APPLICATION ON NOTIFICATION – CROWN DEVELOPMENT

Applicant:	SA Water
Development Number:	361/V014/18
Nature of Development:	The construction of solar photovoltaic arrays and associated infrastructure including battery storage equipment
Type of development:	Crown Development
Zone / Policy Area:	Industry Zone: PA9 (Infrastructure)
Subject Land:	Hodgson Road, Bolivar
Contact Person:	Ben Williams
Phone Number:	08 7109 7023
Start Date:	5 December 2018
Close Date:	3 January 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 Street, 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 pdf 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: scapadmin@sa.gov.au
Fax Number: (08) 8303 0753

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 for the construction of solar photovoltaic arrays and associated infrastructure including battery storage equipment at the Bolivar Waste Water Treatment Plant. **Development Number: 361/V014/18.**

The development site is located within the Bolivar Waste Water Treatment Plant, Hodgson Road, Bolivar (being Section 3503 in Hundred Plan 105800 **Port Adelaide**: Certificate of Title: Volume 5922 Folio 939).

The subject land is situated within the Industry Zone and Policy Area 9 (Infrastructure) of the Salisbury Council Development Plan (Consolidated 15 December 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 and at the office of the Salisbury Council.

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 Thursday 3 January 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 Benjamin Williams on 7109 7023 or ben.williams2@sa.gov.au

Alison Gill
SECRETARY
STATE COMMISSION ASSESSMENT PANEL

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

Applicant:	SA Water
Development Number:	361/V014/18
Nature of Development:	The construction of solar photovoltaic arrays and associated infrastructure including battery storage equipment
Zone / Policy Area:	Industry Zone: PA9 (Infrastructure)
Subject Land:	Hodgson Road, Bolivar
Contact Person:	Ben Williams
Phone Number:	08 7109 7023
Close Date:	3 January 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:** scapreps@sa.gov.au

SECTION 49 & 49A – CROWN DEVELOPMENT
DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: **City of Salisbury** _____

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

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.

❒ Complying	Decision: _____
❒ Merit	Type: _____
❒ Public Notification	Finalised: / /
❒ Referrals	

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

EXISTING USE: Vacant/ undeveloped land within Bolivar Waste Water Treatment Plant.

DESCRIPTION OF PROPOSED DEVELOPMENT: The installation of Solar Photovoltaic arrays and associated infrastructure including battery storage equipment within the south/ south-western portion of the Bolivar WWTP, along with required earthworks for construction.

LOCATION OF PROPOSED DEVELOPMENT:___**Proposal spans multiple allotments - see attached plans/ report**_____

House No: ___21_____ Lot No: _21___ Street: _Hodgson Road _____ Town/Suburb: _Bolivar_____

Deposited Plan: _56718_____ Hundred: _Port Adelaide_____ Volume: __6142_____ Folio: _473_____

Section No [full/part] _____ Hundred: _____ Volume: _____ Folio: _____

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]**:** $ 17,383,977

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 24/ 10 / 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: 24/10/2018

Location of Proposed Development: Bolivar WWTP

House No: 21 Lot No: 21 Street: Hodgson Road

Town/Suburb: Bolivar

Section No (full/part): _____ Hundred: Port Adelaide

Volume: 6142 Folio: 473

Nature of Proposed Development:

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

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

Signed:  **Date:** 24/10/2018

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

Bolivar WWTP

Zero Cost Energy Future

Solar Photovoltaic Project

Version: 2
Date: 24/10/2018
Status: Final

Government of South Australia

Document Controls

Version History

Version	Date	Author	Comments
1.0	14/09/2018	Lauren Nicholson	Draft
1.1	18/09/2018	Nick Swain	SA Water Manager, Environment, Land and Heritage comments incorporated.
1.2	08/10/2018	Lauren Nicholson	Revised Design Details
1.3	12/10/2018	Paul Cooledge	Document Approval by SA Water Project Leadership Team
2	24/10/2018	Lauren Nicholson	Submitted to SCAP for Assessment

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 within the boundary of the Bolivar Waste Water Treatment Plant(WWTP) site. This is accompaniend 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 facilitiate their operations.

The proposed installation of Solar PV cells and BESSs at key SA Water operating sites, such as Bolivar Waste Water Treatment Plant (WWTP), 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 grid 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*.

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

2 Project Site

2.1 Site location and details

Background : *Bolivar WWTP*

Bolivar Wastewater Treatment Plant (WWTP) is the largest in South Australia, treating approximately 60% of metropolitan Adelaide's sewage. There are three different treatment plants located onsite, with the wastewater treatment plant treating sewage from the majority of the Adelaide region extending north of the River Torrens. Up to 30% of effluent from this plant is further treated by the DAFF (Dissolved Air Flotation and Filtration) plant and reused by market gardens via the Virginia pipeline and the Mawson Lakes dual reticulation system. Also, sewage from the northwestern suburbs is treated by the High Salinity plant and discharged to the gulf via an open outfall channel near St Kilda as it is too saline for reuse, this is also where excess effluent not processed by the DAFF plant for reuse is discharged. The treatment process produces biogas (methane) which is collected and used to generate electricity, which provides for up to 80% of the plant's annual electricity requirements. The Bolivar site also processes biosolids from its metropolitan WWTP's for reuse in agriculture.

Bolivar WWTP is located approximately 17km north of Adelaide CBD, at Hodgson Road, Bolivar. The plant is situated to the east of Barker Inlet, with existing built form associated with treatment operations mainly clustered towards the southeast of the site area, which is outlined in blue within **Figure 1**, below. In addition to the operational tanks and structures, the predominant land feature distinguishing the Bolivar WWTP from surrounding land uses is formed by the expansive treatment ponds.

Figure 1. Bolivar WWTP and surrounding land uses. Base image source: Location SA Map Viewer, http://location.sa.gov.au/viewer/#

Land to the immediate east of Bolivar WWTP presently supports rural land uses within varied allotment sizes that are bordered to the east by the Northern Connecter roadway (under construction) before continuing, within small to medium alltoments, up until Port Wakefield Road. These rural land uses, along with primary arterial roadways (both existing and under construction) provide for appropriate physical separation from more sensitive land uses located within the residential suburbs of Paralowie and Parafield Gardens.

The most southerly portion of the Bolivar WWTP is largely vacant of development, and does not form part of envisaged upgrades/ future expansion works. This area has been identified as the preferred positioning of the proposed solar PV arrays and associated infrastructure. The development footprint is generally identified within the south-southwestern portion of Bolivar WWTP, outlined within **Figure 2**, below (inset, left, and in greater detail to the right).

Figure 2. Bolivar WWTP. Property boundaries shown in orange (right). Base image source: Location SA Map Viewer, http://location.sa.gov.au/viewer/#

Bolivar WWTP consists of multiple allotments, with the proposed development to be situated across the four (4) allotments listed below;

Certificate of Title Details:

1. Section 3503, Port Wakefield Road, Bolivar
CT: 5922/939
Owner: SA Water Corporation
Plan/Parcel: Hundred Plan 105800, Section 3503

2. Section 3502, Port Wakefield Road, Bolivar
CT: 5922/939
Owner: SA Water Corporation
Plan/Parcel: Hundred Plan 105800, Section 3502

3. Lot 21, Hodgson Road, Bolivar
CT: 6142/473
Owner: SA Water Corporation
Plan/Parcel: Deposited Plan 56718, Lot 21

4. Lot 2, Port Wakefield Road, Bolivar
CT: 5922/939
Owner: SA Water Corporation
Plan/Parcel: Filed Plan 115107, Lot 2

A Certificate of Title has been included as Appendix A .

The proposed development positioning is further illustrated within **Figure 3**, below. See Appendix B – Design Drawings for greater details regarding the installation of the proposed solar PV arrays.

