APPLICATION ON NOTIFICATION – CROWN DEVELOPMENT

Type of development:	SECTION 49 - STATE AGENCY DEVELOPMENT
Development Number:	422/V003/18
Applicant:	SA Water
Nature of Development:	Installation of solar photovoltaic panels, with single access tracking frames, approximately 3 power conversion stations and battery energy storage system. Associated works will comprise site clearance, earthworks, access tracks, laydown areas, electrical cabling and security fencing.
Subject Land:	79 Kading Road, Geranium Plains
Development Plan:	Goyder Council Development Plan
Zone / Policy Area:	Primary Production Zone
Contact Officer:	Janine Philbey
Phone Number:	7109 7062
Consultation Start Date:	30 January 2019
Consultation Close Date:	20 February 2019
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).	

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

Fax Number: (08) 8303 0753

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

Applicant:	SA Water
Development Number:	422/V003/18
Nature of Development:	Installation of solar photovoltaic panels, with single access tracking frames, approximately 3 power conversion stations and battery energy storage system. Associated works will comprise site clearance, earthworks, access tracks, laydown areas, electrical cabling and security fencing
Zone / Policy Area:	Primary Production Zone
Subject Land:	79 Kading Road, Geranium Plains
Contact Officer:	Janine Philbey
Phone Number:	7109 7062
Close Date:	20 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: *(please tick one)*

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

By: *(please tick one)*

- ☐ appearing personally
- ☐ being represented by the following person *(Please tick one)*

Signature: _____

Date: _____

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 /or
Email: scapadmin@sa.gov.au

Government of South Australia

Department of Planning, Transport and Infrastructure

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 panels, with single access tracking system, three power conversion stations and battery energy storage system on 17 hectares. Associated works will comprise site clearance, earthworks, access tracks, laydown areas, electrical cabling and security fencing. Development Number: **422/V003/18.**

The subject land is situated at 79 Kading Road, Geranium Plains being Section 135, HP120400 (CT 5977/274) and Section 180, HP120400 (CR 5757/830). An unmade road reserve separates the existing SA Water facility from the solar farm site.

The development site is located within the Primary Production Zone of the Goyder Council Development Plan (Consolidated 24 November 2016).

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 the Regional Council of Goyder, 1 Market Square, Burra SA, 5417. Application documentation may also be viewed on the SCAP website 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 Wednesday 20 February 2019.** Submissions may also be emailed to: 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

Alison Gill
SECRETARY
STATE COMMISSION ASSESSMENT PANEL
scapreps@sa.gov.au

PN3548

www.sa.gov.au

PN3548
22x2 (63mm)
The Advertiser, Northern Argus
30 January 2019
APPROVAL REQUIRED BY 12PM FRI 25.01

14 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 Morgan to Whyalla Pipeline Pumping Station No.3

SA Water is seeking Development Approval for the installation of solar PV arrays and associated battery storage facilities along with ancillary equipment within the Morgan to Whyalla Pumping Station No.3 ('Morgan PPS.3') land. The proposed works at Morgan PPS.3 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 14th 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. Information regarding the broader *Zero Cost Energy Future* project has been provided to the Regional Council of Goyder's Development Services Team, as well as preliminary details for the particular SA Water sites within this Council region identified for the installation of solar PV infrastructure. 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 .

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: **Regional Council of Goyder**

APPLICANT: **SA Water**

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

❒ Complying ❒ Merit ❒ Public Notification ❒ 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:	_____	_____	_____	_____
Minister's Approval				

EXISTING USE: Agricultural (cropping) purposes.

DESCRIPTION OF PROPOSED DEVELOPMENT: The installation of a Solar Generation and Energy Storage plant and associated equipment within the north-western portion of an agricultural allotment (parcel description below), along with required earthworks for construction.

LOCATION OF PROPOSED DEVELOPMENT:

House No: ___79___ Lot No: ___ Street: _Kading Road _ Town/Suburb: _Geranium Plains_____

Deposited Plan: _____ Hundred: _Bower_____ Volume: __5977_____ Folio: _274_____

Section No [full/part] _135__ Hundred Plan: __120400_____

LAND DIVISION:

Site Area [m^2] _____ Reserve Area [m^2] _____ No of existing allotments _____

Number of additional allotments [excluding road and reserve]: _____ Lease: **YES** ❒ **NO** ❒

DEVELOPMENT COST [do not include any fit-out costs]**:** $ 8,900,000.00

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).

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

SIGNATURE:  Lauren Nicholson (Aurecon- on behalf of SA Water) Dated 14/11/ 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: 14/11/2018

Location of Proposed Development: land south of Morgan PPS.3

House No: 79 Lot No: _____ Street: Kading Road

Town/Suburb: Geranium Plains

Section No (full/part): 135 Hundred: Plan No.120400

Volume: 5977 Folio: 274

Nature of Proposed Development:

The 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 pumping operations by SA Water at Morgan to Whyalla Pipeline Pumping Station No.3.

I Lauren Nicholson (of Aurecon Australasia) **being the applicant/ 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:** 14/11/2018

Government of South Australia

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**

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.

SA Water

Development Application

Morgan to Whyalla PPS.3

Zero Cost Energy Future

Solar Photovoltaic Project

Version: 2
Date: 14/11/2018
Status: Final

Government of South Australia

Document Controls

Version History

Version	Date	Author	Comments
1.0	7/11/2017	Lauren Nicholson	Draft
1.2	13/11/2018	Jackie Griggs	SA Water Environment, Land and Heritage comments incorporated
1.3	14/11/2018	John Hart	SA Water Project Lead sign o
2	14/11/2018	Lauren Nicholson	Submitted to DPTI for Approval

Template: Report Version 4.0 31/07/17

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 Morgan to Whyalla Pipeline Pumping Station No.3; herein referred to as 'Morgan PPS.3'. 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 Morgan PPS.3 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 Regional Council of Goyder 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

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

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 will follow the following high level plan;

- 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 : ***Morgan to Whyalla Pipeline Pumping Station No. 3 (Morgan PPS.3)***

The existing SA Water owned land comprises the third pumping station situated along the Morgan to Whyalla Pipeline. The pipeline spans from the Water Treatment Plant (WTP) at Morgan where raw water is drawn directly from the River Murray and treated to supply potable drinking water to the upper Spencer Gulf communities of Whyalla, Port Pirie and Port Augusta. Water is also supplied via the Morgan to Whyalla pipeline to Clare, Burra, Jamestown, Peterborough, Wallaroo and Iron Knob. The Morgan WTP has a capacity of 200ML/day and provides drinking water to approximately 130,000 people via the Morgan to Whyalla pipeline- which actually comprises two separate pipelines. The existing infrastructure within the Morgan PPS.3 was originally constructed in 1944 and includes a recently upgraded Electranet substation, pump house, dissipater and two 4.546 ML capacity concrete tanks associated with pipeline No.1, as well as a pump house, dissipater and two 9.09 ML capacity tanks associated with pipeline No. 2.

Figure 1, below, identifies the existing Morgan PPS.3 site in relation to the surrounding locality.

Figure 1. The Morgan to Whyalla Pipeline, with Robertstown Township and surrounding locality features identified. 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 Morgan PPS.3 site is located approximately 9.4km to the southwest of the Robertstown Township, and is situated within a generally flat landscape. The entirety of land surrounding the site is used for rural purposes and generally comprises large allotments supporting very little built form and isolated clusters of remnant vegetation. Residential land uses are predominately limited to those within the Robertstown Township, with the exception of scattered dwellings associated with larger rural landholdings. The nearest identified community land use is the Geranium Plains Lutheran Church located approximately 1.1km south along Junction Road, while the nearest existing residence is located approximately 950km to the south east (measured from the nearest boundary of the proposed development).

Pockets of vegetation exist in relative proximity to the Morgan PPS.3 solar PV site, the closest being on the abutting parcel of land 50m to the east. The closest open water source is Spring Hut Creek located approximately 480m to the southeast.

Figure 2, below, illustrates the existing pumping station and proposed development location with relation to the nearest identified points of interest.

