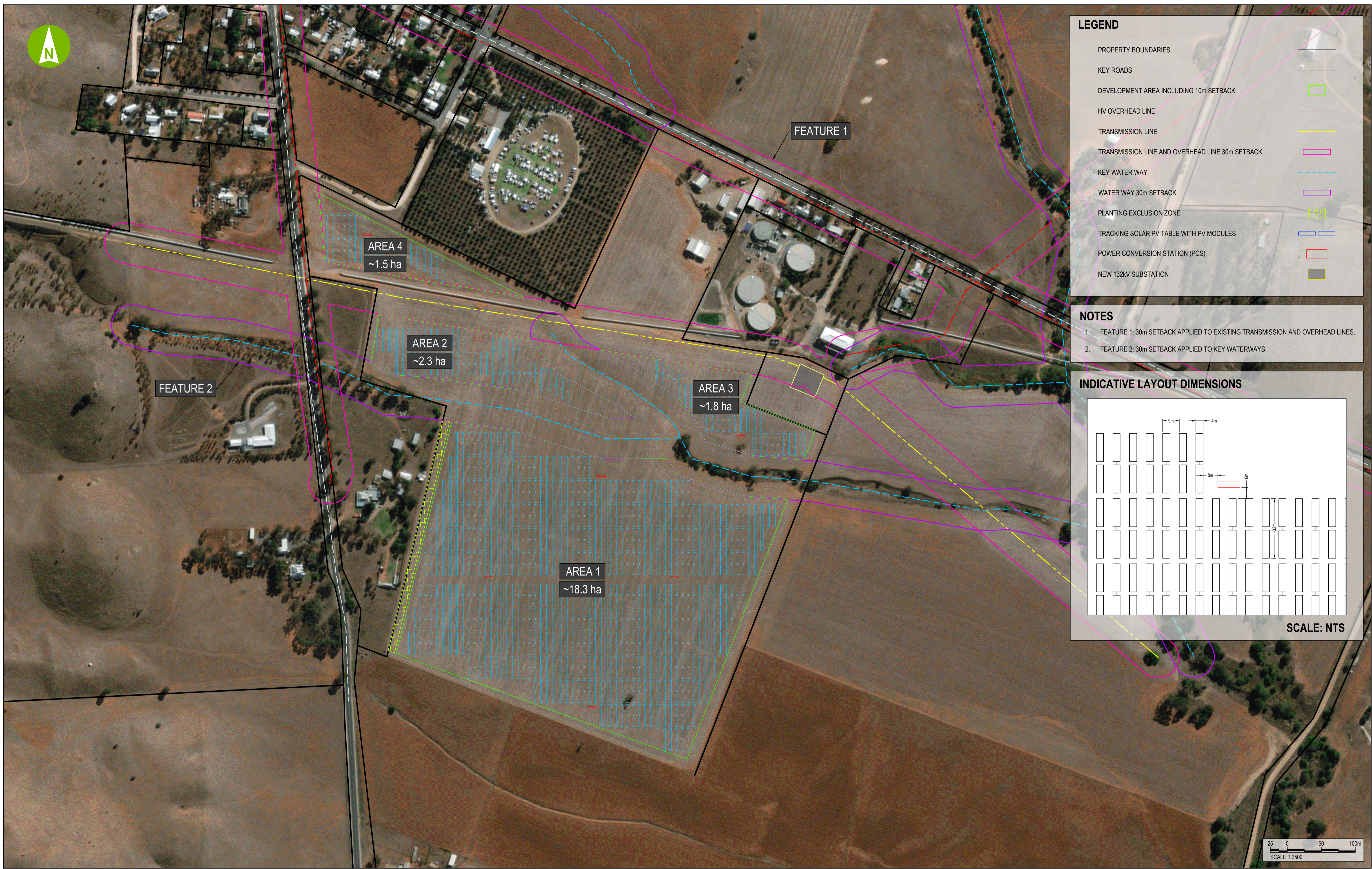
- PROPERTY BOUNDARIES —
- KEY ROADS —
- DEVELOPMENT AREA INCLUDING 10m SETBACK □
- HV OVERHEAD LINE —
- TRANSMISSION LINE —
- TRANSMISSION LINE AND OVERHEAD LINE 30m SETBACK □
- KEY WATER WAY —
- WATER WAY 30m SETBACK □
- PLANTING EXCLUSION ZONE □
- TRACKING SOLAR PV TABLE WITH PV MODULES □
- POWER CONVERSION STATION (PCS) □
- NEW 132kV SUBSTATION □

### NOTES

1. FEATURE 1: 30m SETBACK APPLIED TO EXISTING TRANSMISSION AND OVERHEAD LINES.
2. FEATURE 2: 30m SETBACK APPLIED TO KEY WATERWAYS.

### INDICATIVE LAYOUT DIMENSIONS

**SCALE: NTS**

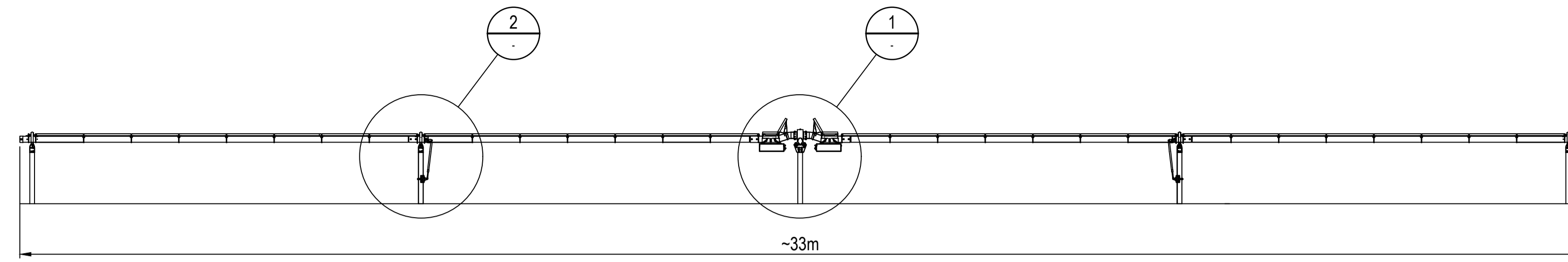


REVISION PANEL				DETAILS		APR'D		CURRENT REV AUTHORISED	
REV	DATE	DRN							
A	2018.10.17	AF	DRAFT SINGLE-AXIS TRACKING LAYOUT						
CURRENT REVISION CONTRACTOR:						SIGNATURE			

DESIGN PANEL		AUTHORISED	
DESIGNED	A.FIRFIREY		
DRAWN	A.FIRFIREY	SIGNATURE	
REVIEWED			
CONTRACTOR:			

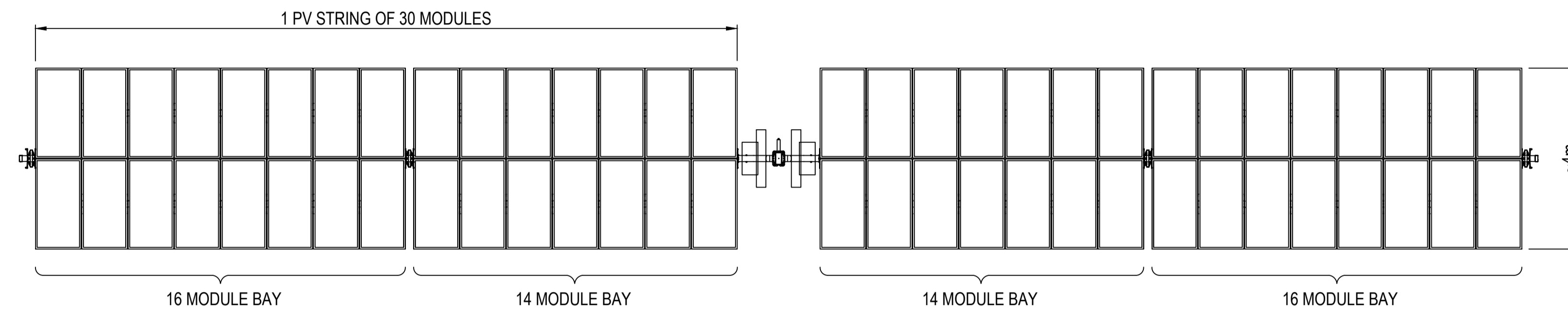
This drawing is the property of the SOUTH AUSTRALIAN WATER CORPORATION and shall not be copied or modified in part or in whole without authorization.