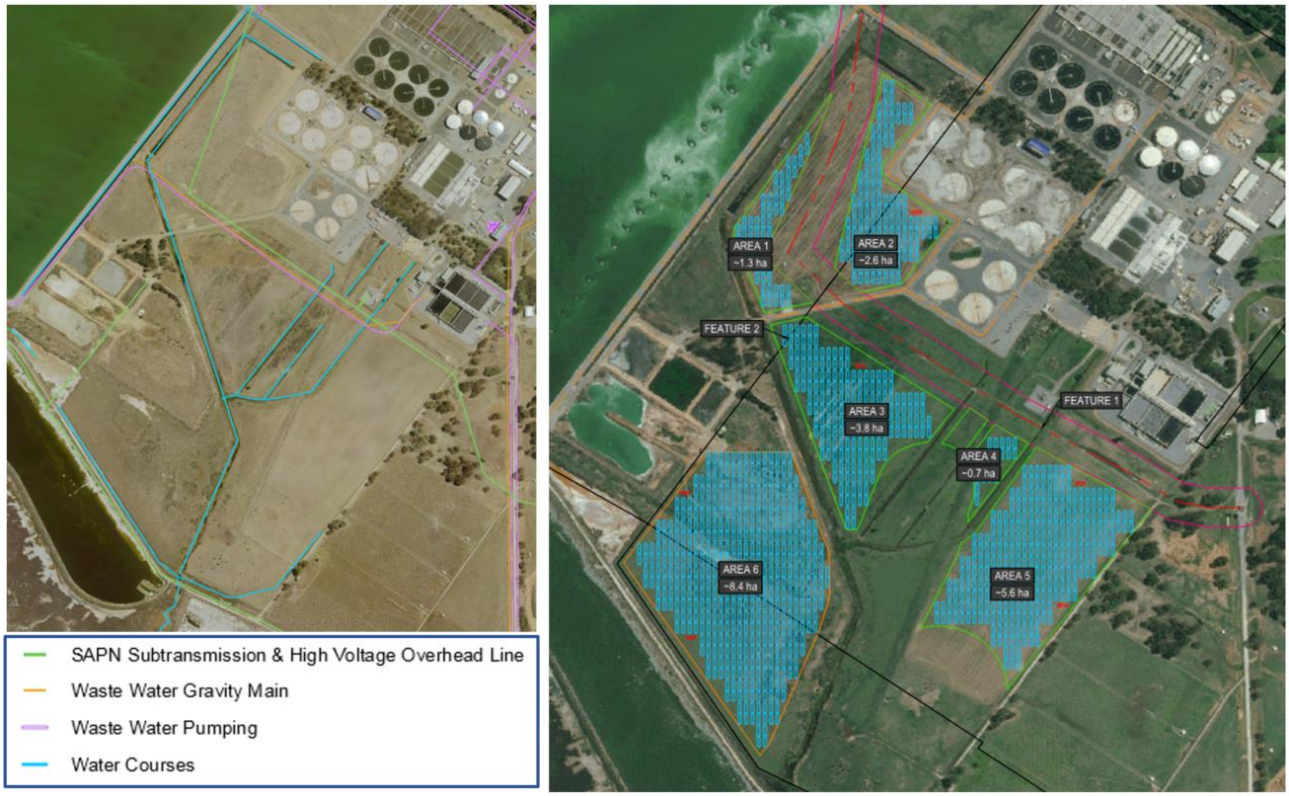

Figure 3. Bolivar WWTP- existing infrastructure (left) and proposed solar installation areas (right). Base image source: Location SA Map Viewer, http://location.sa.gov.au/viewer/#

As depicted within **Figure 3**, the proposed development will be installed across available cleared space within the subject land and positioned so as to avoid impact upon existing infrastructure, easments and other site elements listed below:

- Existing plant/ equipment/ ponds/ operational elements
- Internal access tracks
- Areas of greatest biodiversity/ heritage value
- Stormwater catchments and drainage channels
- Electrical easments
- Sewage/ waste water pipelines

The area identified within Bolivar WWTP that is proposed for the installation of solar panels is comprised of cleared farmland which is currently utilised for agricultural purposes under a leasing agreement with a local farmer. The paddocks which house areas 1, 2 and 5 have been ploughed and cropped on a regular basis, while the remaining paddocks in between are currently used for the grazing of sheep, but have been flood irrigated with recycled wastewater in the past and still have some of this irrigation infrastructure in place. A stormwater drain along the margin of these paddocks transports stormwater from this and adjacent areas at Bolivar WWTP to the Barker Inlet-St Kilda Aquatic Reserve, flowing into the Swan Creek catchment through samphire and mangrove habitats. Native vegetation is limited to that occurring within the drainage channels, as well as patches of coastal ground cover regrowth within the southern portion of Area 6 which will be assessed by a native vegetation consultant to determine whether an application for clearing is required. Site photos are provided below (Figures 4 and 5) for further information.

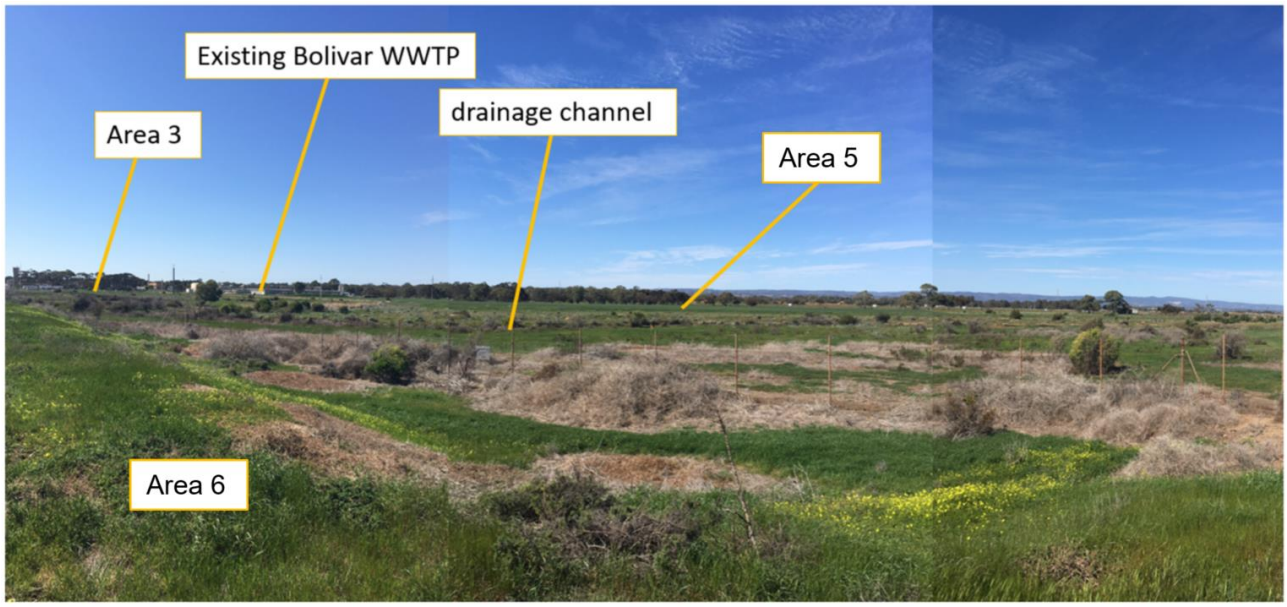

Figure 4. View from within Area 6 of proposal, looking east across Bolivar WWTP land. NOTE: the above is a composite image combining multiple photos and some distortion may have occurred.

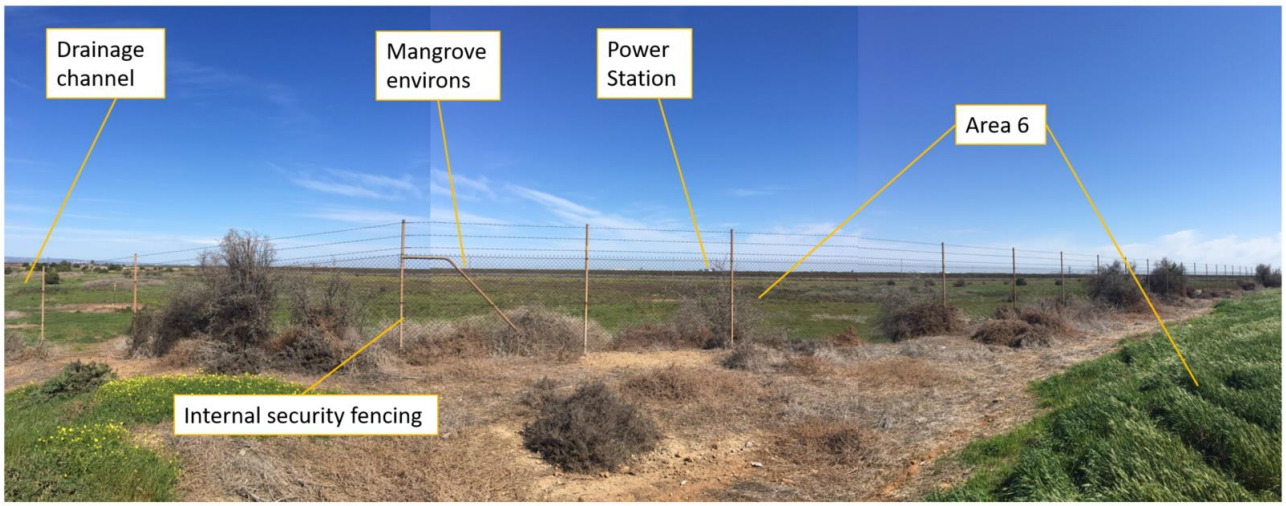

Figure 5. View from within northern half of Area 6, looking west-southwest towards Barker Inlet. NOTE: the above is a composite image combining multiple photos and some distortion may have occurred.

2.2 Land Use Zoning

Bolivar WWTP is positioned within the Industry Zone (Infrastructure Policy Area 9), in accordance with the Salisbury Council Development Plan (consolidated 15 December 2016). Neighbouring land adjoining the western perimeter of Bolivar WWTP is zoned Mineral Extraction. Further west of this lies the Coastal Conservation and Metropolitan Open Space System (MOSS) Zones, which encompass the mangrove and broader estuarine environs of the Barker Inlet and eastern portion of Torrens Island. To the south-southeast, Bolivar WWTP is bordered by the Open Space Zone and Primary Production Zone, as shown below in Figure 6.