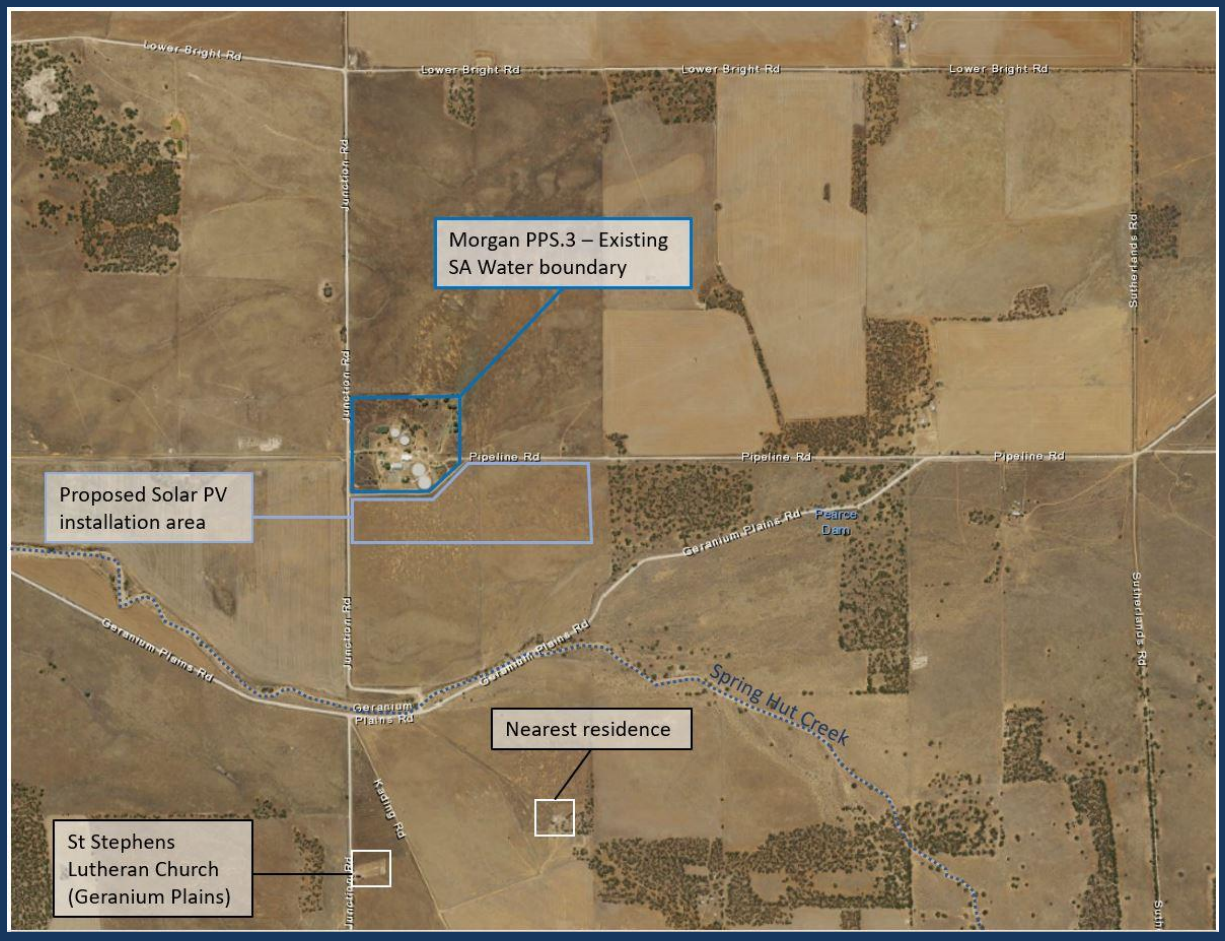


Figure 2. Morgan PPS.3. - Existing site boundary and proposed solar PV installation area, with nearest points of interest identified. Note: boundaries are approximate and shown for illustrative purposes only. Base image source: Location SA Map Viewer, http://location.sa.gov.au/viewer/

Subject Area

Land to the south of the existing Morgan PPS.3. 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 presently utilised for agricultural (cropping) purposes and is vacant of associated built form and structures. Additionally, this land does not form part of existing site operations, nor future upgrade/ expansion plans in connection with the Morgan PPS.3 site.

The proposed solar PV installation area is void of any vegetation, having been cleared previously for agricultural purposes. The western boundary of the proposed development adjoins the unsealed thoroughfare of Junction Road, while the northern boundary adjoins the existing pumping station and associated access (Pipeline Road). The southern and eastern boundaries of the proposed development are positioned internally within the agricultural allotment.

The proposed installation of solar PV infrastructure is to be wholly situated within the property at 79 Kading Road, Geranium Plains. Legally described as Section 135, Hundred Plan 120400, within Certificate of Title Volume 5977, Folio 274. A Certificate of Title has been included as Appendix A.

The land which is proposed to accommodate the development described herein is presently under private ownership. SA Water are working directly with the current land owner to ensure that the positioning of the proposed development minimises impact upon current and future agricultural uses for this land.

The proposed location and formation of the solar PV arrays is exampled in Figure 3, below.

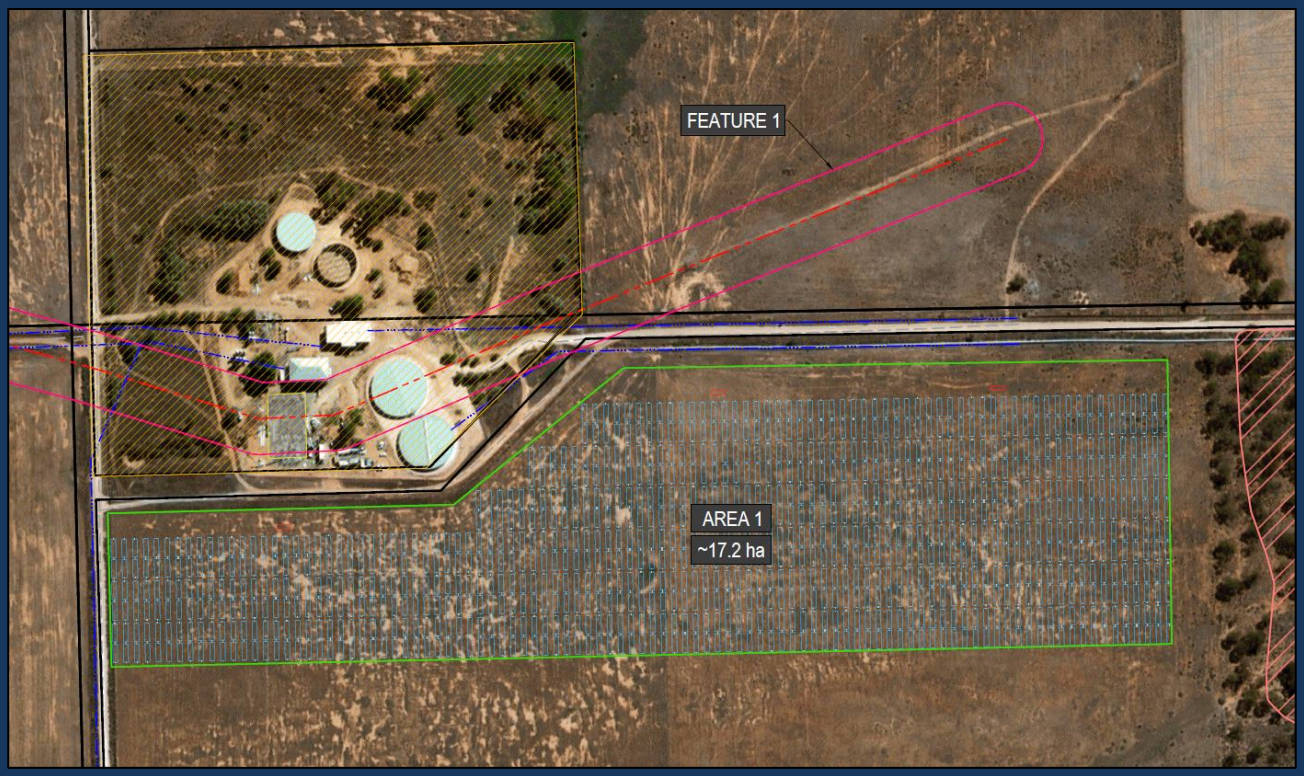


Figure 3. Proposed area for development ('Area 1'), south of Morgan PPS.3. Excerpt from Appendix B- Design Drawings. Base image source: Location SA Map Viewer, http://location.sa.gov.au/viewer/

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
- Stormwater catchments and drainage channels
- Electrical easements
- Sewage/ waste water pipelines

Site photos taken from various points 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. Morgan PPS.3 solar PV site photo- taken from access track (continuation of Pipeline Road) near to southern-most existing water storage tank within the pumping station (facing east-northeast).

Figure 5. Morgan PPS.3 solar PV site photo- taken from access track near to southern-most existing water storage tank (facing southwest).

