

APPLICATION ON NOTIFICATION – CROWN DEVELOPMENT - READVERTISED

Type of development:	SECTION 49 - STATE AGENCY DEVELOPMENT
Development Number:	145/V007/19
Applicant:	SA Water
Nature of Development:	Establishment of a ground-mounted solar farm with single access tracking framework, power conversion stations and battery energy storage system; associated civil works, lay-down areas, electrical cabling & fencing.
Subject Land:	15 Chrysler Road, Lonsdale within the SA Water Desalination Plant facility
Development Plan:	Onkaparinga Council Development Plan, (Consolidated on 20 December 2018)
Zone / Policy Area:	Urban Employment Zone [Infrastructure Policy Area 13]
Contact Officer:	Janine Philbey
Phone Number:	7109 7062
Consultation Start Date:	3 April 2019
Consultation Close Date:	30 April 2019
<p>During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders St, Adelaide, during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).</p>	

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

If you have already made a written submission, this remains valid and will be considered during the assessment of the application.

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:

Planning & Land Use Services
Department of Planning, Transport and
Infrastructure
Level 5, 50 Flinders Street
ADELAIDE

Email Address: scapreps@sa.gov.au

Fax Number: (08) 8303 0753

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

Applicant: SA Water
Development Number: 145/V007/19
Nature of Development: Establishment of a ground-mounted solar farm with single access tracking framework, power conversion stations and battery energy storage system; associated civil works, lay-down areas, electrical cabling & fencing.
Zone / Policy Area: Urban Employment Zone & Infrastructure Policy Area 13
Subject Land: 15 Chrysler Road, Lonsdale (SA Water Desalination Plant)
Contact Officer: Janine Philbey
Phone Number: 7109 7062
Close Date: 30 April 2019

My Name: _____ My phone number: _____

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

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

My interests are:
(please tick one)

☐ owner of local property
☐ occupier of local property
☐ a representative of a company/other organisation affected by the proposal
☐ a private citizen

The address of the property affected is:

Postcode _____

My interests are:
(please tick one)

☐ I support the development
☐ I support the development with some concerns
☐ I oppose the development

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

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

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

Signature: _____

Date: _____

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

SECTION 49 & 49A – CROWN DEVELOPMENT DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: City of Onkaparinga

APPLICANT: SA Water Corporation

ADDRESS: 250 Victoria Square, Adelaide SA 5000

CROWN AGENCY: South Australian Water Corporation

FOR OFFICE USE

DEVELOPMENT No: _____

PREVIOUS DEVELOPMENT No: _____

DATE RECEIVED: / /

CONTACT PERSON FOR FURTHER INFORMATION

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

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

Fax: _____ [work] _____ [Ah]

Email: lauren.nicholson@aurecongroup.com

- ☐ Complying
- ☐ Merit
- ☐ Public Notification
- ☐ Referrals

Decision: _____

Type: _____

Finalised: / /

NOTE TO APPLICANTS:

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

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

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

EXISTING USE: Desalination Plant

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

LOCATION OF PROPOSED DEVELOPMENT: _____

House No: _____ **Lot No:** 51 / 12 **Street:** Chrysler Road **Town/Suburb:** Lonsdale

Section No [full/part] _____ **Deposited Plan:** 85837 / 80713 **Volume :** 6033 **Folio:** 738

Section No [full/part] _____ **Hundred:** Noarlunga **Volume:** 6152 **Folio:** 198

LAND DIVISION:

Site Area [m²] _____ **Reserve Area [m²]** _____ **No of existing allotments** _____

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

DEVELOPMENT COST [do not include any fit-out costs]: \$ 24,300,000.00

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

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

SIGNATURE: 

Dated: 15/02/2019

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: 15/02/2019

Location of Proposed Development: land within Adelaide Desalination Plant

House No: _____ Lot No: 51 / 12 Street: Chrysler Road

Town/Suburb: Lonsdale

Section No (full/part): _____ Hundred: Noarlunga

Volume: 6152 Folio: 198
6033 738

Nature of Proposed Development:

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

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

Signed: 

Date: 15/02/2019



**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.

15 February 2019

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

Dear Ben

Development Application – Section 49 (Crown Development) for Solar PV installation at Adelaide Desalination Plant

SA Water is seeking Development Approval for the installation of solar PV arrays and associated battery storage facilities along with ancillary equipment within the Adelaide Desalination Plant (ADP) land. The proposed works at ADP form part of the *Zero Cost Energy Future* project, where Solar Photovoltaic (PV) cells and Battery Energy Storage Systems (BESSs) are planned for installation across SA Water's key sites.