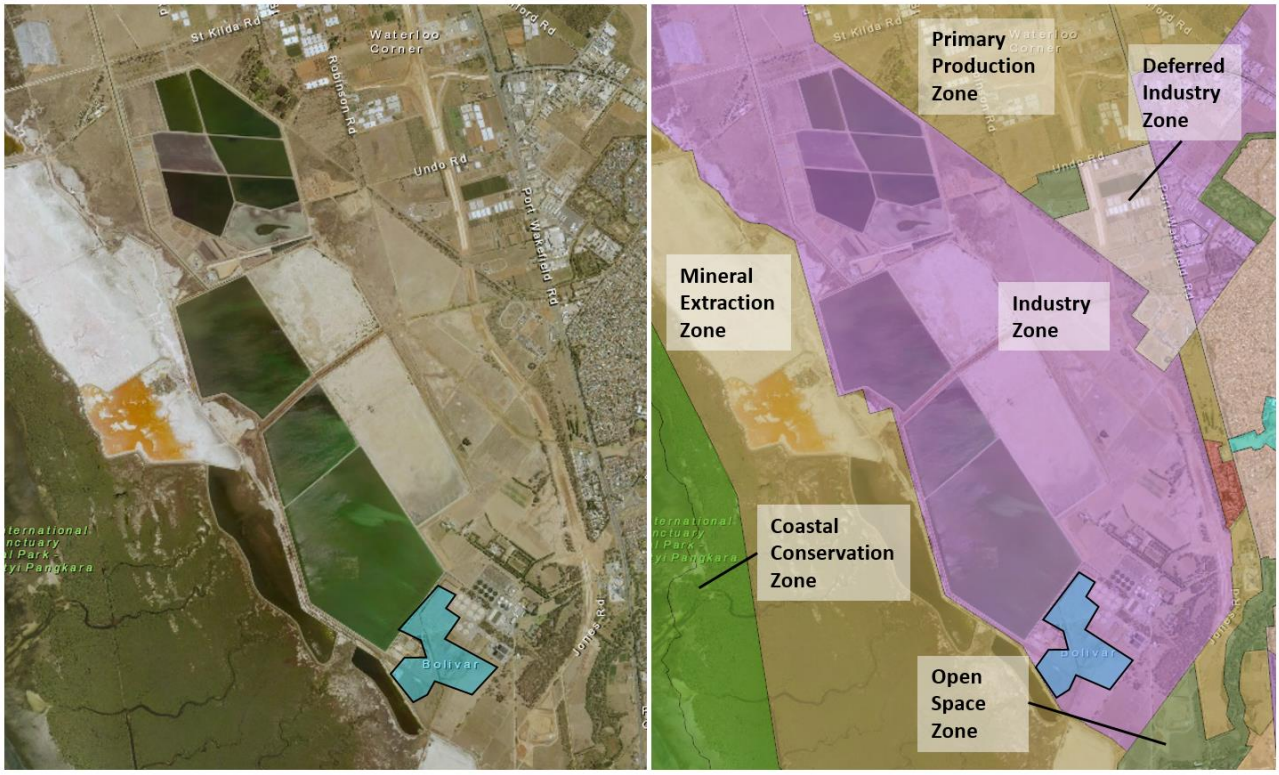

Figure 6. Zoning in relation to proposed Solar PV Site (perimeter outline shown for clarity- indicative only). Base image source: Location SA Map Viewer, http://location.sa.gov.au/viewer/#

3 Proposed Development

3.1 Description of Proposal

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

- Approximately 34,860 indivual solar PV cells, each measuring approximately 1900mm long x 992mm wide and 50mm thick (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 7);
- Approximately six (6) Power Conversion Stations (PCSs), installed within shipping containers (or similar) for weather proofing;
- Battery Energy Storage Systems (BESS) equipment (model speficifications/ dimensions and positioning 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 detail designs.

In total, the proposal requires approximately 22.4 hectares of land for the installation of solar PV arrays and associated infrastructure at Bolivar WWTP.

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 (to be confimed 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 the Bolivar WWTP. An approximate setback distance of 10 metres from allotment perimeters has been included within the attached site plans. Appropriate setbacks of approximately 30m have also been provded 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.

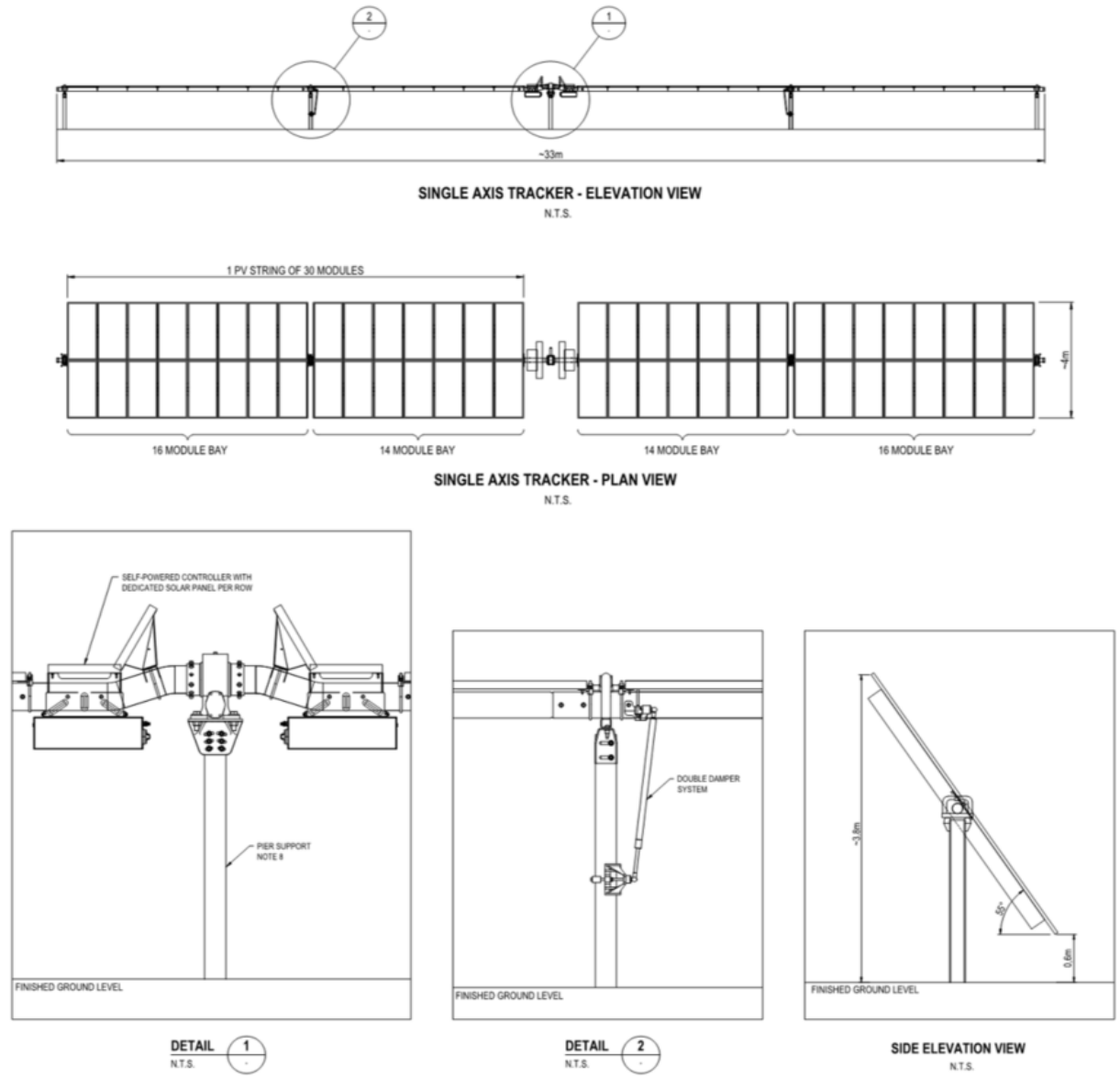

Figure 7 . Typical Ground-mounted, Single Access Tracking (SAT) Solar Panel Layout

Figure 8. Typical Ground-mounted Solar Panel Layout

Figure 9. Typical Ground-mounted Solar Panel Layout

3.2 Environmental management

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

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

3.3 Site works and Construction

The expected site works will include:

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

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

3.4 **Stakeholder engagement**

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

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

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

In the case of Bolivar WWTP, the level of disturbance is expected to be minimal given the significant separation of the subject land from the nearest residential areas.

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

Members of SA Waters Environmental and Heritage Services team, along with an Aurecon representative, met with City of Salisbury Development Services staff on 29th August 2018 to discuss the proposed development at Bolivar WWTP, as well as the role this site plays within the broader *Zero Cost Energy Future* project. Through these discussions, City of Salisbury staff expressed their support for the proposal and no particular items of concern were raised. Continued correspondence between Aurecon (on behalf of SA Water) will be maintained throughout the development process to ensure City of Salisbury are made aware of any important milestones, and so that we can more readily address any items raised by Council staff.

4 Planning Assessment

The site of the proposed development is located within the City of Salisbury council area, accordingly the Salisbury Council Development Plan (consolidated 30 May 2017) is the relevant Development Plan. As delineated within the Development Plan, the proposal lies wholly within the Industry Zone and Policy Area 9 Infrastructure.