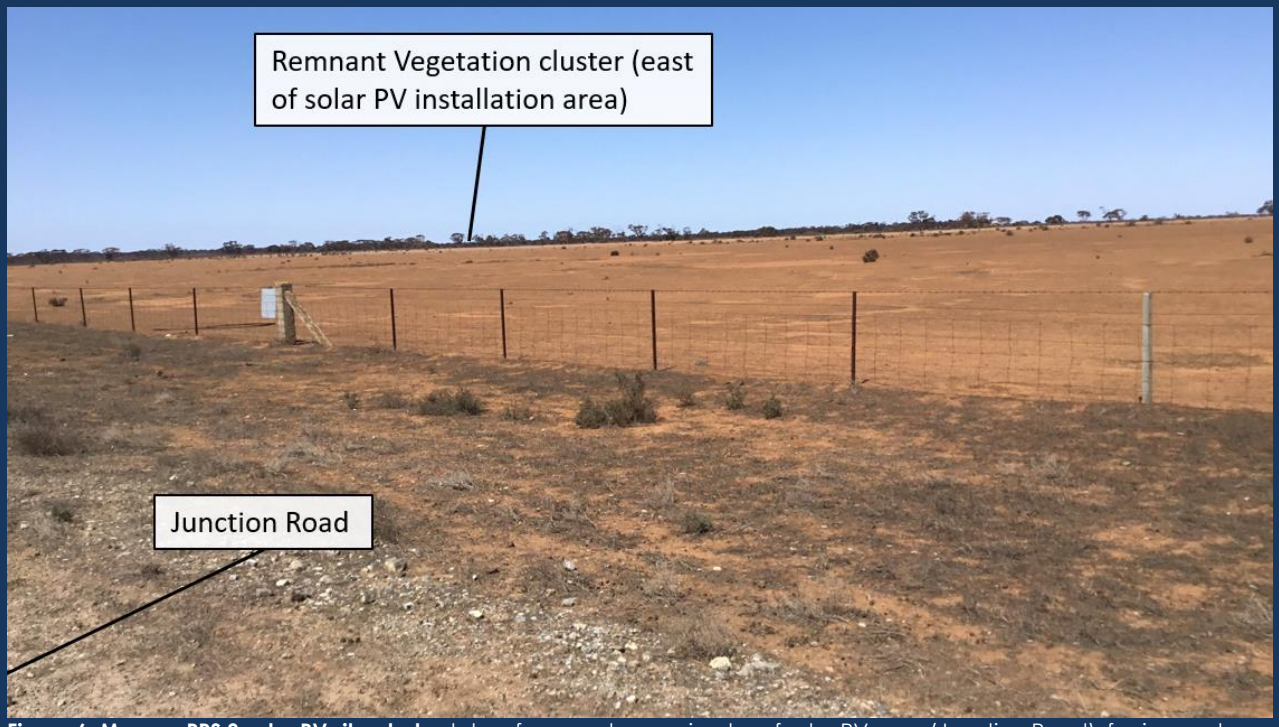


Figure 6. Morgan PPS.3 solar PV site photo- taken from western perimeter of solar PV area (Junction Road), facing east-northeast, looking across proposed solar PV installation area.

3 Proposed Development

3.1 Description of Proposal

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

- Approximately 28,620 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 three (3) 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 17.2 hectares of land for the installation of solar PV arrays and associated infrastructure within the property at 79 Kading Road, Geranium Plains, immediately south of the existing Morgan PPS.3 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 Morgan PPS.3. 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.

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.

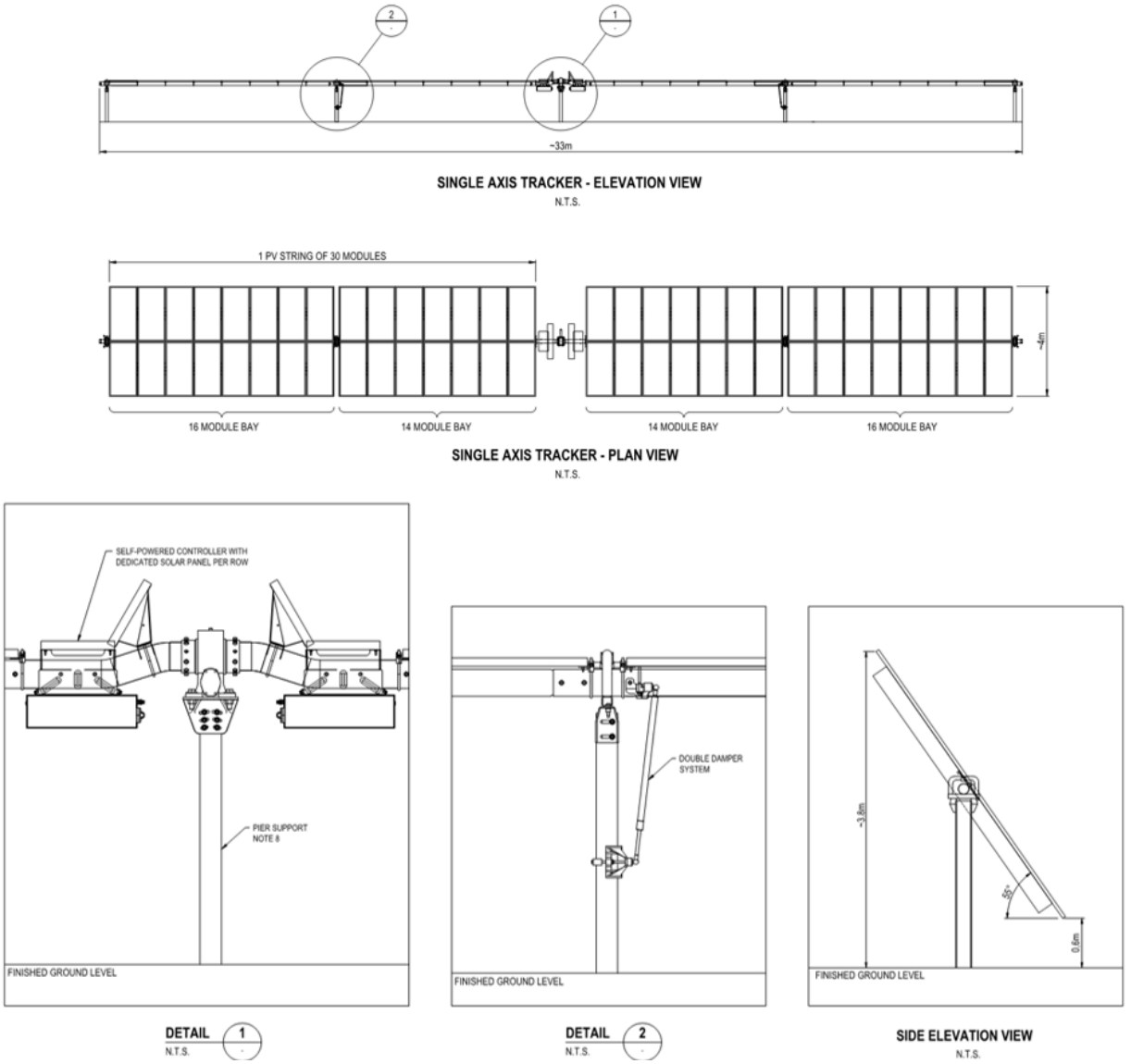


Figure 7. Typical Ground-mounted, Single Access Tracking (SAT) Solar Panel Layout (see Appendix B- Design Drawings for greater detail)

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. Details of the proposed solar PV installation, as well as the broader objectives of SA Water's Zero Cost Energy Future have been provided to the Development Services team at the Regional Council of Goyder. Continued correspondence between Aurecon (on behalf of SA Water) will be maintained throughout the development process to ensure the Regional Council of Goyder are made aware of any important milestones, and so that we can more readily address any items raised by Council staff.

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 Morgan PPS.3, 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.

4 Planning Assessment

The site of the proposed development is located within the Regional Council of Goyder, accordingly The Goyder Development Plan (consolidated 24 November 2016) is the relevant Development Plan. As delineated within the Development Plan, the proposal lies wholly within the Primary Production Zone.

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**
Design and Appearance	1	8, 12, 18
Energy Efficiency	1	6
Hazards	1, 2, 3	1, 2, 3, 5, 6, 7, 11
Infrastructure	1, 4, 5	1, 4, 10, 11, 12
Interface Between Land Uses	1, 2	1, 2, 6, 7, 10
Orderly and Sustainable Development	1, 2, 3, 4	1, 2, 8
Renewable Energy Facilities	1, 2, 3	1
Siting and Visibility	1	1, 2, 3, 5, 7
Transport and Access	2	21, 22, 23, 27

Zone Specific		
Primary Production Zone	Objectives	1, 3, 5
	Principles of Development Control	1, 10, 11

4.1 Design, 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 shelters) to ensure that a high visual standard of development and design is achieved.

While the proposed development will form a noticeable addition to the landscape, a position in proximity to existing public infrastructure (SA Water owned, as well as HV electrical easement) allows for a coordinated appearance to be maintained. Furthermore, the proposed location is well

separated from surrounding sensitive land uses and from major roadways, utilises existing vegetation within the surrounding landscape as far as practicable and is positioned on relatively flat land (as opposed to a prominent ridgeline) so as not to be visually obtrusive.

The proposed development will maintain a minimum setback distance of 10 metres from the property boundaries to ensure reasonable separation from adjoining roadways. The adjoining thoroughfares of Pipeline Road (to the north of the proposal) and Junction Road (to the west of the proposal) comprise unsealed roadways which support relatively low volumes of traffic.

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

Design and Appearance
OBJECTIVES

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

PRINCIPLES OF DEVELOPMENT CONTROL

8 *The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare.*

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

18 *The setback of buildings from public roads should:*

(a) be similar to, or compatible with, setbacks of buildings on adjoining land and other buildings in the locality

(b) contribute positively to the streetscape character of the locality

(c) not result in or contribute to a detrimental impact upon the function, appearance or character of the locality.

Siting and Visibility
OBJECTIVES

1 *Protection of scenically attractive areas, particularly natural, rural and coastal landscapes.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *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,

(c) views from public reserves, tourist routes and walking trails.

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

(a) be grouped together

(b) where possible be sited in such a way as to be screened by existing vegetation when viewed from public roads.

3 *Buildings outside of urban areas and in undulating landscapes should be sited in unobtrusive locations and in particular should be:*

(a) sited below the ridgeline

(b) sited within valleys or behind spurs

(c) sited in such a way as to not be visible against the skyline when viewed from public roads

(d) set well back from public roads, particularly when the allotment is on the high side of the road.