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

SA Water has developed a Community and Stakeholder Engagement Strategy to identify key stakeholders and is committed to ensuring a high level of engagement in order to manage expectations, community concerns and any other issues associated with the project. Members of SA Water's Environmental and Heritage Services team, along with an Aurecon representative, met with City of Onkaparinga Development Services staff on 3rd September 2018 to discuss the proposed development at the ADP site. Additionally, this meeting included discussion of a number of additional sites identified within the City of Onkaparinga region which are intended for the installation of solar PV and associated infrastructure as part of the *Zero Cost Energy Future* project. Continued correspondence between this council and SA Water throughout the Development Assessment process will ensure that any potential concerns can be addressed as efficiently as possible.

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

Yours Sincerely,



Lauren Nicholson (Aurecon)
Consultant, Environment and Planning

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

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



Development Application

Adelaide Desalination Plant *Zero Cost Energy Future* Solar Photovoltaic Project

Version: 2

Date: 15/02/2019

Status: Final

© 2019 SA Water Corporation. All rights reserved. This document may contain confidential information of SA Water Corporation. Disclosure or dissemination to unauthorised individuals is strictly prohibited. Uncontrolled when printed or downloaded.



**Government of
South Australia**

Document Controls

Version History

Version	Date	Author	Comments
1.0	31/10/2018	Lauren Nicholson	Draft
1.2	13/02/2019	Jackie Griggs	SA Water Environment, Land and Heritage comments incorporated
1.3	14/02/2019	John Hart	SA Water Project Lead sign off
2	15/02/2019	Lauren Nicholson	Submitted to DPTI for Approval

Template: Report Version 4.0 31/07/17

1	Introduction.....	5
1.1	Project overview	5
1.2	Proponent	5
1.3	Approval Pathway.....	6
1.4	Project Timing	6
2	Project Site	7
2.1	Site location and details	7
3	Proposed Development.....	14
3.1	Description of Proposal	14
3.2	Environmental management.....	16
3.3	Site works and Construction	16
3.4	Stakeholder Engagement	17
4	Planning Assessment.....	18
4.1	Design, Appearance, Siting and Visibility	19
4.2	Energy Efficiency.....	20
4.3	Hazards.....	20
4.4	Infrastructure.....	22
4.5	Interface between Land Uses.....	23
4.6	Natural Resources	23
4.7	Orderly and Sustainable Development.....	25
4.8	Renewable Energy Facilities.....	26
4.9	Transportation and Access.....	27
4.10	Urban Employment Zone	28
5	Environmental Considerations.....	31
5.1	Surface waters, stormwater and hydrogeology	32
5.2	Noise and Air Quality	32
5.3	Biodiversity.....	32
5.4	Heritage.....	33
5.5	Waste management	33
5.6	Traffic management	33
6	Conclusion.....	34
Appendix A	Certificate of Title	35
Appendix B	Design Drawings.....	36
Appendix C	: Office of the Technical Regulator (OTR) Certificate	37

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 to be undertaken within the boundary of the Adelaide Desalination Plant, herein abbreviated as 'ADP'. This is accompanied by a summary of the relevant planning considerations and the potential impacts and associated management and mitigation measures to support the development assessment process.

1 Introduction

1.1 Project overview

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

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

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

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

1.2 Proponent

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

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

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

Ms Lauren Nicholson

Town Planner

Aurecon (on behalf of SA Water)

Ph: 08 8237 9762

Email: Lauren.Nicholson@aurecongroup.com

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

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

1.3 Approval Pathway

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

1.4 Project Timing

The proposed timing for the installation of the photovoltaic panels at the site is currently being finalised, but will follow the following high level plan;

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

2 Project Site

2.1 Site location and details

Background : *Adelaide Desalination Plant (ADP)*

The Adelaide Desalination Plant is SA Water's largest desalination plant of the eight plants which are operational throughout the State. ADP has been delivering drinking water since 2011 and in full operation the plant is capable of producing 100 gigalitres per year- roughly half of Adelaide's annual water needs.

The existing infrastructure contributing to current operations within the Adelaide Desalination Plant includes;

- intake and outfall tunnels;
- pump house;
- pre-treatment plant;
- reverse osmosis plant and control building;
- two balancing storage tanks, a transfer pump station;
- electricity sub-station;
- the Kauwi Interpretive Centre and bushtucker garden;
- storm water management treatments including detention basins;
- storage sheds;
- hardstand;
- office facilities;
- Emergency diesel generators;
- hardstand / car parks;
- access roads; and
- landscaping.

Figure 1, on the following page, situates the existing ADP site within the broader locality.