Within the table below, the objectives and principles of development control considered to be relevant to the assessment of the proposed development are listed. 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 2. Relevant Development Plan Provisions

Council Wide		
Design and Appearance	Objectives	1, 2
	Principles of Development Control	1, 7, 11
Energy Efficiency	Objectives	2,
	Principles of Development Control	3, 4
Hazards	Objectives	1, 4
	Principles of Development Control	1, 2, 3, 4, 6
Infrastructure	Objectives	1, 3, 4, 5
	Principles of Development Control	10
Interface between Land Uses	Objectives	1
	Principles of Development Control	1, 2
Orderly and Sustainable Development	Objectives	2, 3, 4
	Principles of Development Control	1, 6, 8
Renewable Energy Facilities	Objectives	1, 2
	Principles of Development Control	1
Siting and Visibility	Objectives	1
	Principles of Development Control	1, 2, 4, 6
Transportation and Access	Objectives	2
	Principles of Development Control	1, 2, 22, 29

Zone Specific		
Industry Zone	Objectives	1
	Principles of Development Control	1
Infrastructure Policy Area 9	Objectives	1, 2, 3, 4
	Principles of Development Control	1, 2

4.1 Design and Appearance

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 facilites and power conversion shelters) to ensure that a high visual standard of development is achieved.

The expected visual profile of the proposed development is consistent with existing industrial built form within the Bolivar WWTP.

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

OBJECTIVES

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

2 *Roads, open spaces, buildings and land uses laid out and linked so that they are easy to understand and navigate.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *The design of a building may be of a contemporary nature and exhibit an innovative style provided the overall form is sympathetic to the scale of development in the locality and with the context of its setting with regard to shape, size, materials and colour.*

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

11 *Buildings, landscaping, paving and signage should have a co-ordinated appearance that maintains and enhances the visual attractiveness of the locality.*

4.2 Energy Efficiency

The proposed development will directly contribute towards significant advancements in the energy efficiency of Bolivar WWTP, as well as the wider SA Water infrastructure network, through the onsite generation of solar power.

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

OBJECTIVES

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

PRINCIPLES OF DEVELOPMENT CONTROL

3 *Development should facilitate the efficient use of photovoltaic cells and solar hot water systems by:*

(a) taking into account overshadowing from neighbouring buildings

(b) designing roof orientation and pitches to maximise exposure to direct sunlight.

4 *Public infrastructure and lighting, should be designed to generate and use renewable energy.*

4.3 Hazards

While the proposed development is not located within an area identied as susceptible to flooding within the applicable Overlay Maps- Development Constraints of the Salisbury Council Development Plan, it is positioned within an area which is relatively low-lying. This portion of land has previously been significantly altered by past industrial activities, including through extensive levelling and groundworks. These activities have been undertaken in part to ensure appropriate stormwater catchments and drainage systems are in place, allowing for the free movement of stormwater into surrounding waterways and thereby reducing the risk of inundation from floodwaters throughout the development footprint. Additionally, the solar panel arrays are positioned upon raised frameworks which further protect this infrastructure from potential damage in the event of flooding.

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.*

4 *Development located and designed to minimise the risks to safety and property from flooding.*

PRINCIPLES OF DEVELOPMENT CONTROL

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

2 *Development located on land subject to hazards as shown on the Overlay Maps - Development Constraints should not occur unless it is sited, designed and undertaken with appropriate precautions being taken against the relevant hazards.*

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

4 *Development should not occur on land where the risk of flooding is likely to be harmful to safety or damage property.*

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

(a) impede the flow of floodwaters through the land or other surrounding land

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

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

(d) cause any adverse effect on the floodway function

(e) increase the risk of flooding of other land

(f) obstruct a watercourse.

4.4 Infrastructure

The proposed development has been appropriately sited and designed to ensure that existing infrastructure is utilised wherever possible. This includes the use of existing access arrangements and internal movement systems as well as the existing electrical sub-station within Bolivar WWTP. The proposed solar PV array positioning ensures adequate separation

from existing utility easments to avoid the potential for impact upon these, as well as allowing for the continued use of this land as a WWTP plant.

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.*

3 *Suitable land for infrastructure identified and set aside in advance of need.*

4 *The visual impact of infrastructure facilities minimised.*

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

PRINCIPLES OF DEVELOPMENT CONTROL

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.*

4.5 Interface between land uses

The proposed development has been situated within land currently used for waste water treatment within the Industry Zone to minimise the potential for interface concerns. The chosen location is well separated from sensitive land uses and utilises existing vegetation within neighbouring allotments to further mitigate against visual impact concerns beyond the subject land.

The potential for adverse impacts 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 are largely limited to that associated with the construction period.

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

OBJECTIVES

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

4.6 Orderly and Sustainable Development

The proposal is consistent with the provisions of the Industry Zone and will not impact upon the continued operations within the WWTP, 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 – Infrastructue 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).

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

OBJECTIVES

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.*

6 *Development should be located and staged to achieve the economical provision of public services and infrastructure, and to maximise the use of existing services and infrastructure.*

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 zone (Industry), where the ongoing use of this land as a wastewater treatment facility is directly supported by the proposal. The proposed siting and design (further confirmation available within forthcoming Detail Designs) will ensure that the generating capacity of the solar PV arrays is maximised by securing a north-facing site with minimal shading/ over-shadowing from existing built form and mature trees. Furthermore, 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 *The development of renewable energy facilities, such as wind and biomass energy facilities, in appropriate locations.*

2 *Location, siting, design and operation of renewable energy facilities to avoid or minimise adverse impacts and maximise positive impacts on the environment, the local community and the State.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *Renewable energy facilities, including wind farms and ancillary developments, should be located in areas that maximise efficient generation and supply of electricity.*

4.8 Siting and Visibility

The proposed development is well separated from surrounding sensitive land uses, is appropriately located within proximity to existing industrial uses (waste water treatment plant) and utilises existing vegetation within the broader to locality to minimise the potential for visual impact. Views towards the proposed development from areas of recreation/ scenic value are restricted due to the positioning of existing public roads and open spaces, such as the Little Para Linear Park. Similarly, the presence of dense mangrove forests along the Barker Inlet/ St Kilda coastline to the southwest of the Bolivar WWTP will ensure that present views from the coast environs will be maintained.

As such, the proposal is considered to be broadly consistent with the below provisions:

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 and coastal areas

(c) views from the coast, near-shore waters, public reserves, tourist routes and walking trails

(d) the amenity of public beaches

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

(a) be grouped together

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

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

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

4.9 Transportation and Access

The existing access arrangement of the Bolivar WWTP will be utilised throughout the construction of the solar PV arrays and associated infrastructure. Ongoing access throughout the life of the solar infrastructure will be limited to any required maintenance/ replacement or cleaning of the panels and other equipment and is expected to be of relatively low frequency.

Some minor upgrades to existing internal gateways and access tracks within the Bolivar WWTP may be required to allow for the safe access and movement through the site of larger vehicles associated with construction. This information 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

1 *Land uses arranged to support the efficient provision of sustainable transport networks and encourage their use.*

2 *Development should be integrated with existing transport networks, particularly major rail and road corridors as shown on Location Maps and Overlay Maps - Transport, and designed to minimise its potential impact on the functional performance of the transport networks.*

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

29 *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.

4.10 **Industry Zone**

The Industry Zone envisages a wide range of industrial land uses, including warehouse, storage and transport, as well as the provision of public services as further delineated within Infrastructure Policy Area 9.

While solar PV installations are not specifically listed as an envisaged use for the zone or policy area, the proposed development is directly supportive of the continued use of this land as a waste water treatment plant. The proposal has been carefully sited and designed to ensure that it minimises impact upon existing and future planned operations within Bolivar WWTP, and has also been designed to ensure maximum energy generating capacity is achieved, thereby solidyfing it's important functionality to the plant. Once operational, the solar PV infrastructure will deliver significant and immediate benefit to the Bolivar WWTP by reducing operational costs and allowing for greater security in the provision of ongoing reliable power.

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

OBJECTIVES

1 *A zone primarily accommodating a wide range of industrial, warehouse, storage and transport land uses.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *The following forms of development are envisaged in the zone:*

- *industry*
- *office in association with and ancillary to industry*

- *transport distribution*
- *warehouse.*

Infrastructure Policy Area 9

OBJECTIVES

1 *Primarily, a policy area for the provision of infrastructure.*

2 *Infrastructure facilities and land required for infrastructure facilities preserved from the encroachment of incompatible land uses.*

3 *A policy area accommodating land used for storage and operations associated with the provision of public services by a government authority, and major railway lines linking Adelaide with northern country and interstate centres.*

4 *Development that contributes to the desired character of the policy area.*

PRINCIPLES OF DEVELOPMENT CONTROL

1 *The following forms of development are envisaged in the policy area:*

- *drainage system, including stormwater retention basin*
- *electricity substation*
- *public service depot*
- *railway infrastructure and associated industry*
- *waste transfer depot.*

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

5 Environmental Considerations

SA Water is committed to ensuring the Bolivar WWTP Solar 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 Solar installation 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 existing infrastructure.

SA Water will ensure that the successful contractor will appropriately manage stormwater during the construction phase in accordance with the preliminary PEMP. A Soil Erosion and Drainage Management Plan will be developed by the Construction Contractor to ensure spoil is managed appropriately in accordance with the *Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government*. The successful contractor will also be required to identify the potential of the proposed development to result in increased stormwater runoff and asses the adequacy of existing stormwater management systems. Suitable mitigation measures will be incorporated within the final designs, pending the outcomes of this analysis.