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

7 *Driveways and access tracks should be designed and constructed to blend sympathetically with the landscape and to minimise interference with natural vegetation and landforms, and be surfaced with dark materials.*

4.2 Energy Efficiency

The proposed development of onsite solar power generation and energy storage capabilities will offer a direct contribution to, and significant advancement in, the energy efficiency objectives of both Morgan PPS.3, and the wider SA Water infrastructure network.

The proposal is therefore considered to be directly consistent with the below provisions:

OBJECTIVES

1 *Development designed and sited to conserve energy and minimise waste.*

PRINCIPLES OF DEVELOPMENT CONTROL

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

4.3 Hazards

The proposed development is not located within an area identified as susceptible to flooding, bushfire, or other natural hazards, as delineated by the Goyder Council Development Plan (Consolidated 24 November, 2016). Notwithstanding this, the proposed siting and design of the proposal ensures that disruption to natural processes and the potential for damage to life or property as a result of natural processes (such as flooding or bushfires) is minimised.

The proposed solar PV arrays are positioned upon raised frameworks, which avoids the impeding of floodwaters and protects the infrastructure from potential damage in the event of flooding. The raised framework and relatively open design also minimises the potential trapping of debris, thereby reducing the presence of potential bushfire fuel material.

Furthermore, the proposal does not involve the storage of hazardous materials, is not a habitable land use and will ensure the provision of appropriate access arrangements for emergency services vehicles.

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

OBJECTIVES

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

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

3 *Development located to minimise the threat and impact of bushfires on life and property.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *Development should:*

(a) be excluded from areas that are vulnerable to, and cannot be adequately and effectively protected from, the risk of natural hazards

(b) be sited, designed and undertaken with appropriate precautions being taken against fire, flood, coastal flooding, storm surge, landslip, earthquake, toxic emissions or other hazards such as vermin

(c) not occur on land where the risk of flooding is likely to be harmful to safety or damage property.

(d) be designed and sited to minimise environmental nuisance or harm resulting from biological, chemical or fire hazard, energy emission or explosion.

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

3 *The location of critical community facilities or key infrastructure in areas of high natural hazard risk should be avoided.*

5 *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) occur on land where the risk of flooding is unacceptable having regard to personal and public safety and to property damage

(c) increase the potential hazard risk to public safety of persons during a flood event

(d) aggravate the potential for erosion or siltation or lead to the destruction of vegetation during a flood

(e) cause any adverse effect on the floodway function

(f) increase the risk of flooding of other land

(g) obstruct a watercourse.

6 *Buildings 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

(e) inability to provide an adequate supply of water for fire-fighting purposes.

7 *Buildings and structures should be designed and configured to reduce the impact of bushfire through using 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.*

11 *Vehicle access and driveways to properties and public roads created by land division should be designed and constructed to facilitate safe and effective operational use for fire-fighting, other emergency vehicles and residents*

4.4 Infrastructure

The proposed development is positioned as close as practicable to the existing SA Water pumping station and will seek to utilise existing infrastructure wherever possible. This includes the use of existing access arrangements as well as the existing electrical sub-station within Morgan PPS.3. The proposed solar PV array positioning ensures adequate separation from existing utility easements to avoid the potential for impact upon these. As well as not delimiting the continued operations of the pipeline pumping station, the proposal will be for the direct benefit of this existing infrastructure and will provide surety in the provision of cost-effective and reliable power generation and energy storage systems.

The installation of solar PV arrays and associated infrastructure south of Morgan PPS.3 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. Further details regarding the provision of appropriate drainage systems are to be confirmed by SA Water's construction partner and included within the forthcoming Detailed Designs.

Additionally, the proposed development has been sited within previously cleared land to ensure minimal disturbance to existing native vegetation.

The aspects detailed above will ensure the provision of infrastructure in an economical and environmentally sensitive manner, with existing infrastructure utilised wherever possible.

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

OBJECTIVES

1 *Infrastructure provided in an economical and environmentally sensitive manner.*

4 *The visual impact of infrastructure facilities minimised.*

5 *The efficient and cost-effective use of existing infrastructure.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *Development should not occur without the provision of adequate utilities and services, including:*

(a) electricity supply

(b) water supply

(c) drainage and stormwater systems

(d) waste disposal

(e) effluent disposal systems

(f) formed all-weather public roads

(g) telecommunications services

(h) social infrastructure, community services and facilities

(i) gas services.

4 *Development should not take place until adequate and coordinated drainage of the land is assured.*

10 *Utilities and services, including access roads and tracks, should be sited on areas already cleared of native vegetation. If this is not possible, their siting should cause minimal interference or disturbance to existing native vegetation and biodiversity.*

11 *Utility buildings and structures should be grouped with non-residential development where possible.*

12 *Development in proximity to infrastructure facilities should be sited and be of a scale to ensure adequate separation to protect people and property.*

4.5 Interface between land uses

The proposed development has been situated within previously cleared land currently used for agricultural purposes within the Primary Production Zone. The chosen location is well separated from sensitive land uses, 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 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 Morgan PPS.3. The land area required for the proposed development is relatively contained and allows for the remainder of land within the property at 79 Kading Road to continue to be available for agricultural land use purposes.

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

OBJECTIVES

1 *Development located and designed to minimise adverse impact and conflict between land uses.*

2 *Protect community health and amenity and support the operation of all desired land uses.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *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

(h) traffic impacts.

2 *Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.*

6 *Development should be designed, constructed and sited to minimise negative impacts of noise and to avoid unreasonable interference.*

7 *Development should be consistent with the relevant provisions each of the following documents:*

(a) AS 2107 Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors

(b) AS 3671 Acoustics - Road Traffic Noise Intrusion, Building Siting and Construction

(c) the current Environment Protection (Noise) Policy.

10 *Existing primary production uses and mineral extraction should not be prejudiced by the inappropriate encroachment of sensitive uses such as urban development*

4.6 Orderly and Sustainable Development

The proposal is consistent with the provisions of the Primary Production Zone and will not limit the continuance of operations within the existing pumping station, nor the ability of surrounding land uses to achieve the relevant provisions of respective adjoining zones. As outlined under the previous section addressing the proposals consistency with the General Section – Infrastructure provisions, the proposed installation of solar PV panels has sought to maximise the use of existing infrastructure (including for access arrangements, stormwater management and electrical utilities) and will not jeopardise and/or prejudice the orderly use and development of land in the zone for primary production.

Accordingly, the proposed development is considered to be broadly consistent with the below provisions:

OBJECTIVES

1 *Orderly and economical development that creates a safe, convenient and pleasant environment in which to live.*

2 *Development occurring in an orderly sequence and in a compact form to enable the efficient provision of public services and facilities*

3 *Development that does not jeopardise the continuance of adjoining authorised land uses.*

4 *Development that does not prejudice the achievement of the provisions of the Development Plan.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *Development should not prejudice the development of a zone for its intended purpose.*

2 *Land outside of townships and settlements should primarily be used for primary production and conservation purposes.*

8 *Vacant or underutilised land should be developed in an efficient and co-ordinated manner to not prejudice the orderly development of adjacent land.*

4.7 Renewable Energy Facilities

The chosen location, siting and design of the proposed development has sought to minimise the potential for adverse impacts through it's positioning within an appropriate (Primary Production) Zone, where the ongoing operations of the existing pumping station are directly supported by the proposal. The existing Morgan PPS.3 forms a critical piece of SA Water infrastructure which contributes to the efficient provision of drinking water to over 130,000 people living and working within rural communities surrounding the Morgan to Whyalla Pipeline.

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 shadowing from existing built form, vegetation and undulating topography. 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 proposed development is therefore considered broadly consistent with the below provisions;

OBJECTIVES

1 *Development of renewable energy facilities that benefit the environment, the community and the state.*

2 *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.*

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

PRINCIPLES OF DEVELOPMENT CONTROL

1 *Renewable energy facilities, including wind farms and ancillary developments, should be:*

(a) located in areas that maximise 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.

4.8 Transportation and Access

The existing pumping station is accessible via driveway crossovers from Junction Road and from Pipeline Road, presently allowing for vehicles to enter and exit SA Water land in a forward direction. A new crossover will be required to allow direct access to the proposed solar PV arrays within the property at 79 Kading Road. The positioning of the proposed

crossover is subject to confirmation by SA Water's construction partner. The location and design of the crossover will ensure safe and convenient access is granted to vehicles throughout the construction period, as well as to emergency services vehicles. 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.

The proposed setback distance of the development from the property perimeter, as well as the proposed layout and spacing of the solar PV arrays, ensures that vehicles (including emergency services vehicles) are able to enter and move freely throughout the property.

Further information regarding proposed access points and movement systems will be provided as part of the Detail Designs, once confirmed by the construction partners.

The use of the existing access arrangement is considered to be broadly consistent with the below provisions:

OBJECTIVES

***2**. Development that:*

(a) provides safe and efficient movement for all motorised and non-motorised transport modes

(b) ensures access for vehicles including emergency services, public infrastructure maintenance and commercial vehicles

(c) provides off street parking

(d) is appropriately located so that it supports and makes best use of existing transport facilities and networks.