A1	MAXIMO ID:	A
SHT SIZE	PROJECT No: 503097	REVISION
TOTAL SHEETS: 1	DISCIPLINE: GA	
SUPERSEDES:		
DRAWING NUMBER		
2018 - MAN2 - 003		
YEAR	NUMBER	SHEET



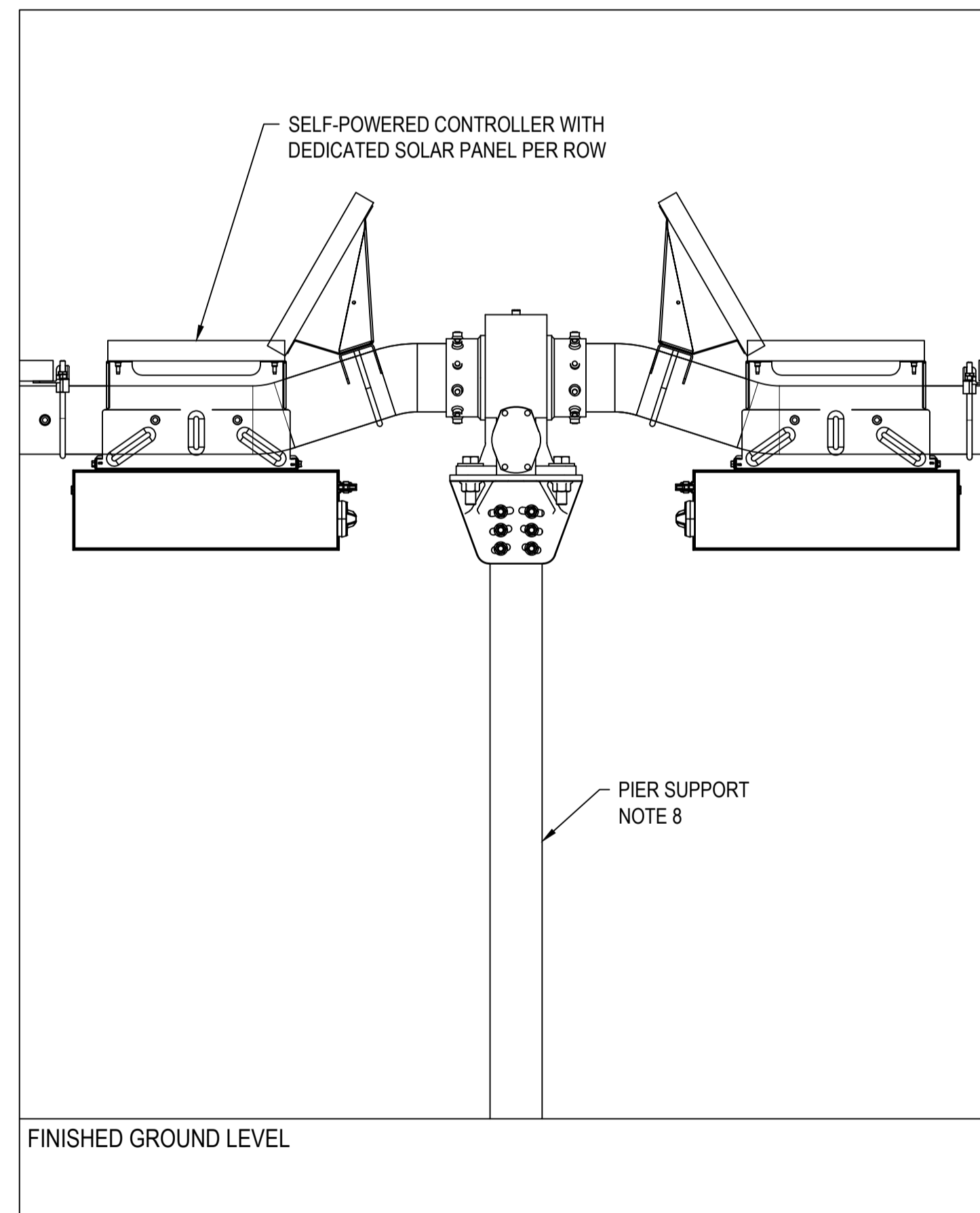
**SINGLE AXIS TRACKER - ELEVATION VIEW**

N.T.S.