5.2 Noise and Air Quality

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

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

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

5.3 Biodiversity

The area proposed for the siting of the solar arrays and associated infrastructure predominantly comprises previously disturbed land which has been largely cleared as part of past operations and site works, as well as more recently as part of cropping activities and grazing in the case of those areas leased for farming purposes. Very little native vegetation has been identified within the intended development footprint, limited to the southwestern portion of 'Area 6' (see Figure 3) and that occurring within the drainage channels. 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 Bolivar Wastewater Treatment Plant is on the '*Country*' of the Kaurna People. 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.

There are several Aboriginal Heritage Sites and Objects recorded on the Aboriginal Affair Register for the SA Water owned land parcels at Bolivar. Because of this, SA Water has regularly engaged with the Kaurna People and, most recently, has developed a Cultural Landscape Management Plan (CLMP) to guide the care and management of Kaurna heritage at Bolivar. This CLMP classifies the WWTP landscape in terms of its known heritage sites (which were re-surveyed in 2018), as well as the predicted archaeological potential of the remainder of the site, which provides a framework for managing the potential heritage impacts of future ground disturbing activities at the WWTP, such as those proposed by this project.

SA Water is aware that there are three known sites to the south-southeast of the proposed solar array layout and has allowed for a buffer zone around the sites to protect them from impacts of solar panel array installation. In addition, when the works will be conducted high visibility barrier fencing will be placed on the boundary of these buffer zones facing the works area to protect the sites from any incursions of work vehicles, personnel or activities, and Kaurna cultural heritage officers will be engaged to install, remove and monitor the protective fencing and to monitor any earthworks to identify any potential heritage discoveries during the works, as the recorded sites that have been identified may extend beyond the recorded boundaries below the current land surface. The CLMP also provides a detailed heritage discovery management procedure that will be followed in the event of any discovery of sub-surface heritage.

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

Additionally, a search of relevant post-European settlement heritage databases has revealed no State or local heritage items are located in the project area.

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 understands 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 Detail Designs.

6 Conclusion

The proposed installation of Solar PV arrays at key SA Water operating sites, such as the Bolivar WWTP, will immediately reduce the operating energy costs for the site and reduce SA Water's exposure to increases in electricity costs.

The proposed development sits within a long established public infrastructure land use which is well separated from sensitive land uses and is considered to be broadly consistent with the relevant provisions of the local development control document; the Salisbury Council Development Plan.

The proposal will not conflict with the ongoing operations at Bolivar WWTP, 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 warrant planning consent with appropriate conditions that address the short term impacts.

Appendix A Certificate of Title

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1886

VOLUME 6142 FOLIO 473

Edition 1
Date Of Issue 07/08/2014
Authority TG 12100805

South Australia

I certify that the registered proprietor is the proprietor of an estate in fee simple (or such other estate or interest as is set forth) in the land within described subject to such encumbrances, liens or other interests set forth in the schedule of endorsements.

REGISTRAR-GENERAL

WARNING. BEFORE DEALING WITH THIS LAND, SEARCH THE CURRENT CERTIFICATE

REGISTERED PROPRIETOR IN FEE SIMPLE

SOUTH AUSTRALIAN WATER CORPORATION OF ADELAIDE SA 5000

DESCRIPTION OF LAND

ALLOTMENT 21 DEPOSITED PLAN 56718
IN THE AREA NAMED BOLIVAR
HUNDRED OF PORT ADELAIDE

EASEMENTS

SUBJECT TO THE EASEMENT OVER THE LAND MARKED D ON FP 58199 TO DISTRIBUTION LESSOR CORPORATION (SUBJECT TO LEASE 8890000) (RTC 9124120)

SUBJECT TO A FREE AND UNRESTRICTED RIGHT OF WAY OVER THE LAND MARKED E ON FP 58199 (RTC 9124120)

SUBJECT TO A FREE AND UNRESTRICTED RIGHT OF WAY OVER THE LAND MARKED J ON FP 58199 (TG 12100805)

SCHEDULE OF ENDORSEMENTS

NIL

End of Text.

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1886

VOLUME 5922 FOLIO 939

Edition 1
Date Of Issue 23/08/2004
Authority TG 9787781

South Australia

I certify that the registered proprietor is the proprietor of an estate in fee simple (or such other estate or interest as is set forth) in the land within described subject to such encumbrances, liens or other interests set forth in the schedule of endorsements.

REGISTRAR-GENERAL

REGISTRAR-GENERAL SOUTH AUSTRALIA

WARNING: BEFORE DEALING WITH THIS LAND, SEARCH THE CURRENT CERTIFICATE

REGISTERED PROPRIETOR IN FEE SIMPLE

SOUTH AUSTRALIAN WATER CORPORATION OF ADELAIDE SA 5000

DESCRIPTION OF LAND

(14) (15)
SECTIONS 185 AND 186
HUNDRED OF PORT ADELAIDE
IN THE AREA NAMED ST KILDA

(9) (11) (12)
SECTIONS 3234. 3502 AND 3503
HUNDRED OF PORT ADELAIDE
IN THE AREA NAMED BOLIVAR

(16) (3) (4) (5) (6)
SECTIONS 5000. 5001. 5007. 5008 AND 5009
HUNDRED OF PORT ADELAIDE
IN THE AREA NAMED ST KILDA

(7)
SECTION 5010
HUNDRED OF PORT ADELAIDE
IN THE AREA NAMED ST.KILDA

(8) (13) (2) (10)
SECTIONS 5017. 5018. 5019 AND 7598
HUNDRED OF PORT ADELAIDE
IN THE AREA NAMED ST KILDA

(1)
ALLOTMENT 2 FILED PLAN 115107
IN THE AREA NAMED BOLIVAR
HUNDRED OF PORT ADELAIDE

EASEMENTS

SUBJECT TO THE EASEMENT OVER THE LAND MARKED D.E AND F TO DISTRIBUTION LESSOR CORPORATION (SUBJECT TO LEASE 8890000) (TG 9121704)

SUBJECT TO THE EASEMENT OVER THE LAND MARKED B TO THE ETSA CORPORATION (VM 7787017)

Cont.

Edition 1
Date Of Issue 23/08/2004
Authority TG 9787781

EASEMENTS

SUBJECT TO THE EASEMENT OVER THE LAND MARKED A TO TRANSMISSION LESSOR CORPORATION OF 1 UNDIVIDED 2ND PART (SUBJECT TO LEASE 9061500) AND ELECTRANET PTY. LTD. OF 1 UNDIVIDED 2ND PART (T 1772496)

SUBJECT TO THE EASEMENT OVER THE LAND MARKED C TO DISTRIBUTION LESSOR CORPORATION (SUBJECT TO LEASE 8890000) (TG 7986788)

SUBJECT TO EASEMENTS OVER THE LAND MARKED Q AND R (TG 9648734 AND TG 9787781 RESPECTIVELY)