PRINCIPLES OF DEVELOPMENT CONTROL

Access

21 Development should have direct access from an all weather public road.

22 Development should be provided with safe and convenient access which:

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

(b) accommodates the type and volume of traffic likely to be generated by the development or land use and minimises induced traffic through over-provision

(c) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.

23 Development should not restrict access to publicly owned land.

27 Driveways, access tracks and parking areas should be designed and constructed to:

(a) follow the natural contours of the land

(b) minimise excavation and/or fill

(c) minimise the potential for erosion from run-off

(d) avoid the removal of existing vegetation

(e) be consistent with Australian Standard AS 2890 Parking facilities.

4.9 Zone Specific Provisions

Primary Production Zone
The Primary Production Zone envisages the continuance of primary production as the core land use throughout this zone. However, emphasis is placed upon the adoption of sustainable practices to ensure improvements for the long term health of the environment and therefore the economic activity of the region. Wind farms and ancillary development are also envisaged within the Primary Production Zone and are described as constituting a component of the zone's desired character. Visual impacts from windfarms are to be accepted in pursuit of benefits derived from increased generation of renewable energy; subject to the implementation of management techniques set out by general / council wide policy regarding renewable energy facilities.

While solar PV installations are not specifically listed as an envisaged use within the zone, the proposed development is directly supportive of the continued pipeline pump station operations at Morgan PPS.3, which serves communities along the Morgan to Whyalla pipeline within the Regional Council of Goyder and beyond. We acknowledge that the proposal allows for a minimum setback distance of 10m from each of the property boundary fence lines, while PDC 11 of the Primary Production Zone seeks a minimum setback distance of 30m. The proposed lesser setback distance is considered appropriate given the low traffic volumes along the adjoining roads (Junction Road and Pipeline Road) and given also the separation of the proposal from townships, tourist routes and sensitive land uses, thereby minimising the potential for visual impact concerns. Furthermore, the lesser setback distance ensures that a greater proportion of the existing allotment remains available for the continuance of agricultural uses, as envisaged within this zone.

The proposal has been carefully sited and designed to ensure that it minimises impact upon existing and future planned operations within Morgan PPS.3, and has also been designed to ensure maximum energy generating capacity is achieved, thereby solidifying it's important functionality to the pumping station. Once operational, the solar PV infrastructure will deliver significant and immediate benefit to Morgan PPS.3 by reducing operational costs and allowing for greater security in the ongoing provision of reliable power.

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

OBJECTIVES

1 *Economically productive, efficient and environmentally sustainable primary production.*

3 *Protection of primary production from encroachment by incompatible land uses and protection of scenic qualities of rural landscapes.*

5 *Development that contributes to the desired character of the zone.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *The following forms of development are envisaged in the zone:*
- *tourist accommodation, including through the diversification of existing farming activities and conversion of farm buildings*
- *farming*
- *intensive animal keeping (especially within Enterprise Policy Area 2)*
- *wind farm and ancillary development*
- *wind monitoring mast and ancillary development.*

10 *Development should not be undertaken unless it is consistent with the desired character for the zone.*

11 *Structures and buildings should generally be set back a minimum of 30 metres from all road boundaries.*

5 Environmental Considerations

SA Water is committed to ensuring the Morgan PPS.3 solar PV 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	• Noise creating nuisance • Property damage from vibration • Emissions to air from equipment • Introduction/spread of weed seeds or plant pathogens • Fire (hot works or use near dry vegetation) • Nuisance to neighbours – access, light spill etc.
Storage of materials, maintenance and refuelling of machinery and equipment	• Spills leading to pollution and contamination of soil, water • Damage to vegetation and fauna • Emissions of noxious / toxic gases
Washdown of equipment/plant	• Pollution to water (watercourses or stormwater) • Introduction/spread of weed seeds or plant pathogens • Damage to vegetation and fauna
Excavation and earthworks	• Damage to vegetation and fauna • Disturbance or damage to Aboriginal and non-Aboriginal Heritage • Discovery/management of soil or groundwater contamination • Dust • Erosion of exposed surfaces • Pollution to water (watercourses or stormwater)
Stockpiling / spoil management	• Damage to vegetation and fauna • Pollution to water bodies from poor location / erosion /runoff • Water management and flooding • Dust • Inappropriate waste disposal/landfill • Contamination • Amenity of the estuarine/beach environment for water/beach users
Waste Management and Disposal	• Aesthetics – litter/ debris • Inappropriate waste disposal/landfill • Resource use
Import of fill material	• Introduction of weeds and diseases (phytophthora) • Contamination (imported)
Site / compound establishment	• Aesthetics – visually intrusive structures • Inappropriate waste management, litter • Access impacts and nuisance to neighbours • Noise creating nuisance
Dewatering or other discharges/ water released from site	• Pollution • Water management and flooding

	• Contamination • Damage to vegetation
Management of contaminated or hazardous materials	• Pollution to soil or water

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. Acknowledging the presence of Spring Hut Creek approximately 480m to the south-southeast (measured from the southern perimeter of the proposed development to the nearest point along the creek), the proposal shall be constructed and managed to retain as much stormwater as possible onsite.

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 (i.e. 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 PV 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 Morgan PPS.3 is on the '*Country*' of the Ngadjuri. 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.

Searches have been undertaken by SA Waters Environment and Heritage services team to determine whether known Aboriginal Heritage Sites and Objects exist within the boundary of the proposed development. After consulting the Aboriginal Affairs Register, it was determined that no existing sites or objects are known to be present within the SA Water owned land at Morgan PPS.3, nor the adjoining land parcel at 79 Kading Road which is to house the proposed development.

However, while it has been identified that there are no known sites or objects, there remains the possibility that heritage items or artefacts are present below the surface ground level. The proximity of the proposal to a watercourse (Spring Hut Creek – approx. 480m to the SE) is acknowledged to form an elevating risk factor.

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 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 Morgan to Whyalla Pipeline Pumping Station No. 3, 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 Morgan PPS.3, 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 Goyder Council Development Plan (Consolidate 24 November 2016), and therefore to warrant planning consent with appropriate conditions that address the short term impacts.

Appendix A Certificate of Title

Product	Register Search (CT 5977/274)
Date/Time	14/11/2018 03:47PM
Customer Reference	IN232848 MWPS3
Order ID	20181114009931
Cost	$287.50

REAL PROPERTY ACT, 1886
South Australia

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 5977 Folio 274

Parent Title(s) CL 781/5

Creating Dealing(s) RLG 10578828

Title Issued 14/12/2006 **Edition** 1 **Edition Issued** 14/12/2006

Estate Type

FEE SIMPLE

Registered Proprietor

CLARENCE HARROLD SCHMIDT
OF ROBERTSTOWN SA 5381

Description of Land

SECTIONS 134 AND 135
HUNDRED OF BOWER
IN THE AREA NAMED GERANIUM PLAINS

Easements

SUBJECT TO CERTAIN RIGHT(S) AND LIBERTIES OVER THE LAND MARKED A (AS 2974632)