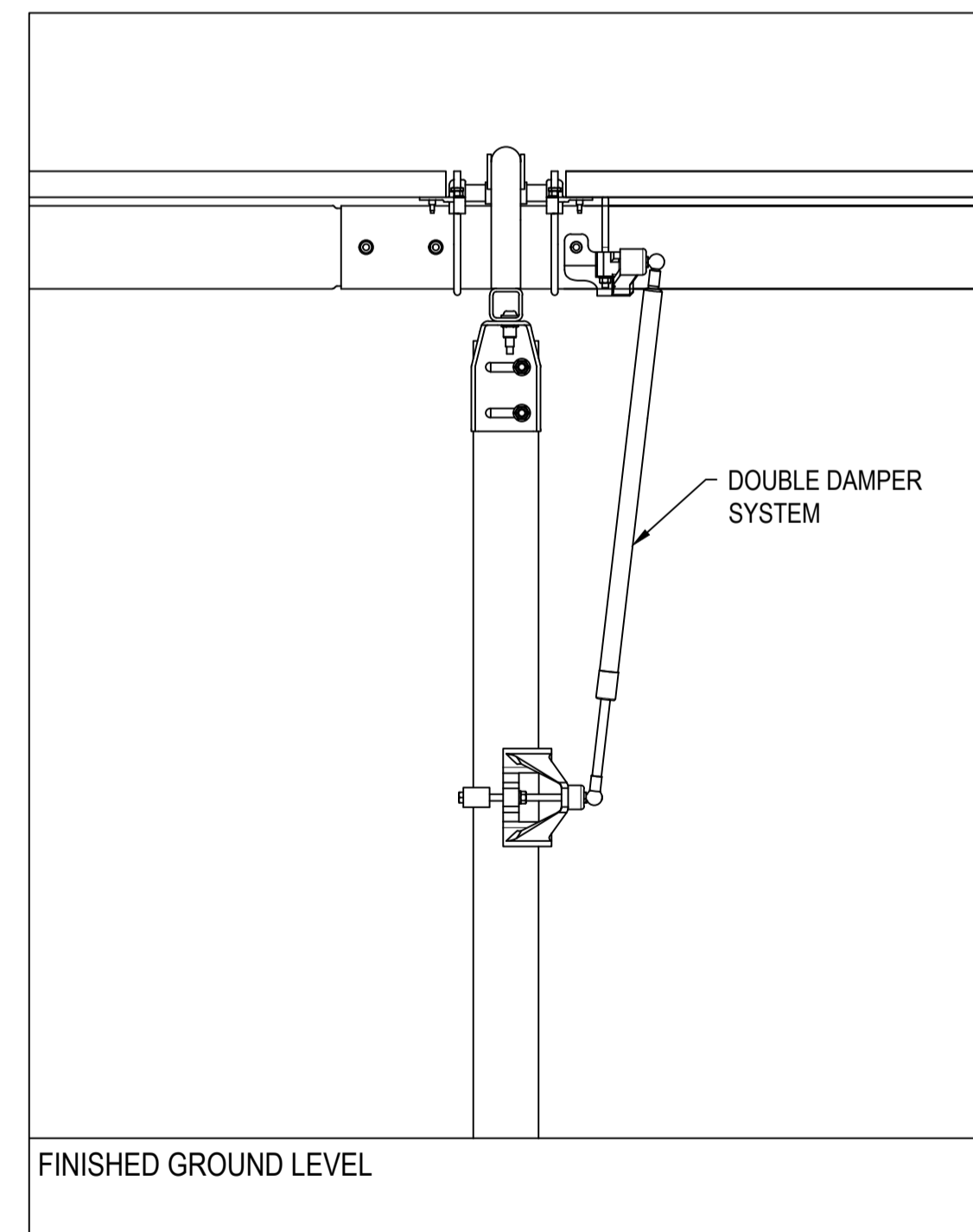


**SINGLE AXIS TRACKER - PLAN VIEW**

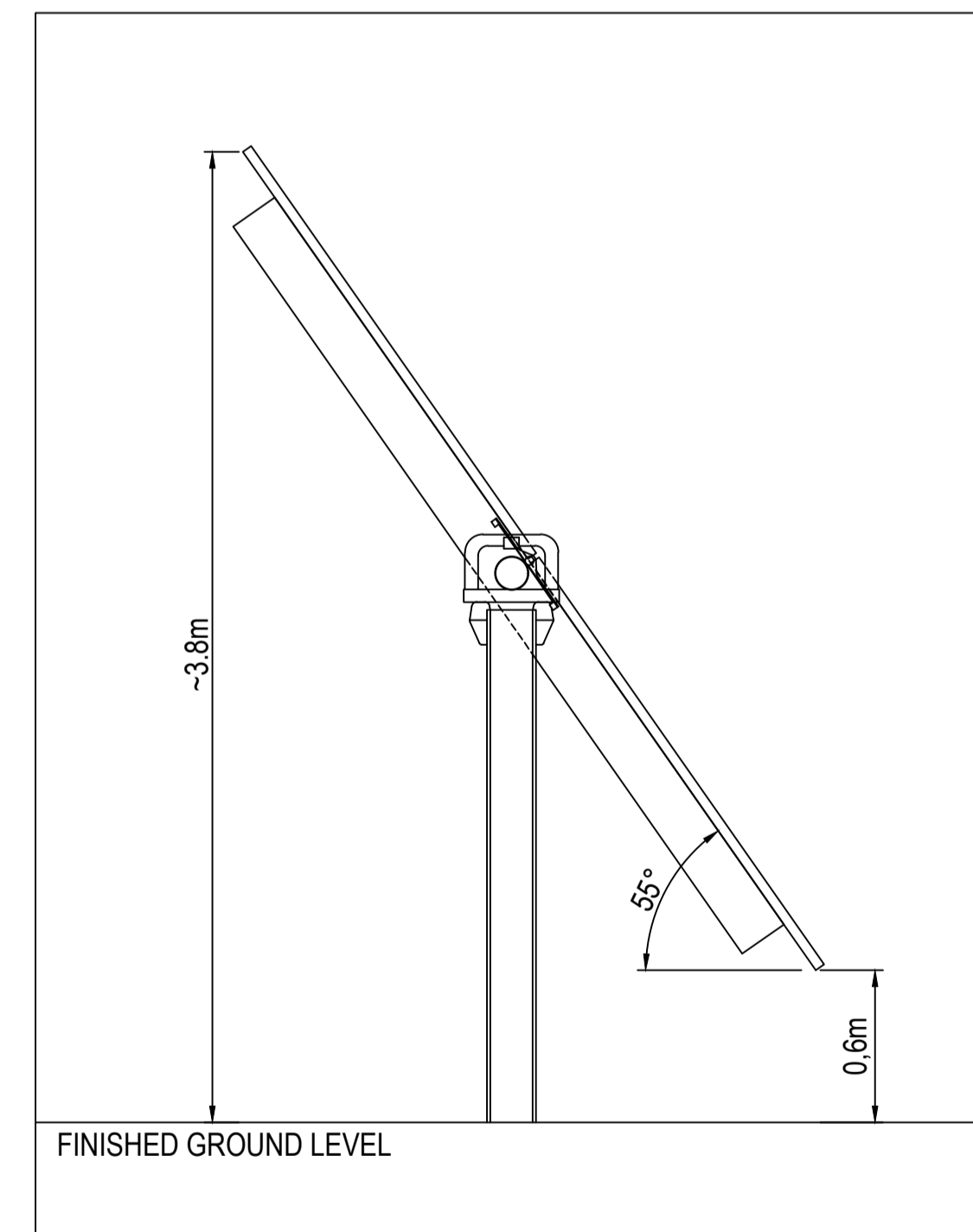
N.T.S.



**DETAIL 1**  
N.T.S.



**DETAIL 2**  
N.T.S.



**SIDE ELEVATION VIEW**

N.T.S.

**NOTES**

1. THIS DRAWING HAS BEEN PROVIDED FOR INFORMATION PURPOSES ONLY.
2. THIS DRAWING INDICATES THE PROPOSED TRACKER TECHNOLOGY FOR THE ZERO COST ENERGY FUTURE PV PLANT LOCATED AT MANNUM ADELAIDE PUMPING STATION NO.2.
3. THIS DRAWING HAS BEEN ADAPTED FROM VARIOUS MANUFACTURER'S CAD DRAWINGS AND DATA SHEETS.
4. THE DIMENSIONS AND CONFIGURATION HAVE BEEN OBTAINED AND ADAPTED FROM VARIOUS MANUFACTURER'S CAD DRAWINGS AND DATASHEETS.
5. THE TRACKER HAS A TRACKING RANGE OF  $\pm 55^\circ$ .
6. THE SYSTEM IS DRIVEN BY A SLEW GEAR, 24 VDC MOTOR SELF-POWERED CONTROLLER WITH A DEDICATED SOLAR PANEL PER ROW.
7. EACH PV TABLE HAS 2 ROWS OF PV MODULES WITH A MAXIMUM ROW LENGTH OF 30 PV MODULES.
8. THE FINAL HEIGHT OF THE PIER ABOVE GROUND LEVEL WILL DEPEND ON THE SURVEYOR'S REQUIREMENTS AND TRACKER TOLERANCES.