SCHEDULE OF ENDORSEMENTS

NIL

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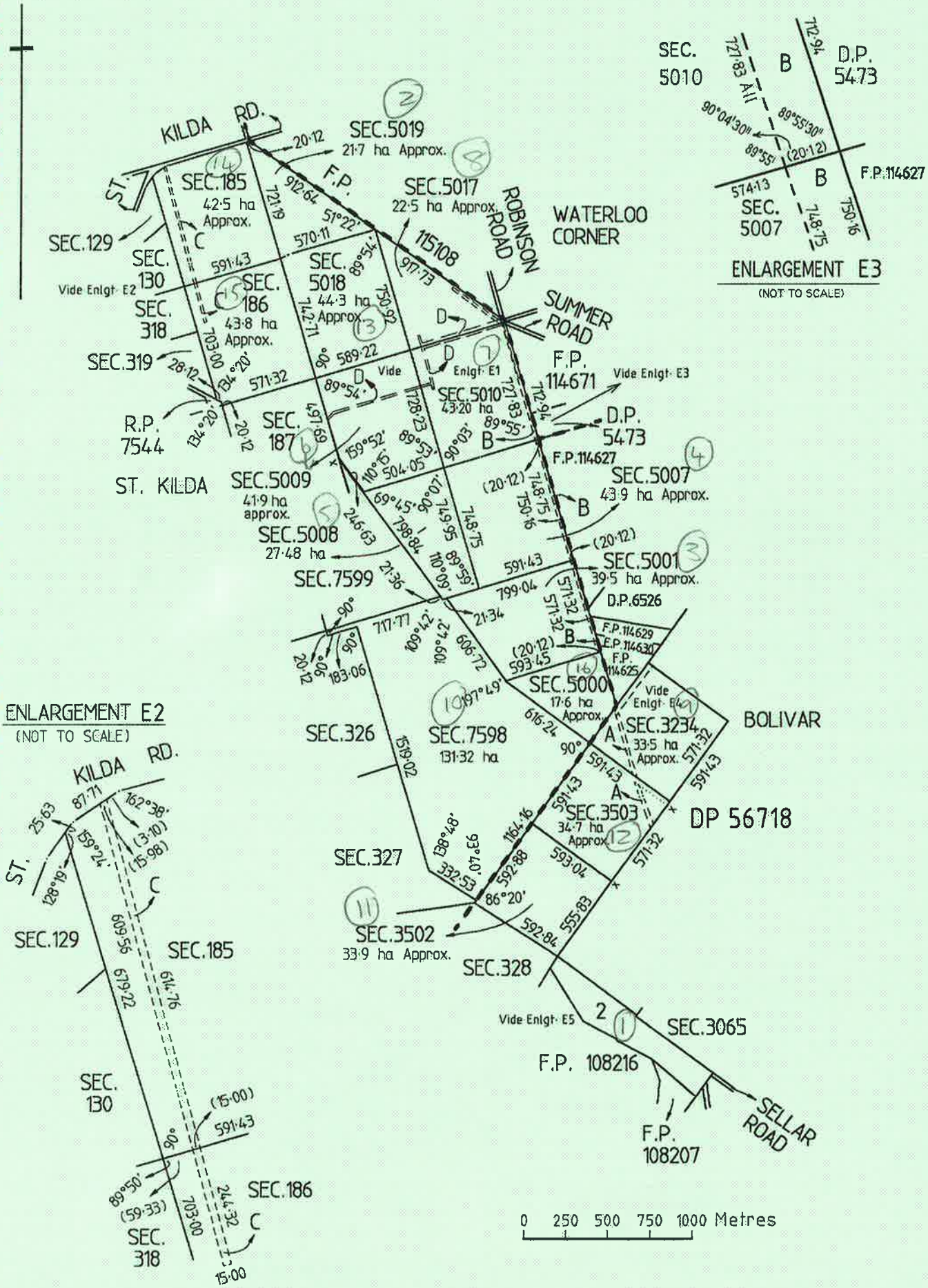
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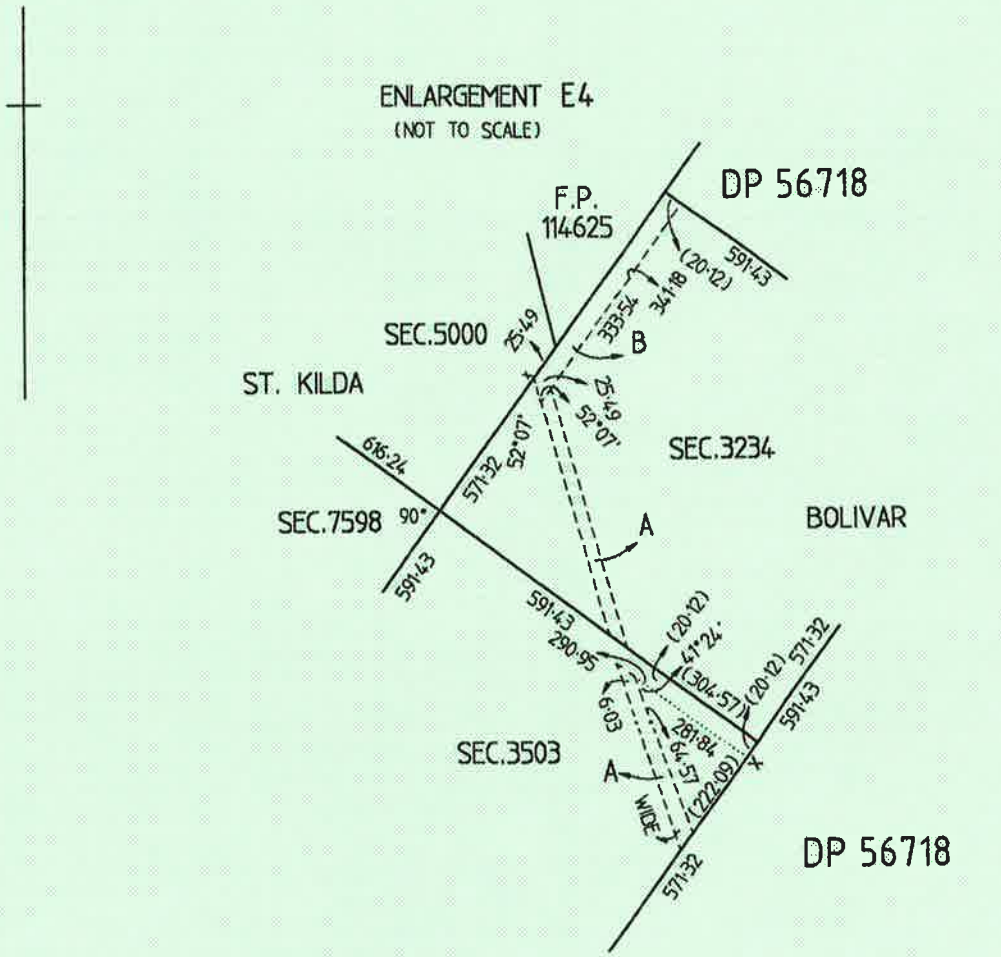
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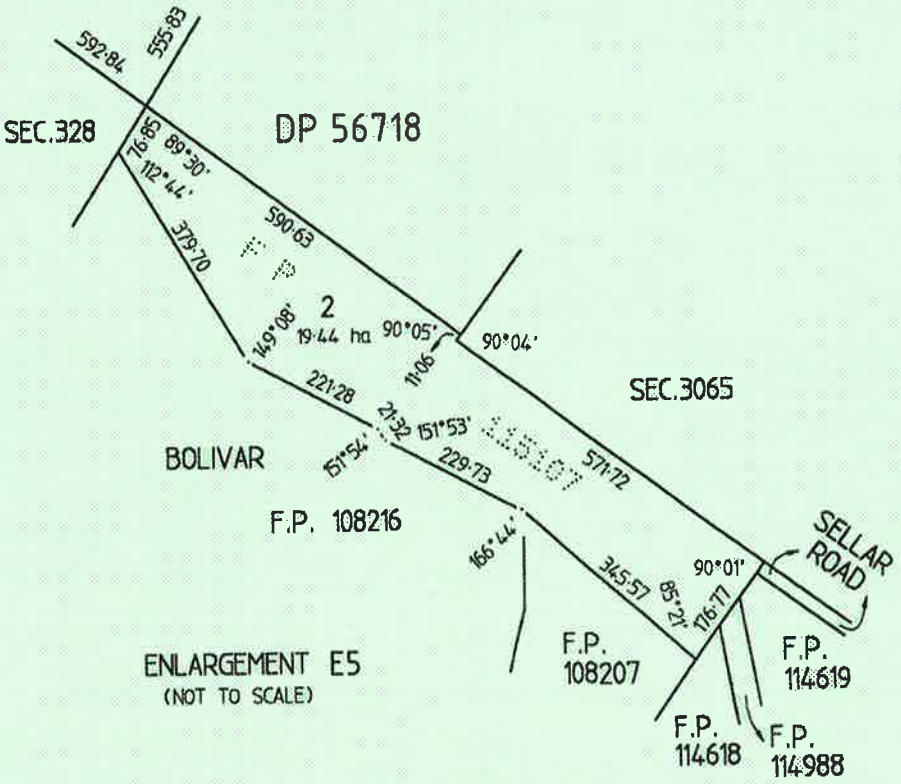
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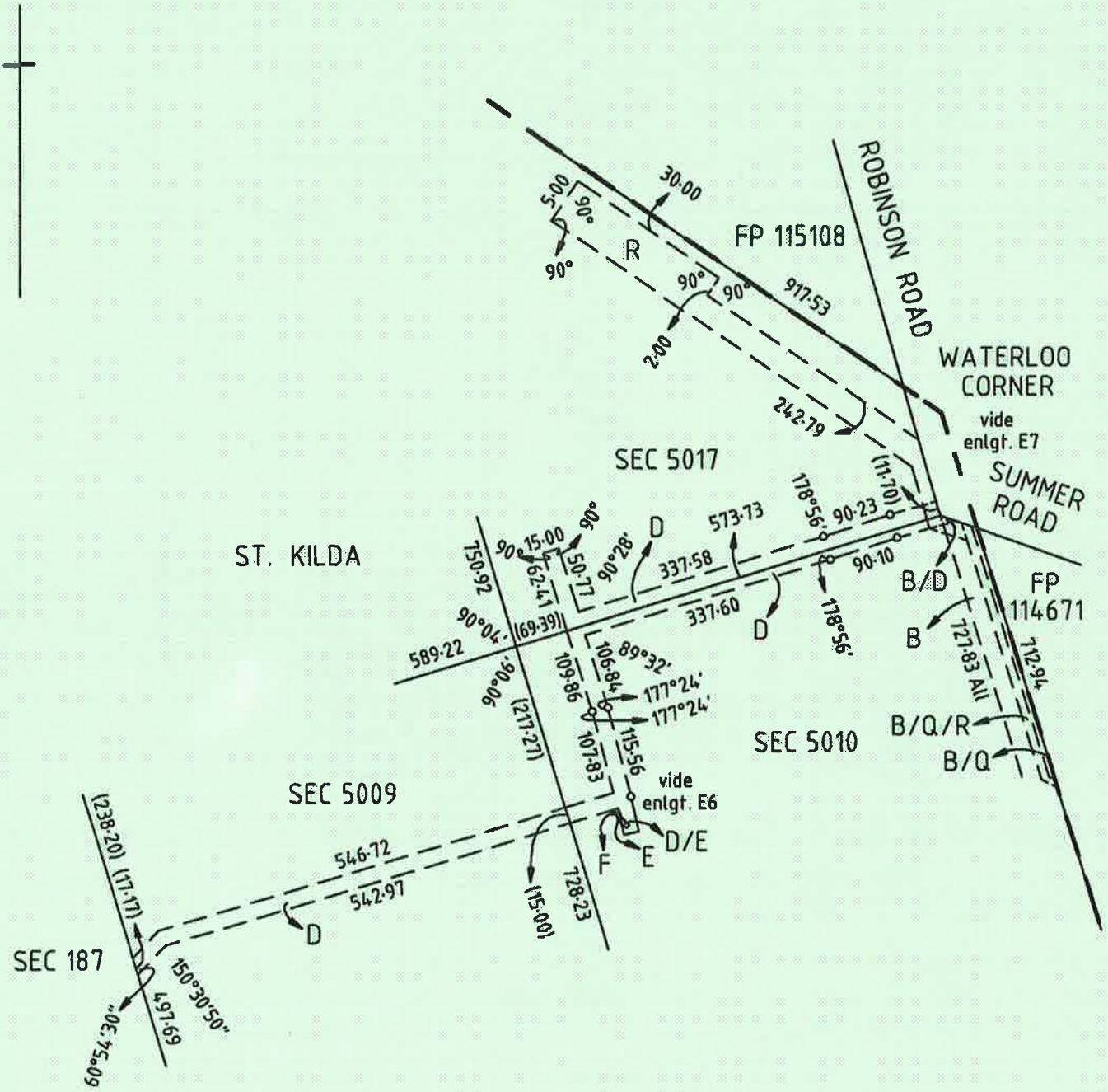