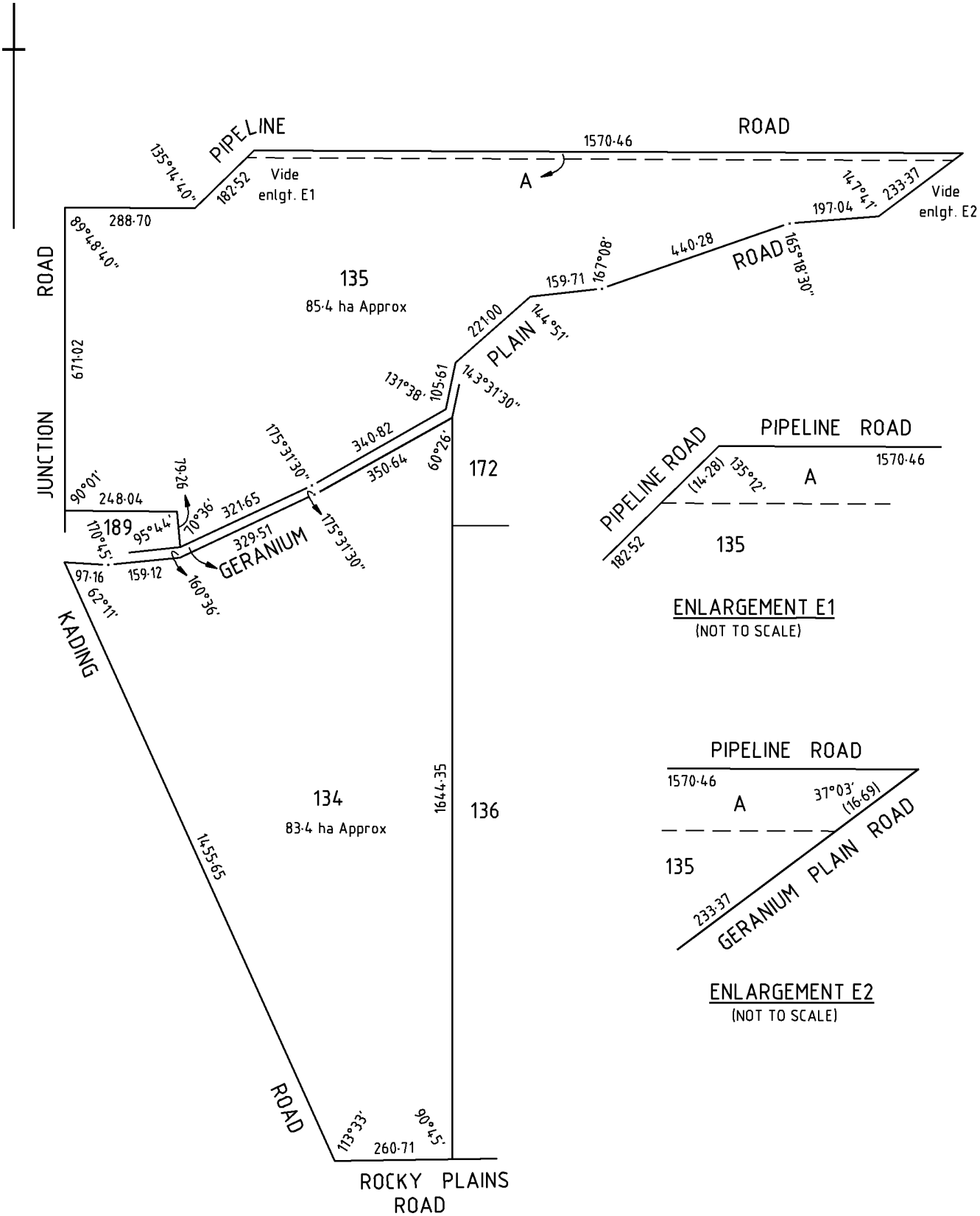
Schedule of Dealings

NIL

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

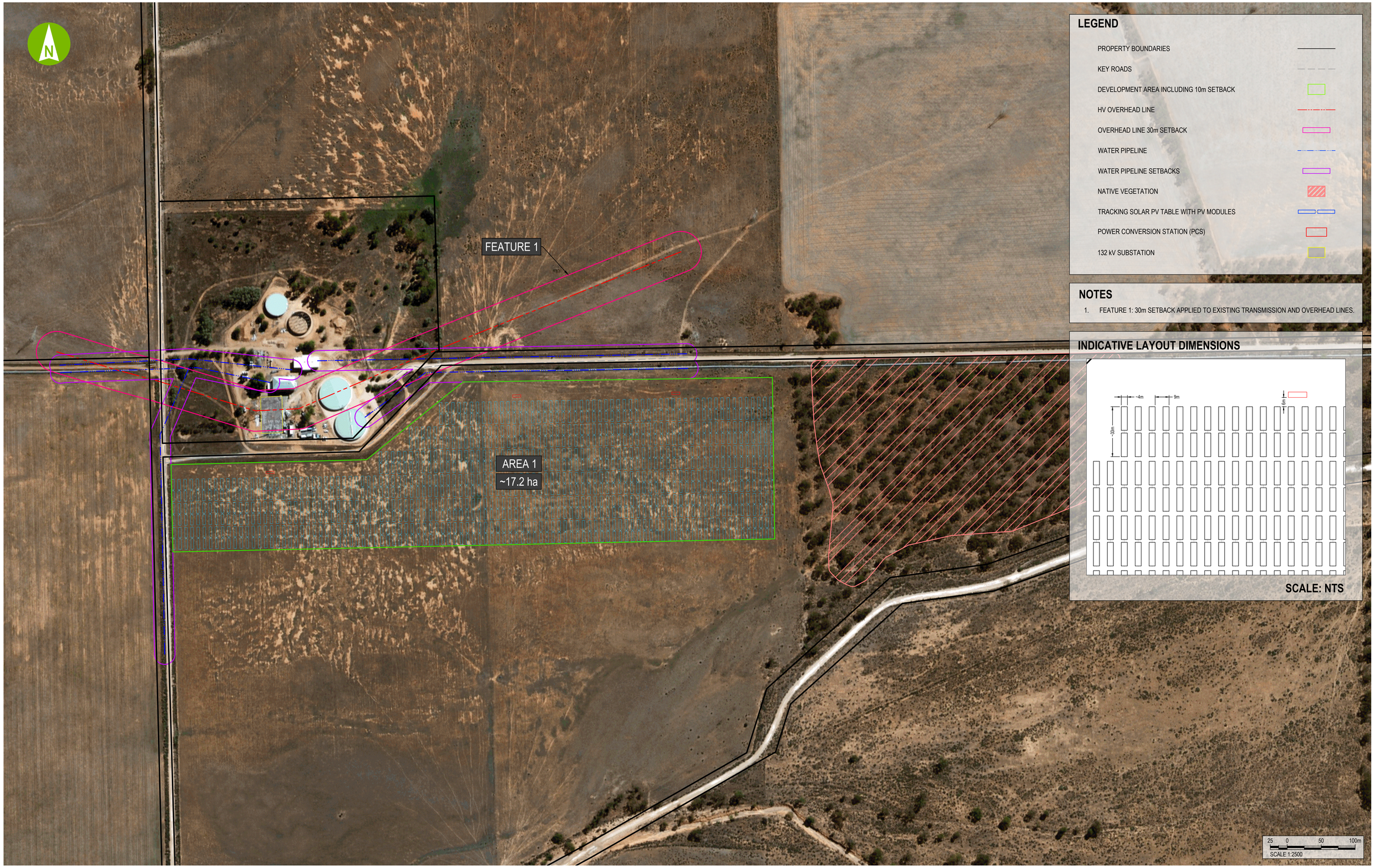
Product	Register Search (CT 5977/274)
Date/Time	14/11/2018 03:47PM
Customer Reference	IN232848 MWPS3
Order ID	20181114009931
Cost	$287.50



ENLARGEMENT E1
(NOT TO SCALE)

ENLARGEMENT E2
(NOT TO SCALE)

Appendix B Design Drawings



LEGEND

- PROPERTY BOUNDARIES
- KEY ROADS
- DEVELOPMENT AREA INCLUDING 10m SETBACK
- HV OVERHEAD LINE
- OVERHEAD LINE 30m SETBACK
- WATER PIPELINE
- WATER PIPELINE SETBACKS
- NATIVE VEGETATION
- TRACKING SOLAR PV TABLE WITH PV MODULES
- POWER CONVERSION STATION (PCS)
- 132 kV SUBSTATION

NOTES

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

INDICATIVE LAYOUT DIMENSIONS

SCALE: NTS

aurecon
www.aurecongroup.com

REVISION PANEL				
REV	DATE	DRN	DETAILS	APP'D
A	2018.10.17	MM	DRAFT SINGLE-AXIS TRACKING LAYOUT	

CURRENT REVISION CONTRACTOR:

CURRENT REV AUTHORISED

SIGNATURE

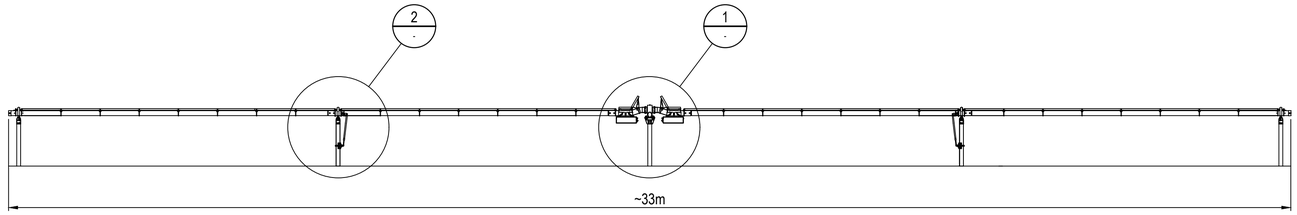
DESIGN PANEL	
DESIGNED	AUTHORISED
M.MODISANE	
DRAWN	SIGNATURE
M.MODISANE	
REVIEWED	

CONTRACTOR:

Government of South Australia

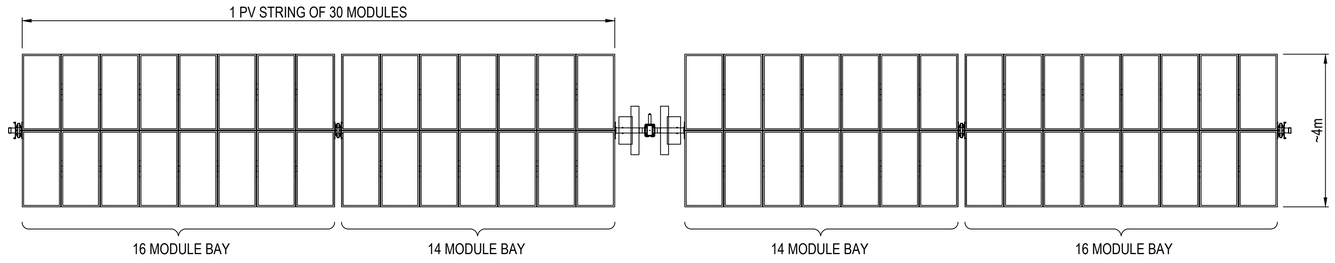
SA Water

A1 SHT SIZE	MAXIMO ID:	A REVISION
	PROJECT No: 503097	
TOTAL SHEETS: 1	DISCIPLINE: GA	
SUPERSEDES:		
DRAWING NUMBER 2018 – MRG3 – 003 YEAR NUMBER SHEET		