**REFERENCES**

VARIOUS MANUFACTURER'S DRAWINGS AND DATASHEETS

REVISION PANEL				DESIGN PANEL	
REV	DATE	DRN	APR'D	DESIGNED	AUTHORISED
DETAILS			CURRENT REV AUTHORISED	A.FIRFIREY	SIGNATURE
			SIGNATURE	A.FIRFIREY	
A	2018.10.17	AF	INDICATIVE SINGLE AXIS TRACKER DETAILS		
CURRENT REVISION CONTRACTOR:					

DESIGN PANEL	
DESIGNED	AUTHORISED
A.FIRFIREY	SIGNATURE
A.FIRFIREY	
REVIEWED	
CONTRACTOR:	

  
 This drawing is the property of the SOUTH AUSTRALIAN WATER CORPORATION and shall not be copied or modified in part or in whole without authorization.

A1	MAXIMO ID:	A
SHT SIZE	PROJECT No: 503097	REVISION
TOTAL SHEETS: 1	DISCIPLINE: GA	
SUPERSEDES:		
DRAWING NUMBER		
2018 - MAN2 - 101		
YEAR	NUMBER	SHEET

# Appendix C: Office of the Technical Regulator (OTR) Certificate



Ref: 2017/01873.01 D18133459

15 October 2018

Paul Cooledge  
SA Water  
250 Victoria Square  
Adelaide SA 5000  
By email: paul.cooledge@sawater.com.au

Energy and Technical  
Regulation

Office of the  
Technical Regulator

Level 8, 11 Waymouth Street  
Adelaide SA 5000

GPO Box 320  
Adelaide SA 5001

Telephone: 08 8226 5500  
Facsimile: 08 8226 5866

[www.sa.gov.au/otr](http://www.sa.gov.au/otr)

Dear Michael,

***RE: CERTIFICATE FOR DEVELOPMENT OF THE SA WATER ZERO COST ENERGY FUTURE PROJECT***

The development of the SA Water Zero Cost Energy Future Project has been assessed by the Office of the Technical Regulator (OTR) under Section 37 of the Development Act 1993.

Regulation 70 of the *Development Regulations 2008* prescribes if the proposed development is for the purposes of the provision of electricity generating plant with a generating capacity of more than 5 MW that is to be connected to the State's power system – a certificate from the Technical Regulator is required, certifying that the proposed development complies with the requirements of the Technical Regulator in relation to the security and stability of the State's power system.

In making a decision on your application, our office has taken the following information into account:

- An initial meeting regarding the project between SA Water, Aurecon and the OTR on 14 August 2018;
- A follow up meeting between SA Water, Aurecon and the OTR on 20 September 2018;
- Your application emailed to the OTR on 5 October 2018.
- Further information regarding the project emailed by Aurecon to the OTR on 15 October 2018.

After assessing the information provided, I advise that approval is granted for the proposed project.





I note SA Water's request to commission the Photo Voltaic (PV) Generation prior to commissioning the Battery Energy Storage System (BESS). I approve this request on the basis that the required Fast Frequency Response, as per the OTR's Generator Development Approval Procedure Version 1.1, is made available in full no later than six months after the commissioning of the PV Generation has occurred.

Should you have any questions regarding this matter, please do not hesitate to call David Bosnakis on (08) 8429 3323.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Rob Faunt'.

**Rob Faunt**  
**TECHNICAL REGULATOR**

cc: John Hart – SA Water  
Ashley Nicholls – SA Water  
Paul Godden - Aurecon

# Appendix D Preliminary Environmental Management Plan

## **Part B: Project Environment Management Plan**

### **1 Objectives of the Environmental Management Plan**

The general objectives of this Environmental Management Plan are to:

- Ensure that potential environmental or heritage risks associated with common construction activities are being considered as part of the planning and delivery of SA Water's works
- Ensure that control measures are in place to minimise potential risks and impacts
- Achieve the project objectives in relation to environment and heritage management
- Ensure the works are undertaken in accordance with our customer's expectations
- Continually improve project/site practices for the mitigation and management of impacts
- Establish clear responsibilities for environmental and heritage management as part of the works
- Ensure compliance with all statutory and regulatory requirements.

## 2 Legal and other requirements

A key governing legal requirement for all projects is set out in the SA *Environment Protection Act* 1993, Section 25:

***A person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.***

A summary of the environment and heritage approval / permits associated with the project is provided below, with the status and where relevant, conditions, for each.

Act	Description	Tick if relevant to project	Status/Assessment outcome/ comments	Summary of approval/ assessment conditions (if relevant)
Environment Protection and Biodiversity Conservation Act 2000 (Cth)	Approval from the Commonwealth Environment Minister is required for actions that have or are likely to have a significant impact on matters of national environmental significance (MNES).  If project triggers above, referral under EPBC Act required.	<input type="checkbox"/>	EBPC self-assessment has been completed.	Self-assessment indicates that the project is not likely to have a significant impact on any MNES.
Development Act 1993	Works that constitute Development require approval. Development includes (not limited to): <ul style="list-style-type: none"> <li>• Change of land use</li> <li>• Building works</li> <li>• Prescribed earthworks</li> <li>• Impacts to Significant/Regulated Trees</li> </ul>	<input checked="" type="checkbox"/>	Development approval is required	Development Application will be lodged with SCAP for approval. Information regarding the proposal has been provided to the Mid Murray Council ahead of DA lodgement to introduce the project objectives and to identify potential concerns prior to the formal referral of the application to Council by SCAP.
Heritage Act/Development Act	Works that impact on State heritage require development authorisation	<input checked="" type="checkbox"/>	Search of heritage databases complete	No listed heritage places occur within the project site.
Environmental Protection Act 1993 (Section 36 – Requirement for licence)	Prescribed activities of Environmental Significance require an EPA licence. (E.g. dredging/earthworks drainage/abrasive blasting, transport of contaminated soil, sewage treatment, desal, etc.)	<input type="checkbox"/>		
Environmental Protection Act 1993 (Section 10 & 25) General Environmental Duty and	Excavation of borrow pits, diversion channels and construction of temporary roads, blocking banks etc. where materials are planned for re-use off site, or materials are imported from off-site	<input checked="" type="checkbox"/>	No approval required	Need to ensure spoil management is undertaken in accordance with the EPA's Waste Derived Filled requirements.

Act	Description	Tick if relevant to project	Status/Assessment outcome/ comments	Summary of approval/ assessment conditions (if relevant)
Standard for the Production and Use of Waste Derived Fill (WDF)				
Native Vegetation Act 1991	Approval for clearance of native vegetation is required under the Act. Native vegetation includes trees, shrubs, groundcovers and grasses.	<input type="checkbox"/>	The Native Vegetation Act 1991 does not apply in this instance.	No native vegetation identified within the project location.
National Parks and Wildlife Act 1972 (SA)	Scientific Permit.	<input type="checkbox"/>	No impacts to National Parks land	N/A
Aboriginal Heritage Act 1988	Authorisation from the Minister for Aboriginal Affairs is required to interfere, damage or disturb Aboriginal heritage sites, objects or remains.	<input type="checkbox"/>	No Aboriginal Heritage Sites and Objects have been identified within the Aboriginal Affair Register for the SA Water owned land parcels at Mannum.	All Aboriginal sites and objects protected under the Aboriginal Heritage Act 1988. In event of discovery, stop work follow the SA Water SOP for Discovery of Aboriginal heritage Sites
Natural Resources Management Act 2004 (Section 175—transporting declared plants)	Consultation with NRM Board is required if transporting plants declared under Part 175 of NRM Act	<input checked="" type="checkbox"/>		The Contractor will be responsible for obtaining authorisation from the Natural Resources Management Board to transport declared plants on a public road, in accordance with Section 175 and 188 of the Natural Resources Management Act 2004 (SA).
Native Title Act 1993	Notice to be issued if works Native Title. Note: ILUA notification process may be applicable in some areas.	<input type="checkbox"/>	The proposed development area is undergoing review as part of land acquisition process to ensure the status of Native Title claims is known.	
Local Government Act 1999 (SA)	Section 221: Alteration of road a Person must not make an alteration to a public road unless authorised to do so by the council.	<input type="checkbox"/>	N/A	