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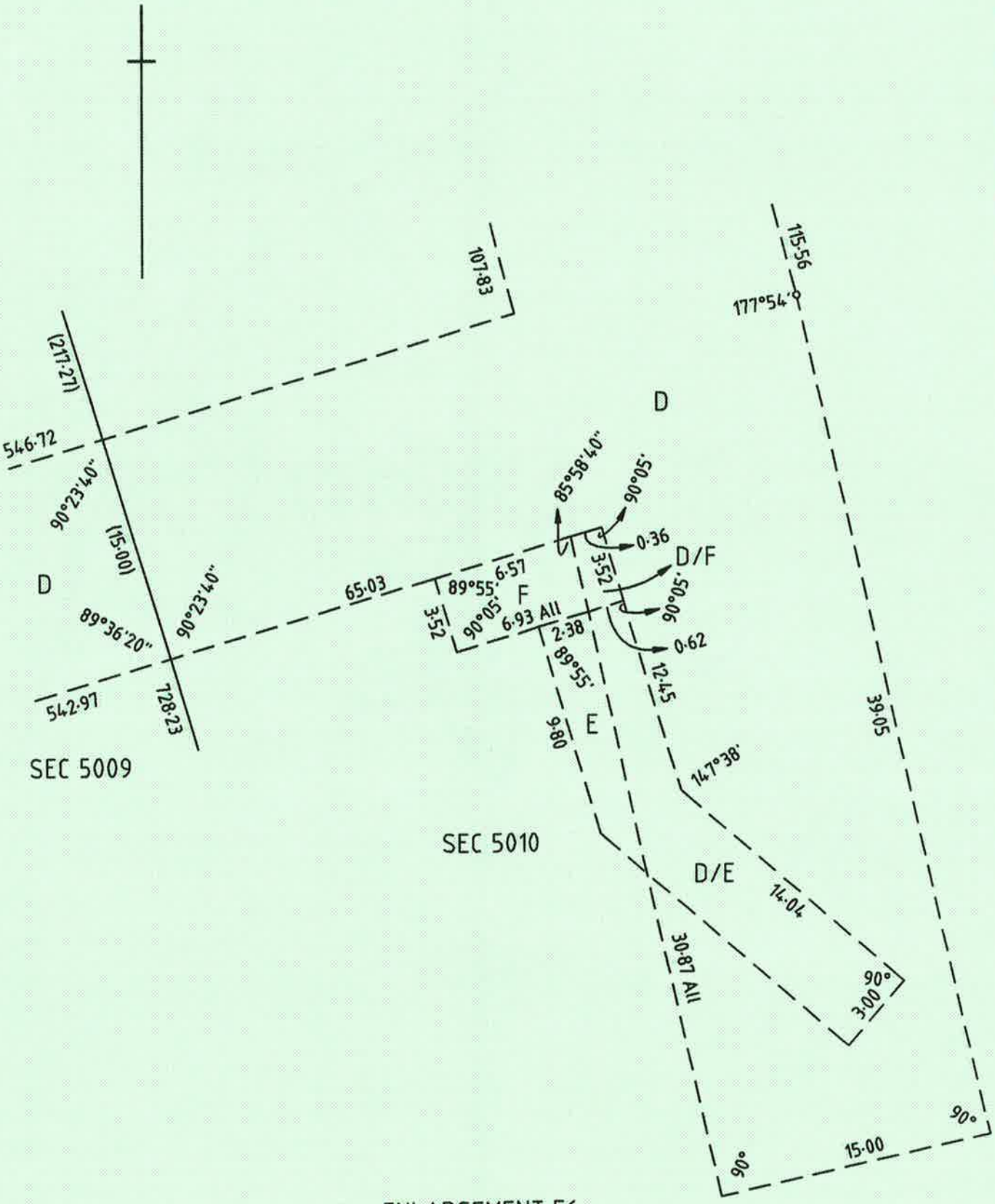

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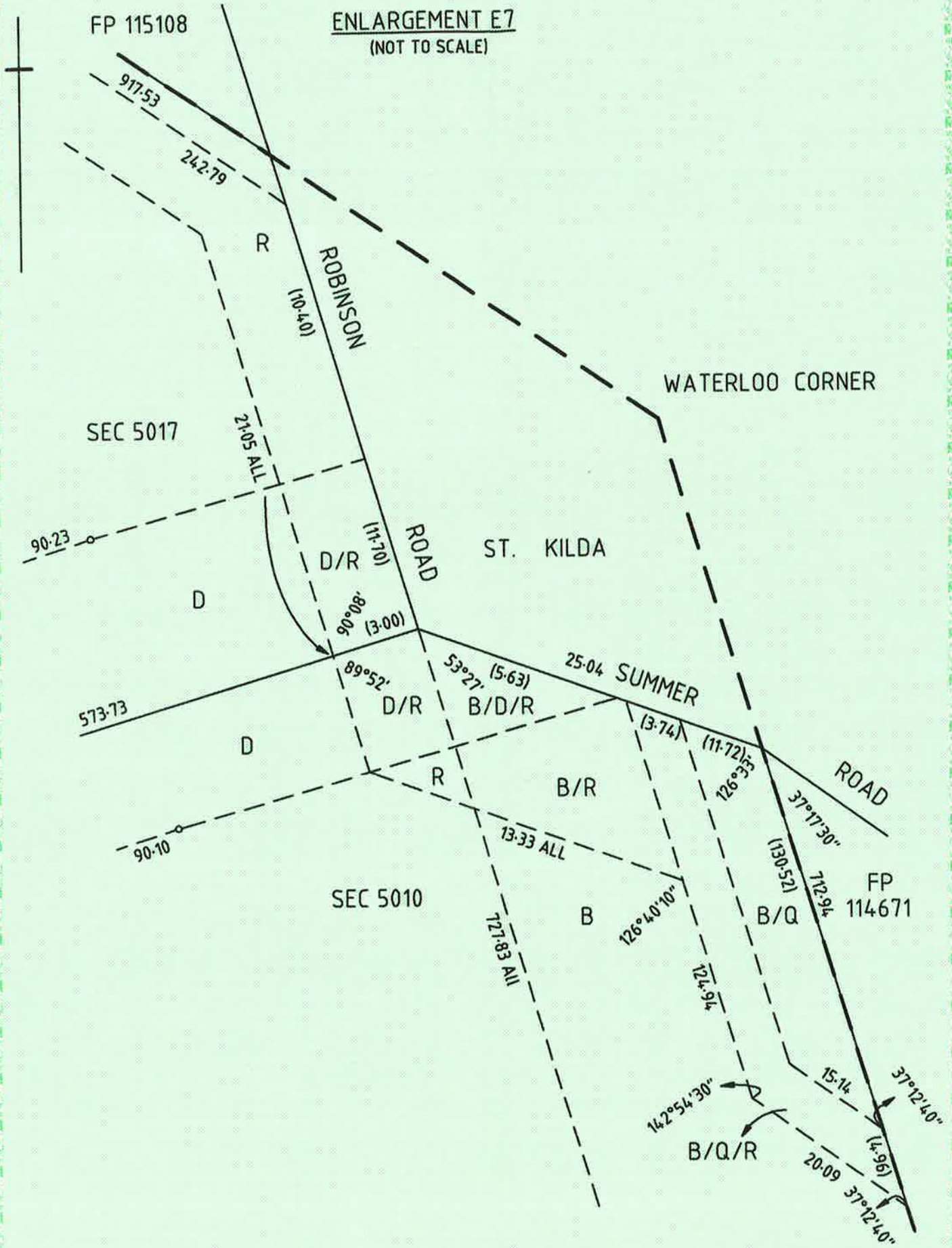
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FP 115108
917·53
242·79
R
ROBINSON
(10·40)
WATERLOO CORNER
SEC 5017
21·05 ALL
90·23
D/R
(11·70)
ROAD
ST. KILDA
D
90°08'
(3·00)
89°52'
53°27'
(5·63)
25·04 SUMMER
573·73
D/R
B/D/R
(3·74)
(11·72)
126°33'
ROAD
D
R
B/R
37°17'30"
90·10
13·33 ALL
(130·52)
712·94
FP
114671
SEC 5010
B
126°40'10"
B/Q
727·83 All
124·94
15·14
37°12'40"
142°54'30"
(4·96)
B/Q/R
20·09
37°12'40"

408

25990

Bolivar

WWTP

Reserve

Appendix B Design Drawings

LEGEND

- PROPERTY BOUNDARIES
- EXISTING ROADS OR PIPELINE
- DEVELOPMENT AREA INCLUDING 10m SETBACK
- ADDITIONAL DEVELOPMENT AREA
- OVERHEAD LINE
- OVERHEAD LINE 30m SETBACK
- TRACKING SOLAR PV TABLE WITH PV MODULES
- POWER CONVERSION STATION (PCS)

NOTES

1. FEATURE 1: OVERHEAD LINE RUNNING ACROSS DEVELOPMENT AREA OF INTEREST.
2. FEATURE 2: DEVELOPMENT AREAS ADAPTED FROM CLIENT'S PROVIDED AREAS WHICH INCLUDES ADDITIONAL LAND CROSSING OVER THE APPARENT PROPERTY BOUNDARY.