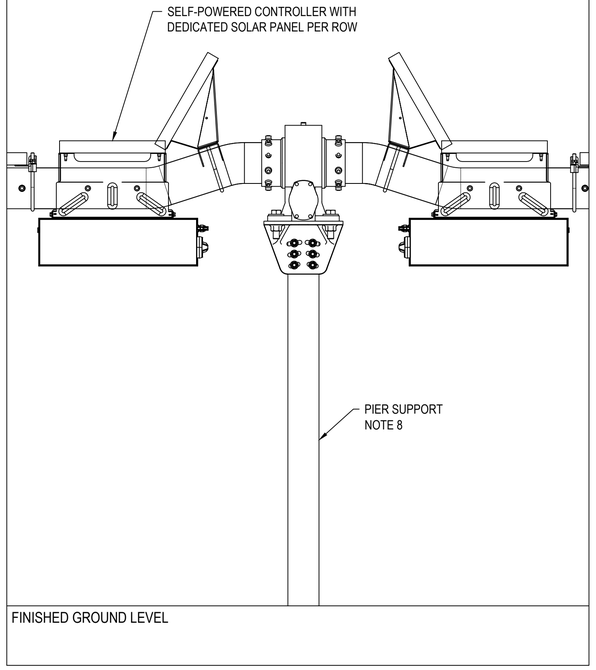
SINGLE AXIS TRACKER - ELEVATION VIEW

N.T.S.



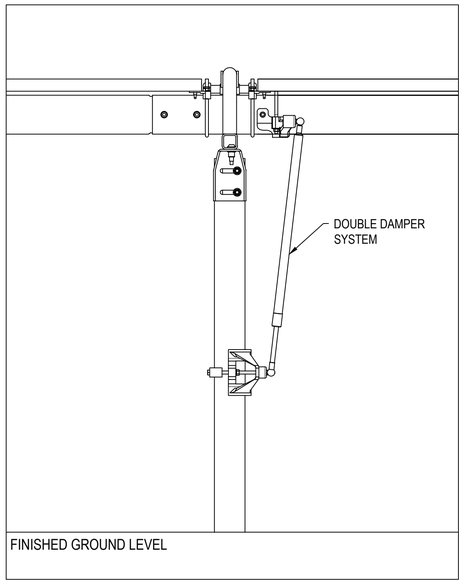
SINGLE AXIS TRACKER - PLAN VIEW

N.T.S.



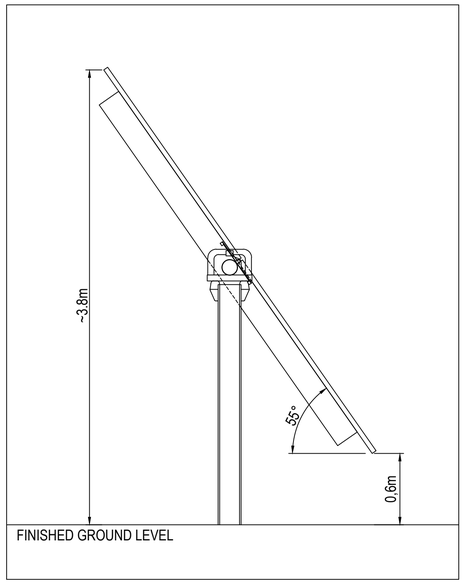
DETAIL 1 / -

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 MORGAN TO WHYALLA PIPELINE NO.3 PS.
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 ±55°.
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

aurecon
www.aurecongroup.com

REVISION PANEL

REV	DATE	DRN	DETAILS	APR'D
A	2018.10.17	AF	INDICATIVE SINGLE AXIS TRACKER DETAILS	

CURRENT REVISION CONTRACTOR:

CURRENT REV AUTHORISED

SIGNATURE

DESIGN PANEL

DESIGNED A.FIRFIREY
DRAWN A.FIRFIREY
REVIEWED
CONTRACTOR:

AUTHORISED
SIGNATURE

Government of South Australia
SA Water

A1 SHT SIZE | MAXIMO ID: | PROJECT No: 503097 | A REVISION
TOTAL SHEETS: 1 | DISCIPLINE: GA
SUPERSEDES:
DRAWING NUMBER
2018 – MRG3 – 101
YEAR NUMBER SHEET

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

Government of South Australia
Department for Energy and Mining

Ref: 2017/01873.01 D18133459

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

15 October 2018

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

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

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.	☐	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): • Change of land use • Building works • Prescribed earthworks • Impacts to Significant/Regulated Trees	☒	Development approval is required	Development Application will be lodged with SCAP for approval. Information regarding the proposal has been provided to the Regional Council of Goyder 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	☒	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.)	☐		
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	☒	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.	☐	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.	☐	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.	☐	No known Aboriginal Heritage Sites and Objects have been identified within the Aboriginal Affair Register for the SA Water owned land parcel at Morgan PPS.3, nor within adjoining land parcel at 79 Kading Road.	In event of discovery, stop work follow the SA Water SOP for Discovery of Aboriginal Heritage Sites. Aboriginal sites and objects protected under the Aboriginal Heritage Act 1988.
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	☒	African Boxthorn (*Lycium Ferocissimum*) has been recorded within the general area and is a weed of national significance.	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 affect Native Title. Note: ILUA notification process may be applicable in some areas.	☐		SA Water will ensure that all acquired land parcels are investigated for respective Native Title status.
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.	☐	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).			
Road Traffic Act 1961 (SA)	Section 33 Council approval is required for temporary closure of a public road to facilitate an event	☐	Approval required if temporary closure if a Council Road	N/A
Parliamentary Committees Act 1991 (SA)	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	☒	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	• Compound/worksite controls are in place, locations for materials/stockpiles and access identified • Location of sensitive neighbours • Location of stormwater entry points, drainage lines, water courses identified • Location of spill control measures and spill kits available
Daily	• Site is neat and tidy • Waste contained appropriately • Chemicals and materials stored appropriately • No evidence of dust nuisance • No evidence of water contamination/runoff form site • Adjacent roads clean (not covered in sediment etc.).

Frequency	Issues
Before/during rainfall events	• Runoff controls in place and maintained • Protection of stormwater entry points • Drainage lines clear of debris
Weekly/monthly	• Overall environmental management measures as per CEMP in place.

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 if 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**
Objective	Prevent or minimise adverse effects on surface water and groundwater quality, flows and drainage
Performance indicators	• No material deterioration on receiving waterway quality including for pH, turbidity, dissolved oxygen, chlorine residual and visual oils and greases. • Construction materials and sediment laden runoff prevented from entering waterbodies/stormwater.
Controls	**Pre-Construction** • Review construction area to minimise potential for surface runoff to enter the site and to identify controls for runoff leaving the site. • 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. • Review project activities that will require protection and installation of controls. • Identify designated stockpile/laydown areas away from drainage lines. • 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). **Construction** • No discharge to a watercourse (including stormwater system) without approval from the Superintendents Representative. • 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) • Ensure stockpiles have erosion control devices installed, particularly on downslope of stockpiles • Monitor weather forecasts to identify rain events and ensure control measures in place • Inspect and maintain/clean sediment control items regularly • Clearly define access tracks and routes and use these • Where practicable use a street sweeper or similar to clean sediment/debris form public roads • Compact, backfill and resurface disturbed or unsealed areas as soon as possible • No onsite refuelling, service or maintenance or cleaning in areas where runoff/wastewater may enter stormwater system or waterbodies. • All equipment wash-down to be undertaken within an identified wash-down area, no discharge of wash-down water to stormwater or watercourse. • Turbid water from concrete cutting etc. not to be directed to stormwater or watercourses.

Environmental Impact	Damage to Vegetation
Objective	Protect and minimise impacts to vegetation as part of the works
Performance indicators	• No unauthorised clearance. • Protection in place (bunting, marking off) for vegetation on site where appropriate.
Controls	**Pre-Construction** • 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. • Plan works to avoid in first instance or minimise impacts to vegetation (Significant/Regulated trees or Native Vegetation). **Construction** • No clearing of native vegetation beyond that approved. • Utilise existing access tracks/roads where available or ensure (where possible) access via previously disturbed cleared areas. • 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. • Avoid impacts to roots (10m from drip line optimal) wherever possible. If roots (≥ 50mm) are discovered during the works these are to be bridged where possible. Roots discovered <50mm which are broken are to be clean cut with a saw. • 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 'Roadside Significant Markers' 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.

Environmental Impact	Introduction of weeds and pathogens
Objectives	• Pest plants / pathogens not introduced into worksite or spread as result of works. • No movement of declared plants in an uncontrolled manner.
Performance indicators	• No new incursions of declared plants or plant pathogens post construction. • Weed and hygiene measures in place.

Controls	**Pre-Construction**
	• Ensure any declared plants within work area are identified.
	• Ensure plant and machinery washed down prior to entry to work zone.
	Construction
	• Ensure imported material is 'weed free' by applying a risk based approach, material is considered weed/pest free if:
	  ○ Quarry material is sourced at depth and is not stockpiled/surface material.
	  ○ Classified as complying with SA Water Engineering Technical Standard 4- 'Packing Sand for Pipe Laying and Trench Fill'

	○ 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). ○ If quarry material is considered top soil, inspection by suitably qualified person is required to ensure fill is weed/pest free. • Locate stockpiles away from weed infested areas where possible • Appropriate wash-down of machinery if sourced from weed or disease risk areas or have carried imported material. • 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).