Act	Description	Tick if relevant to project	Status/Assessment outcome/ comments	Summary of approval/ assessment conditions (if relevant)
	Section 31 permit (not required, no roads to be temporarily closed during Early Works).			
<i>Road Traffic Act 1961 (SA)</i>	Section 33 Council approval is required for temporary closure of a public road to facilitate an event	<input type="checkbox"/>	Approval required if temporary closure if a Council Road	N/A
<i>Parliamentary Committees Act 1991 (SA)</i>	16A: Certain public works referred to Public Works Committee (PWC) Subject to subsection (3), a public work is referred to the PWC by force of this section if the total amount to be applied for the construction of the work will, when all stages of construction are complete, exceed \$4M	<input checked="" type="checkbox"/>	Infrastructure construction works in excess \$4M require Public Works Committee (PWC) referral and associated Cabinet Submission	As the total expected construction cost exceeds \$4m, a referral to the Public Works Committee (PWC) will be undertaken.

## 3 Environmental Management System and Structure

### 3.1 Environmental system requirements

As a minimum, the contractor should have in place systems and methods for ensuring that the environmental requirements identified in this document are implemented. Normally this would be through the development a site specific or project specific Environmental Management Plan for the works.

### 3.2 Inductions and Training

All project staff, including subcontractors, must be inducted to the requirements of the project Environment Management Plan and associated procedures. The induction should ensure that any site specific environmental controls and/or requirements associated with Aboriginal Heritage are communicated to staff prior to the commencement of on-site works.

A record of inductions must be maintained.

### 3.3 Records and record keeping

Relevant schedules and records should be retained on site during the construction phase of the project. As a minimum this should include:

- Contractors Environmental Management Plan (CEMP)
- Prestart inspection checklists
- Induction / Training registers
- Monitoring/inspection reports and audit reports
- Non-conformance reports
- Environmental incident reports/register
- Waste tracking and disposal records
- Listed/controlled waste transport certificates and volumes
- Complaints registers.

### 3.4 Roles and Responsibilities

#### 3.4.1 Superintendents Representative (SA Water Project Manager)

The nominated Superintendents Representative is responsible for:

- Ensuring that Contractors works crew are provided with and made aware of the contents and requirements of the CEMP.
- Monitoring the effectiveness of implementation of this plan.
- Being the point of conduit for communication between the Contractors and SA Waters Environment Representative.

#### 3.4.2 Contractor's Site Supervisor/ Site Manager

The Contractor's Site Supervisor (or nominated onsite environmental representative) is responsible for:

- Implementing the control measures in this document such as establishing site controls



- Inducting site personnel into the requirements of the CEMP
- Undertake regular site inspections and monitoring the effectiveness of onsite controls, instigating improvements where necessary
- Maintaining site records such as site inspections/monitoring reports, induction records, NCRs or incident reports
- Liaising with the Superintendents Representative where environmental issues or concerns are raised that require further attention
- Enforcing work practices that minimise adverse environmental impacts through due diligence
- Ensuring all employees report any environmental risks or hazards
- Implementing additional mitigation measures in the event of non-conformances or emergencies.

### 3.4.3 Employees, sub-contractors and Labour hire personnel

All employees (including subcontractors) have an obligation to protect the environment when carrying out their work and this includes:

- Being aware of the contents of the CEMP including general environmental statutory requirements to carry out their work with due diligence.
- Complying with instructions/directions given by the Contractor's Site Supervisor
- Report any incident that may result in environmental harm that arises in the course of or in connection to their work.

## 3.5 Inspections and Monitoring of Environmental Performance

Inspections of the work area should be carried out by the Contractor to ensure the environmental management controls are effective. Monitoring of the environmental controls should consider the performance indicators for each of the environmental issues provided in Section 5.

Issues arising from site inspections must be addressed as soon as possible, in some cases non-conformance reports may be raised. Issues identified should also be discussed at toolbox or site meetings together with any improvement measures that have been implemented.

Monitoring records should be retained by the Site Supervisor. A suggested typical monitoring schedule is outlined below:

Frequency	Issues
Prior to works	<ul style="list-style-type: none"> <li>• Compound/worksite controls are in place, locations for materials/stockpiles and access identified</li> <li>• Location of sensitive neighbours</li> <li>• Location of stormwater entry points, drainage lines, water courses identified</li> <li>• Location of spill control measures and spill kits available</li> </ul>
Daily	<ul style="list-style-type: none"> <li>• Site is neat and tidy</li> <li>• Waste contained appropriately</li> <li>• Chemicals and materials stored appropriately</li> <li>• No evidence of dust nuisance</li> <li>• No evidence of water contamination/runoff from site</li> <li>• Adjacent roads clean (not covered in sediment etc.).</li> </ul>

Frequency	Issues
Before/during rainfall events	<ul style="list-style-type: none"> <li>• Runoff controls in place and maintained</li> <li>• Protection of stormwater entry points</li> <li>• Drainage lines clear of debris</li> </ul>
Weekly/monthly	<ul style="list-style-type: none"> <li>• Overall environmental management measures as per CEMP in place.</li> </ul>

### 3.5.1 Audits and Inspections

During the construction phase of the project SA Water may undertake inspections/audits of the contractor to ensure compliance with the requirements of the project environmental controls.

### 3.5.2 Non -conformance and corrective actions

A process for handling non-conformances should be in place. As a minimum requirement this should include procedures for the identification and reporting of any non-conformances with the project documentation, including the CEMP.

If inspections/monitoring/auditing activities identify an environmental non-conformance the following actions should be undertaken:

- Inspect/Review the non-conformance, where necessary stop/control the activity until the environmental non-conformance is addressed
- Reporting of the non-conformance by the contractor to SA Water's project manager
- Investigate the reasons for the non-conformance
- Implement appropriate action to address the non-conformance, amend project EMP/Project plans as necessary
- Record details of the non-conformances.

## 4 Emergency Response and Environmental Incidents

### 4.1 Emergency Planning, Preparedness and Response

Emergency response and incident procedures must be in place for the project, these procedures should provide an effective response whilst minimising environmental harm or disruption (refer [SAWP-ENV-0024 Environmental Emergency Response Plans](#)).

The Emergency Response Procedure must be available and on display at the worksite/site office and all personnel must be inducted into its requirements. The procedure should include key contact details.

Also included on the contact list must be the details of: (1) a person(s) for emergencies that will be available 24 hours a day, seven days a week, and has the authority to stop or direct works (2) emergency response personnel (3) the Superintendents Representative (4) local councils and the local hospital(s) and (5) if necessary, nearby residents.

In the event of an emergency the emergency response procedure is to be enacted. Post the event a review is to be undertaken to evaluate the effectiveness of the response against the procedure and determine if any amendments are considered appropriate.