INDICATIVE LAYOUT DIMENSIONS

SCALE: NTS

aurecon
www.aurecongroup.com

REVISION PANEL				
REV	DATE	DRN	DETAILS	APR'D
A	2018.10.05	AF	DRAFT SINGLE-AXIS TRACKING LAYOUT	

CURRENT REVISION CONTRACTOR:

CURRENT REV AUTHORISED

SIGNATURE

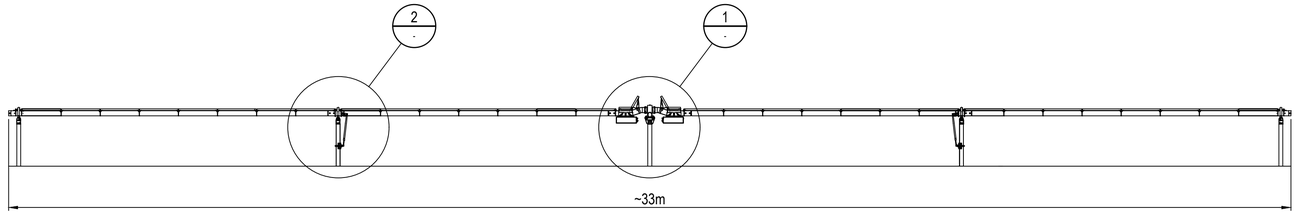
DESIGN PANEL	
DESIGNED	AUTHORISED
A.FIRFIREY	
DRAWN	SIGNATURE
A.FIRFIREY	
REVIEWED	

CONTRACTOR:

Government of South Australia

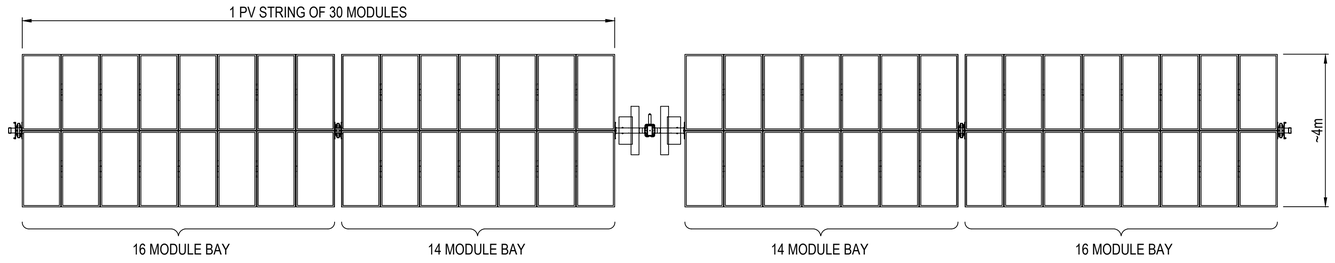
SA Water

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



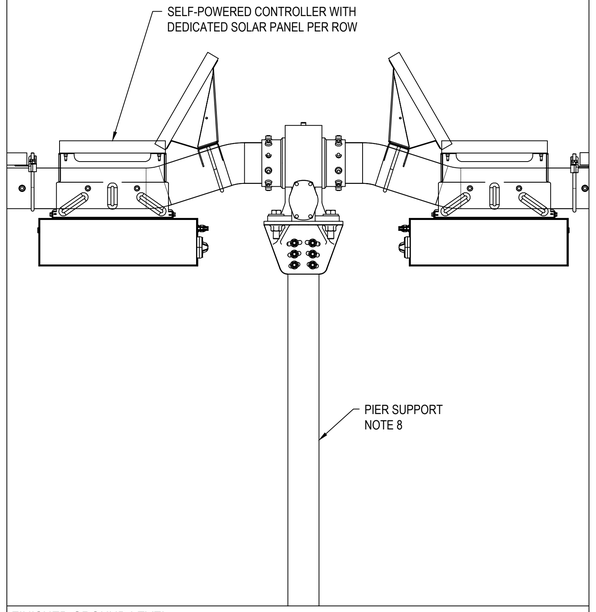
SINGLE AXIS TRACKER - ELEVATION VIEW

N.T.S.



SINGLE AXIS TRACKER - PLAN VIEW

N.T.S.



DETAIL 1

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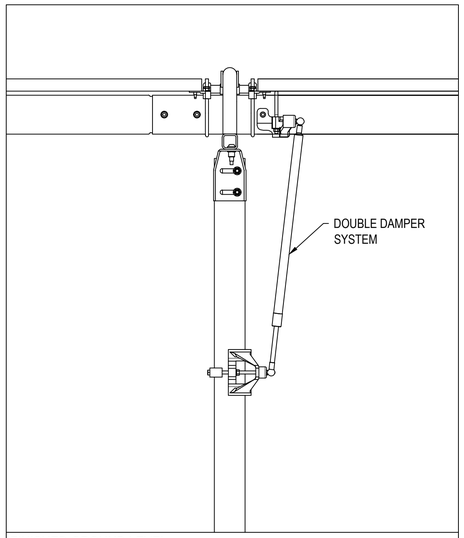

DETAIL 2

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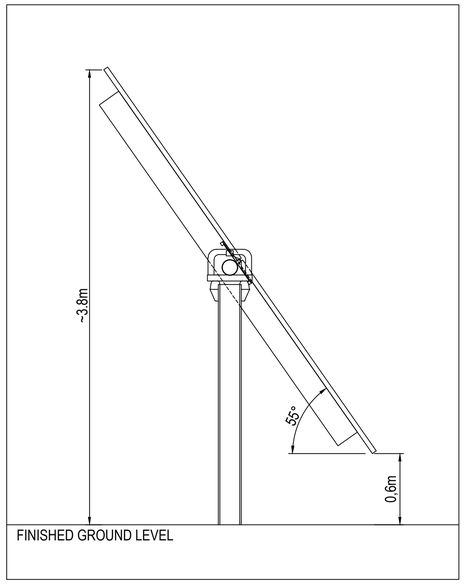

SIDE ELEVATION VIEW

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 BOLIVAR.
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	2018.10.04	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 – BOLI – 101
YEAR NUMBER SHEET

Appendix C Office of Technical Regulator (OTR) Certificate of Compliance

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 DPTI for approval. A meeting with Salisbury Council team members was held to discuss the project and potential concerns prior to the referral of the application to Council.
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.)	☒	Site has an EPA licence for sewage treatment	Proposed works will not impact on the licenced sewage treatment activities in the adjacent area, however all personnel will be made aware, through site inductions, of any potential impacts to their work, health, safety and environment (e.g. hygiene requirements).
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 applies at this project location.	Native Vegetation Consultant will be engaged to determine assessment level required and to identify SEB offset methods.
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.	☒	There are several Aboriginal Heritage Sites and Objects recorded on the Aboriginal Affair Register for the SA Water owned land parcels at Bolivar. SA Water has regularly engaged with the Kaurna People and has developed a Cultural Landscape Management Plan (CLMP) to guide the care and management of Kaurna heritage at Bolivar.	All Aboriginal sites and objects protected under the Aboriginal Heritage Act 1988. In event of discovery, stop work follow the SA Water SOP for Discovery of Aboriginal heritage Sites
Natural Resources Management Act 2004 (Section 175—transporting declared plants)	Consultation with NRM Board is required if transporting plants declared under Part 175 of NRM Act	☒		The Contractor will be responsible for obtaining authorisation from the Natural Resources Management Board to transport declared plants on a public road, in accordance with Section 175 and 188 of the Natural Resources Management Act 2004 (SA).
Native Title Act 1993	Notice to be issued if works Native Title. Note: ILUA notification process may be applicable in some areas.	☒	Works will be on freehold land owned by SA Water for the purposes of water resources,	N/A

Act	Description	Tick if relevant to project	Status/Assessment outcome/ comments	Summary of approval/ assessment conditions (if relevant)
			therefore Native title has been extinguished	
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. Section 31 permit (not required, no roads to be temporarily closed during Early Works).	☐	N/A	
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.).
Before/during rainfall events	• Runoff controls in place and maintained • Protection of stormwater entry points • Drainage lines clear of debris

Frequency	Issues
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 Representative	Jackie Griggs 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