Environmental Impact	**Fauna**
Objective	Prevent or minimise disturbance to native fauna and their habitat.
Performance Indicators	• Fauna within works area not adversely impacted.
Controls	**Pre-Construction** • Ensure contact list for local/regional fauna rescue organisation available. **Construction** • Any injury or death of native wildlife caused by the construction activity will be reported to the Superintendents Representative. • If tree hollows are present and trees require pruning/ clearing, these must be checked for fauna before removal. • 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. • 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. • 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).

Environmental Impact	**Stockpile, Erosion and Stormwater Management**
Objective	Minimise the potential for environmental impacts associated with poor stockpile management.
Performance indicators	• No sediment laden runoff leaving works area • No dust from stockpiles leaving site and impacting sensitive land uses (residents/schools, sensitive habitats) • Management of spoil in accordance with Part A – Section 1.4.3.

Controls	**Pre-Construction**
	• Identify designated stockpile/laydown areas away from drainage lines, drip lines of trees/vegetated areas
	• Identify potential soil contamination that may require management and ensure appropriate areas for stockpiling established
	Construction
	• Follow requirements of the SA EPA Guideline for stockpile management including:
	  ○ Materials with a potential to produce leachate and contaminated runoff should be stored in a sealed and bunded area.
	  ○ Limit stockpile height
	  ○ Materials must be stored away from surface watercourses, flood zones and groundwater recharge areas to prevent environmental harm to water.
	• Locate designates fill stockpiles away from vegetation and drainage lines.
	• No stockpiling within the drip lines of trees to minimise compaction of the root zones.
	• Maintain separate stockpiles for different materials
	• 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.

Environmental Impact	**Air Quality (Dust, emissions, odours)**
Objective:	Ensure that particulate and gaseous emissions do not cause environmental nuisance or harm to surrounding community and environment.
Performance indicators	• No community complaints during construction regarding air quality (dust, odours) • No impact to adjacent sensitive land uses (e.g. houses, schools) • Results from visual inspections show no visible dust leaving boundaries of construction site
Controls	**Pre-Construction** • Identify site access, laydown areas and stockpile locations • Identify sensitive receivers and dust monitoring requirements. **Construction** • Restrict high risk activities during extreme weather events (strong winds, hot dry weather) to dry/calm conditions if required to limit dust generation. • Water cart available to control dust if required. • Minimising the extent of exposed and stripped surface areas within the project area • Ensure construction facilities are designed and operated to prevent the emission of smoke, dust, cement dust and other potentially deleterious matter into the atmosphere. • Maintenance of vehicles and equipment. • Reduce idling time of vehicles and plant. • Reduce vehicle speeds on dirt roads to reduce dust emissions.

	• Cover loads if dust is an issue. • Stockpiles to be managed to reduce dust (manage height, covering wetting as required). • Undertake inspections of dust/ emissions controls and activities and respond accordingly.

Environmental Impact	**Noise and Vibration impacts**
Objective:	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.
Performance Indicators	• No complaints related to noise or vibration. • No property damage resulting from vibration.
Controls	**Pre-Construction** • Plan timing of noisy activities to avoid impacts on nearby residents. • Select good plant and equipment that generates low noise and vibration. • Consult with stakeholders (though SA Water) in advance of works. • Ensure machinery has appropriate mufflers, silencers and/or enclosures fitted. • Investigate alternative processes/methods that will reduce noise and vibration. **Construction** • Construction activities should be in accordance with the EPA Construction Noise Information Sheet (EPA 425/17): ○ 7 am and 7 pm, Monday to Saturday inclusive ○ 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. • Notify nearby residents/landowners if any project activities proposed outside of normal construction times (though SA Water). • 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. • Regularly maintain plant and equipment used during construction (e.g. rotating parts to be balanced). • Enclose, where practical, stationary constant noise sources such as air compressors, generators etc. to reduce noise levels. • Maximise the distance between vibration sources and receivers if possible. • Maintain complaints register and respond to complaints received.

Environmental Impact	**Storage and Handling of Hazardous Substances**
Objective	Manage the storage of hazardous substances to avoid contamination of surrounding soils and water.
Performance Indicators	• Hazardous substances stored appropriately and spill kits on site.

	• No impact to soil/groundwater associated with storage use of hazardous substances.
Controls	**Pre-Construction** • Plan for sufficient plant and equipment to ensure minimal maintenance and refuelling required on site. • Identify areas for storage, refuelling and spill kits. • Establish bunded area and/or where appropriate lockable bunded container in compound for storage. **Construction** • Spill kits readily available and personnel trained in their efficient use. • 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. • 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. • All waste oil to be collected and disposed of at an EPA Licensed Recycling Depot. • Ensure no discharge of hazardous substances or fuels/lubricants into water courses or storm water. • 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. • In the event of a minor spill (e.g. diesel), affected soil to be excavated and disposed of at an appropriately licenced landfill. • 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).

Environmental Impact	**Contamination**
Objective	• Identify potential contamination issues on site. • Manage such issues to protect employees, the public and the environment.
Performance Indicators	• No impact to soil/groundwater associated with contaminated material. • No risk to employees from encountering and managing contaminated material.
Controls	**Construction** • 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. • 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. • Contaminated material must be handled and managed in accordance with EPA requirements (licenced waste transporter and to EPA licenced facility). • Waste transfer certificates retained for contaminated material and available on request. • If contaminated material discovered: ***Isolate*** the suspected contaminated area.

	○ 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). ○ Groundwater contamination is required by law to be reported to the EPA. ○ No disposal of contaminated groundwater to a stormwater or watercourse.

Heritage Impact	**Aboriginal Heritage Management**
Objectives	• Prevent or minimise disturbance to cultural heritage sites. • Ensure all statutory requirements are complied with and controls listed below are implemented to minimise potential disturbance to unknown sites.
Performance indicator	• Management of any Aboriginal discoveries in accordance with the SA Water SOP for the Discovery of Aboriginal Heritage (Refer to Appendix A)
Controls	**Construction** • The SA Water SOP for the Discovery of Aboriginal Heritage must be available on site and all construction personnel inducted into this procedure. ○ The removal of site protection measures must be undertaken or sanctioned by First Peoples representatives. • 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)

Environment Impact	**Fire Management**
Objective	• Ensure compliance with South Australian Country Fire Act 1989. • To ensure that construction activities do not cause and emergency incident such as starting a fire.
Performance indicator	• No emergency incidents as a result of construction activities.
Controls	**Pre-Construction** • Review fire danger season and schedule works to minimise risks associated with fire, where possible. • Conduct a risk assessment on days notified as total fire ban days before undertaking any works on site. • Have in place an emergency response plan for the works. **Construction** • 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. • 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 • Maintain all machinery and vehicles in good condition to minimise risk of fires.

	• Fit plant with spark arrestors. • No burning off or burning of waste.

Impact	Waste Management
Objective	• To ensure all statutory requirements are complied with relating to management of waste (including Waste to Resources Policy). • Maximise reuse and recycling of materials.
Performance indicator	• Compliance with waste management requirements
Controls	**Pre-Construction** • Adopt the principles of the waste management hierarchy and plan/procure materials that : ○ Avoid the production of waste ○ Minimise the production of waste ○ Maximise reuse and/or recycling of waste ○ Recovery of energy or other resources from waste ○ Treatment of waste ○ Disposal of waste in environmentally sound manner • Confirm the relevant statutory requirements for disposal of wastes from site. **Construction** • Carry out works to minimise waste production. • Segregate wastes to maximise reuse/recycling. • Provide and use sealed waste and recycling bins • Dispose of waste materials, waste oils etc. at EPA licence facilities • Waste to be removed from site using appropriately licenced waste transporters. • No burning of waste. For spoil management refer to the Stockpile management section.

Impact	Visual Amenity
Objective	• Prevent or minimise negative impacts from construction activities on the visual amenity of the local area.
Performance indicator	• No community complaints regarding visual amenity during the construction period or post project associated with site condition (e.g. demobilisation).
Controls	**Pre-Construction** • Assessment of potential visual impacts and opportunities to mitigate or improve visual amenity (e.g. landscaping/screening).

	• 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. **Construction** • Implement waste and dust management controls (as above). • Stockpiles, equipment and large plant to be located in areas of the project least likely to affect visual amenity (away from houses etc.). • Ensure good housekeeping and waste management on site.

Impact	**Traffic Management**
Objective	• To minimise the impact to the public associated with the construction of this project.
Performance indicator	• Minimise complaints from the public regarding traffic management.
Controls	**Pre-Construction** • Assess impacts on traffic flow, direction and timing as part of project. • Assess traffic management requirements to ensure safety to site workers and community. • Develop traffic management plan for works , plans to be approved by DPTI (for DPTI roads) or by relevant Council where appropriate and should include: ○ Traffic management measures proposed during (including any sub-contractors). ○ Any temporary access to properties affected by the works. ○ Proposals for detours/deviations, placement of barriers etc. **Construction** • Traffic management controls implemented as per traffic management plan.

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