Contact	Contact details
Superintendents Representative/SA Water Project Manager	John Hart (+61) 0436 682 042
SA Water Environmental Representatives	Jackie Griggs PH: 0448 379 303
Police, Fire and Ambulance	000
Country Fire Service (CFS)	1300 362 361
Metropolitan Fire Service (MFS)	08 8204 3600
SafeWork SA	1300 365 255 / 1800 777 209 (for serious incidents/ injuries)
Environment Protection Authority (EPA)	08 8204 2004 / 1800 623 445
RSPCA	1300 477 722
National Parks and Wildlife South Australia (NPWSA) Adelaide Office	08 8204 1910

## 4.2 Environmental Incident Management

In the event of an incident action should be taken to stop/modify the work to effectively minimise impacts to the environment. Where an environmental incident occurs that causes or threatens to cause serious or material environmental harm (breach of legislative requirements, widespread impact etc.) then as per Section 82 of the *Environment Protection Act* the EPA should be notified.

Incidents may include: flooding events, chemical or fuel spills, discharge of contaminated water, unauthorised/unintended impacts to vegetation etc.

Any environmental incidents should be investigated and reported to SA Waters Project Manager as soon as practicable or no later than 24 hours after the incident is identified. Reports should include details of the incident and any corrective actions taken.

A record of all incidents should be maintained (refer [SAWP-ENV-0027 Environmental Incident Reporting](#)).

In the case of an environmental emergency the Emergency Response Procedure/Plan should be followed.

## 5 Environmental Management Controls

The following pages include suggested control measures to be used during the works to mitigate environmental impacts. The effectiveness of the controls should be monitored as per Section 3.5.

Environmental Impact	Water Quality Impacts / Pollution of Water
<b>Objective</b>	Prevent or minimise adverse effects on surface water and groundwater quality, flows and drainage
<b>Performance indicators</b>	<ul style="list-style-type: none"> <li>• No material deterioration on receiving waterway quality including for pH, turbidity, dissolved oxygen, chlorine residual and visual oils and greases.</li> <li>• Construction materials and sediment laden runoff prevented from entering waterbodies/stormwater.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Review construction area to minimise potential for surface runoff to enter the site and to identify controls for runoff leaving the site.</li> <li>• Identify water bodies/drainage lines and identify sediment /erosion control requirements e.g. silt fences around stockpiles, silt sock locations at stormwater entry pits etc.</li> <li>• Review project activities that will require protection and installation of controls.</li> <li>• Identify designated stockpile/laydown areas away from drainage lines.</li> <li>• Schedule works that will occur in watercourses /drainage lines for periods of favourable weather (e.g. dry periods) or implement construct techniques that reduce construction footprint (e.g. directional drilling).</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• No discharge to a watercourse (including stormwater system) without approval from the Superintendents Representative.</li> <li>• Install erosion and sediment control devices prior to works commencing (e.g. silt fences, silt socks, hay bales diversion drains, geotextile fabric) and ensure maintained (e.g. remove debris from sediment control items regularly)</li> <li>• Ensure stockpiles have erosion control devices installed, particularly on downslope of stockpiles</li> <li>• Monitor weather forecasts to identify rain events and ensure control measures in place</li> <li>• Inspect and maintain/clean sediment control items regularly</li> <li>• Clearly define access tracks and routes and use these</li> <li>• Where practicable use a street sweeper or similar to clean sediment/debris from public roads</li> <li>• Compact, backfill and resurface disturbed or unsealed areas as soon as possible</li> <li>• No onsite refuelling, service or maintenance or cleaning in areas where runoff/wastewater may enter stormwater system or waterbodies.</li> <li>• All equipment wash-down to be undertaken within an identified wash-down area, no discharge of wash-down water to stormwater or watercourse.</li> <li>• Turbid water from concrete cutting etc. not to be directed to stormwater or watercourses.</li> </ul>

Environmental Impact	Damage to Vegetation
<b>Objective</b>	Protect and minimise impacts to vegetation as part of the works
<b>Performance indicators</b>	<ul style="list-style-type: none"> <li>• No unauthorised clearance.</li> <li>• Protection in place (bunting, marking off) for vegetation on site where appropriate.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Identify vegetation in/adjacent to the works area that may be impacted and plan access routes, plant/vehicle parking, stockpiles and material storage locations away from vegetation.</li> <li>• Plan works to avoid in first instance or minimise impacts to vegetation (Significant/Regulated trees or Native Vegetation).</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• No clearing of native vegetation beyond that approved.</li> <li>• Utilise existing access tracks/roads where available or ensure (where possible) access via previously disturbed cleared areas.</li> <li>• Park vehicles and store equipment or stockpiles (including soil) in areas that are designated/pre-marked as laydown areas or already cleared (e.g. tracks) to avoid smothering or damaging native vegetation.</li> <li>• Avoid impacts to roots (10m from drip line optimal) wherever possible. If roots (<math>\geq 50\text{mm}</math>) are discovered during the works these are to be bridged where possible. Roots discovered <math>&lt;50\text{mm}</math> which are broken are to be clean cut with a saw.</li> <li>• Where working in roadside areas care shall be taken not to impact in areas where Department of Planning, Transport and Infrastructure or district council based '<a href="#">Roadside Significant Markers</a>' are present. These identify that a section of roadside reserve contains a significant feature such as rare flora, matters of cultural heritage or significant native vegetation. Contact the Superintendents Representative for details if working in these areas.</li> </ul>

Environmental Impact	Introduction of weeds and pathogens
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Pest plants / pathogens not introduced into worksite or spread as result of works.</li> <li>• No movement of declared plants in an uncontrolled manner.</li> </ul>
<b>Performance indicators</b>	<ul style="list-style-type: none"> <li>• No new incursions of declared plants or plant pathogens post construction.</li> <li>• Weed and hygiene measures in place.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Ensure any declared plants within work area are identified.</li> <li>• Ensure plant and machinery washed down prior to entry to work zone.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Ensure imported material is 'weed free' by applying a risk based approach, material is considered weed/pest free if: <ul style="list-style-type: none"> <li>◦ Quarry material is sourced at depth and is not stockpiled/surface material.</li> <li>◦ Classified as complying with SA Water Engineering Technical Standard 4- '<a href="#">Packing Sand for Pipe Laying and Trench Fill</a>'</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Sourced from a licenced quarry (and/or quarry site inspected by the local NRM Board with records to confirm appropriate weed management strategy is in place that minimises the risk of weed contamination of material taken from that site).</li> <li>○ If quarry material is considered top soil, inspection by suitably qualified person is required to ensure fill is weed/pest free.</li> <li>● Locate stockpiles away from weed infested areas where possible</li> <li>● Appropriate wash-down of machinery if sourced from weed or disease risk areas or have carried imported material.</li> <li>● All equipment wash-down to be undertaken within an identified wash-down area and water contained within that area (no discharge of wash-down water to stormwater or watercourse).</li> </ul>
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Environmental Impact	Fauna
<b>Objective</b>	Prevent or minimise disturbance to native fauna and their habitat.
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>● Fauna within works area not adversely impacted.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>● Ensure contact list for local/regional fauna rescue organisation available.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Any injury or death of native wildlife caused by the construction activity will be reported to the Superintendents Representative.</li> <li>● If tree hollows are present and trees require pruning/ clearing, these must be checked for fauna before removal.</li> <li>● If any fauna is found, the Superintendents Representative will report the details of discovered fauna to the SA Water Environment and Heritage Services Team for relocation if required.</li> <li>● Where possible fauna occupation is identified, the Contractor shall bring this to the attention of the Superintendents Representative and await instruction prior to proceeding with tree removal. The Superintendents Representative will typically instruct relocation of hollows, and fauna if present.</li> <li>● Where native fauna is likely to be present within works area minimise risk of entrapment (e.g. close trenches overnight/ install ramps / monitor open trenches).</li> </ul>

Environmental Impact	Stockpile, Erosion and Stormwater Management
<b>Objective</b>	Minimise the potential for environmental impacts associated with poor stockpile management.
<b>Performance indicators</b>	<ul style="list-style-type: none"> <li>● No sediment laden runoff leaving works area</li> <li>● No dust from stockpiles leaving site and impacting sensitive land uses (residents/schools, sensitive habitats)</li> <li>● Management of spoil in accordance with Part A – Section 1.4.3.</li> </ul>

<p><b>Controls</b></p>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Identify designated stockpile/laydown areas away from drainage lines, drip lines of trees/vegetated areas</li> <li>• Identify potential soil contamination that may require management and ensure appropriate areas for stockpiling established</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Follow requirements of the <a href="#">SA EPA Guideline for stockpile management</a> including:             <ul style="list-style-type: none"> <li>○ Materials with a potential to produce leachate and contaminated runoff should be stored in a sealed and bunded area.</li> <li>○ Limit stockpile height</li> <li>○ Materials must be stored away from surface watercourses, flood zones and groundwater recharge areas to prevent environmental harm to water.</li> </ul> </li> <li>• Locate designates fill stockpiles away from vegetation and drainage lines.</li> <li>• No stockpiling within the drip lines of trees to minimise compaction of the root zones.</li> <li>• Maintain separate stockpiles for different materials</li> <li>• Install erosion control measures such as silt fences, hay bales, sedimentation sumps, sand bags, geotextile fabric, diversion drains or other appropriate measures on the down slope side of stockpiles.</li> </ul>
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Environmental Impact	Air Quality (Dust, emissions, odours )
<p><b>Objective:</b></p>	<p>Ensure that particulate and gaseous emissions do not cause environmental nuisance or harm to surrounding community and environment.</p>
<p><b>Performance indicators</b></p>	<ul style="list-style-type: none"> <li>• No community complaints during construction regarding air quality (dust, odours)</li> <li>• No impact to adjacent sensitive land uses (e.g. houses, schools)</li> <li>• Results from visual inspections show no visible dust leaving boundaries of construction site</li> </ul>
<p><b>Controls</b></p>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Identify site access, laydown areas and stockpile locations</li> <li>• Identify sensitive receivers and dust monitoring requirements.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Restrict high risk activities during extreme weather events (strong winds, hot dry weather) to dry/calm conditions if required to limit dust generation.</li> <li>• Water cart available to control dust if required.</li> <li>• Minimising the extent of exposed and stripped surface areas within the project area</li> <li>• Ensure construction facilities are designed and operated to prevent the emission of smoke, dust, cement dust and other potentially deleterious matter into the atmosphere.</li> <li>• Maintenance of vehicles and equipment.</li> <li>• Reduce idling time of vehicles and plant.</li> <li>• Reduce vehicle speeds on dirt roads to reduce dust emissions.</li> </ul>

	<ul style="list-style-type: none"> <li>• Cover loads if dust is an issue.</li> <li>• Stockpiles to be managed to reduce dust (manage height, covering wetting as required).</li> <li>• Undertake inspections of dust/ emissions controls and activities and respond accordingly.</li> </ul>
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Environmental Impact	Noise and Vibration impacts
<b>Objective:</b>	To ensure noise and/or vibration from construction does not cause an environmental nuisance or adversely impact amenity/ people or result in damage to property.
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>• No complaints related to noise or vibration.</li> <li>• No property damage resulting from vibration.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Plan timing of noisy activities to avoid impacts on nearby residents.</li> <li>• Select good plant and equipment that generates low noise and vibration.</li> <li>• Consult with stakeholders (through SA Water) in advance of works.</li> <li>• Ensure machinery has appropriate mufflers, silencers and/or enclosures fitted.</li> <li>• Investigate alternative processes/methods that will reduce noise and vibration.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Construction activities should be in accordance with the EPA Construction Noise Information Sheet (EPA 425/17):                             <ul style="list-style-type: none"> <li>◦ 7 am and 7 pm, Monday to Saturday inclusive</li> <li>◦ Work outside these times may be permitted to avoid impacts such as unreasonable interruption of vehicle or pedestrian traffic movement. In these circumstances the Superintendents Representative should be advised.</li> </ul> </li> <li>• Notify nearby residents/landowners if any project activities proposed outside of normal construction times (through SA Water).</li> <li>• Use appropriate equipment for the task; plant shall be fitted with effective silencing equipment to reduce risk of noise nuisance. If it is necessary to operate pumps or other noisy machinery close to a residence or outside normal work hours such machinery shall be electrically powered or otherwise effectively silenced, or other noise barriers/mitigations implemented, where appropriate.</li> <li>• Regularly maintain plant and equipment used during construction (e.g. rotating parts to be balanced).</li> <li>• Enclose, where practical, stationary constant noise sources such as air compressors, generators etc. to reduce noise levels.</li> <li>• Maximise the distance between vibration sources and receivers if possible.</li> <li>• Maintain complaints register and respond to complaints received.</li> </ul>

Environmental Impact	Storage and Handling of Hazardous Substances
<b>Objective</b>	Manage the storage of hazardous substances to avoid contamination of surrounding soils and water.
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>• Hazardous substances stored appropriately and spill kits on site.</li> </ul>



	<ul style="list-style-type: none"> <li>No impact to soil/groundwater associated with storage use of hazardous substances.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>Plan for sufficient plant and equipment to ensure minimal maintenance and refuelling required on site.</li> <li>Identify areas for storage, refuelling and spill kits.</li> <li>Establish bunded area and/or where appropriate lockable bunded container in compound for storage.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Spill kits readily available and personnel trained in their efficient use.</li> <li>Minimise quantities of hazardous substances, fuels and lubricants stored on site. Store and handle chemicals/hydrocarbons as per the product MSDS. MSDS to be available at all times for hazardous substances that are used or stored.</li> <li>Storage and management requirements for hazardous substances in accordance with legislative guidelines including bunding, impervious floor and in a location not subject to flooding and within a pre-marked laydown area.</li> <li>All waste oil to be collected and disposed of at an EPA Licensed Recycling Depot.</li> <li>Ensure no discharge of hazardous substances or fuels/lubricants into water courses or storm water.</li> <li>The decanting, mixing, applying, storing of chemicals including paint, or the refuelling of vehicles or equipment shall not be conducted within 50 m of a watercourse or drainage channel.</li> <li>In the event of a minor spill (e.g. diesel), affected soil to be excavated and disposed of at an appropriately licenced landfill.</li> <li>In the event of a major fuel or chemical spill, immediately notify SA Water Site Representative of the spill and if known, any associated details (e.g. Type of spill, source, time of incident).</li> </ul>

<b>Environmental Impact</b>	<b>Contamination</b>
<b>Objective</b>	<ul style="list-style-type: none"> <li>Identify potential contamination issues on site.</li> <li>Manage such issues to protect employees, the public and the environment.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>No impact to soil/groundwater associated with contaminated material.</li> <li>No risk to employees from encountering and managing contaminated material.</li> </ul>
<b>Controls</b>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>In the case of unusual odours or visual observation being made during excavation that indicates soil/groundwater contamination work is to cease and the Superintendents Representative contacted.</li> <li>The discovery of contaminated soil and/or groundwater is to be immediately reported to the SA Water Site Representative so as the appropriate authorities can be notified.</li> <li>Contaminated material must be handled and managed in accordance with EPA requirements (licenced waste transporter and to EPA licenced facility).</li> <li>Waste transfer certificates retained for contaminated material and available on request.</li> <li>If contaminated material discovered: <b>Isolate</b> the suspected contaminated area.</li> </ul>

	<ul style="list-style-type: none"> <li>○ Separate any suspected soil/fill, store on impervious material (tarp/fortecon) and cover to prevent rain or wind mobilising material. Any contaminated fill requires NATA Certified Laboratory Test Results and must be disposed to an EPA licensed landfill (contact the Superintendents Representative to arrange this).</li> <li>○ Groundwater contamination is required by law to be reported to the EPA.</li> <li>○ No disposal of contaminated groundwater to a stormwater or watercourse.</li> </ul>
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Heritage Impact	Aboriginal Heritage Management
<b>Objectives</b>	<ul style="list-style-type: none"> <li>● Prevent or minimise disturbance to cultural heritage sites.</li> <li>● Ensure all statutory requirements are complied with and controls listed below are implemented to minimise potential disturbance to unknown sites.</li> </ul>
<b>Performance indicator</b>	<ul style="list-style-type: none"> <li>● Management of any Aboriginal discoveries in accordance with the SA Water SOP for the Discovery of Aboriginal Heritage (Refer to Appendix A)</li> </ul>
<b>Controls</b>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● The SA Water SOP for the Discovery of Aboriginal Heritage must be available on site and all construction personnel inducted into this procedure. <ul style="list-style-type: none"> <li>○ The removal of site protection measures must be undertaken or sanctioned by First Peoples representatives.</li> </ul> </li> <li>● In the event of a potential heritage site or object being discovered during construction, works in the area must stop and the SA Water SOP should be implemented (Refer to Appendix A)</li> </ul>

Environment Impact	Fire Management
<b>Objective</b>	<ul style="list-style-type: none"> <li>● Ensure compliance with South Australian Country Fire Act 1989.</li> <li>● To ensure that construction activities do not cause an emergency incident such as starting a fire.</li> </ul>
<b>Performance indicator</b>	<ul style="list-style-type: none"> <li>● No emergency incidents as a result of construction activities.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>● Review fire danger season and schedule works to minimise risks associated with fire, where possible.</li> <li>● Conduct a risk assessment on days notified as total fire ban days before undertaking any works on site.</li> <li>● Have in place an emergency response plan for the works.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Fire extinguishers/on site firefighting equipment to be available on site and in work vehicles, major plant and equipment and ensure workers trained in their use.</li> <li>● Hot work permits required for 'hot works' on total fire ban days, no works on catastrophic fire rating days unless approved by SA Water Superintendents Representative</li> <li>● Maintain all machinery and vehicles in good condition to minimise risk of fires.</li> </ul>

	<ul style="list-style-type: none"> <li>• Fit plant with spark arrestors.</li> <li>• No burning off or burning of waste.</li> </ul>
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<b>Impact</b>	<b>Waste Management</b>
<b>Objective</b>	<ul style="list-style-type: none"> <li>• To ensure all statutory requirements are complied with relating to management of waste (including Waste to Resources Policy).</li> <li>• Maximise reuse and recycling of materials.</li> </ul>
<b>Performance indicator</b>	<ul style="list-style-type: none"> <li>• Compliance with waste management requirements</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Adopt the principles of the waste management hierarchy and plan/procure materials that : <ul style="list-style-type: none"> <li>○ Avoid the production of waste</li> <li>○ Minimise the production of waste</li> <li>○ Maximise reuse and/or recycling of waste</li> <li>○ Recovery of energy or other resources from waste</li> <li>○ Treatment of waste</li> <li>○ Disposal of waste in environmentally sound manner</li> </ul> </li> <li>• Confirm the relevant statutory requirements for disposal of wastes from site.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Carry out works to minimise waste production.</li> <li>• Segregate wastes to maximise reuse/recycling.</li> <li>• Provide and use sealed waste and recycling bins</li> <li>• Dispose of waste materials, waste oils etc. at EPA licence facilities</li> <li>• Waste to be removed from site using appropriately licenced waste transporters.</li> <li>• No burning of waste.</li> </ul> <p>For spoil management refer to the Stockpile management section.</p>

<b>Impact</b>	<b>Visual Amenity</b>
<b>Objective</b>	<ul style="list-style-type: none"> <li>• Prevent or minimise negative impacts from construction activities on the visual amenity of the local area.</li> </ul>
<b>Performance indicator</b>	<ul style="list-style-type: none"> <li>• No community complaints regarding visual amenity during the construction period or post project associated with site condition (e.g. demobilisation).</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• Assessment of potential visual impacts and opportunities to mitigate or improve visual amenity (e.g. landscaping/screening).</li> </ul>

	<ul style="list-style-type: none"> <li>The establishment of site facilities or undertaking other activities which are likely to adversely affect the visual amenity of the surrounding area are not permitted.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Implement waste and dust management controls (as above).</li> <li>Stockpiles, equipment and large plant to be located in areas of the project least likely to affect visual amenity (away from houses etc.).</li> <li>Ensure good housekeeping and waste management on site.</li> </ul>
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Impact	Traffic Management
<b>Objective</b>	<ul style="list-style-type: none"> <li>To minimise the impact to the public associated with the construction of this project.</li> </ul>
<b>Performance indicator</b>	<ul style="list-style-type: none"> <li>Minimise complaints from the public regarding traffic management.</li> </ul>
<b>Controls</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>Assess impacts on traffic flow, direction and timing as part of project.</li> <li>Assess traffic management requirements to ensure safety to site workers and community.</li> <li>Develop traffic management plan for works , plans to be approved by DPTI (for DPTI roads) or by relevant Council where appropriate and should include:                             <ul style="list-style-type: none"> <li>Traffic management measures proposed during (including any sub-contractors).</li> <li>Any temporary access to properties affected by the works.</li> <li>Proposals for detours/deviations, placement of barriers etc.</li> </ul> </li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Traffic management controls implemented as per traffic management plan.</li> </ul>

# Appendix A Aboriginal Heritage Discovery Procedure

**Have you found a site, object or skeletal remains that may be Aboriginal Heritage?**

- See example pictures on next page.

**STOP**

**Do not disturb/remove/touch or displace the site, object or skeletal remains.**

- It is an offence to disturb or interfere with Aboriginal heritage or skeletal remains.

**PROTECT**

**Restrict access. Site supervisor to take note of:**

- Location in relation to site works (pref. GPS).
- Any immediate threats to heritage e.g. construction activities, vandalism, water level.
  - Name and contact details of the person who made the discovery.

**NOTIFY**

**Site Supervisor to immediately notify:**

- SA Water representative : Jackie Griggs 08 74241128 or 0448 379 303
- Local Police or 131 444. If suspected human remains have been discovered.

**MANAGE**

**The SA Water EHS Team will appropriately manage the incident with appropriate guidance from:**

- Local Police (where skeletal remains have been discovered).
  - Aboriginal Affairs and Reconciliation.
  - The local Aboriginal community.

**RESUME**

**The SA Water Project Manager will notify the contractor when works can resume.**

- This decision will be made in partnership between the PM and EHS team.

# Example Pictures