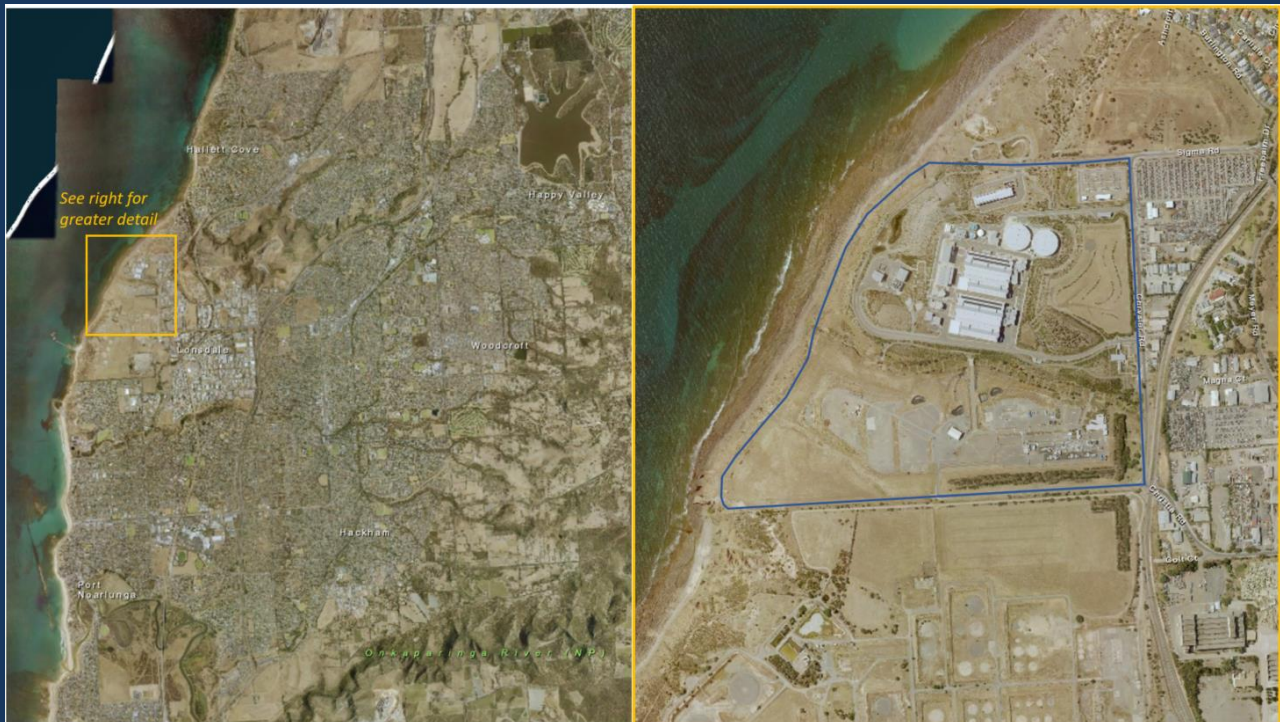


Figure 1. Adelaide Desalination Plant within surrounding locality (left). Existing SA Water land outlined in dark blue (right). Base image source: Location SA Map Viewer, <http://location.sa.gov.au/viewer/>

Surrounding Land Uses

The existing ADP site is located off Chrysler Road in the Lonsdale area, approximately 20km south west of the Adelaide CBD, situated along the midcoast of the St Vincent Gulf. Land in this locality features variable terrain which generally slopes towards the western coastline, where steep cliff faces separate the lower shorefront from the ADP land. An existing creekline which extends from the eastern perimeter of the ADP land towards the seafront perimeter separates the northern portion of the land (containing the bulk of existing operations) from the southern portion.

The existing ADP site lies within an area which is largely characterised by established industrial land uses. To the east of ADP land is an extensive auto wreckers yard, with various warehouse uses extending further south along Chrysler Road. Further east, separated by the Adelaide Metro Seaford rail line, is the RSPCA's Lonsdale animal shelter and Resource Co materials collection centre, bordered to the east by Lonsdale Road. Land to the south of the ADP site once supported the Port Stanvac Oil Refinery, operated by Exxon Mobil from 1963 through to the decommissioning of the refinery in 2003, after which time the land has remained largely unused. Further to the north is the residential suburb of Hallett Cove, separated from ADP by presently vacant land. The Field River is 1.3km to the north of ADP and Christie Creek is 2.5km to the south.

The nearest residential land use is roughly 350m to the north of the site, positioned along Burlington Road. Views from these nearest residences towards the ADP land are largely obstructed by variable terrain, further assisted by existing fill material which extends in an east-west direction across the vacant allotment to the south of Burlington Road.

The nearest identified community land use is the adjacent shoreline which forms the western perimeter of the ADP site. As the proposed development is to be well setback from the western perimeter, and given also the considerable physical separation provided by the steep cliff face fronting this shoreline, it is not expected that this development would have a substantial impact on the surrounding community uses of this land.

Figure 2 locates the ADP land within the surrounding locality and identifies surrounding land uses.

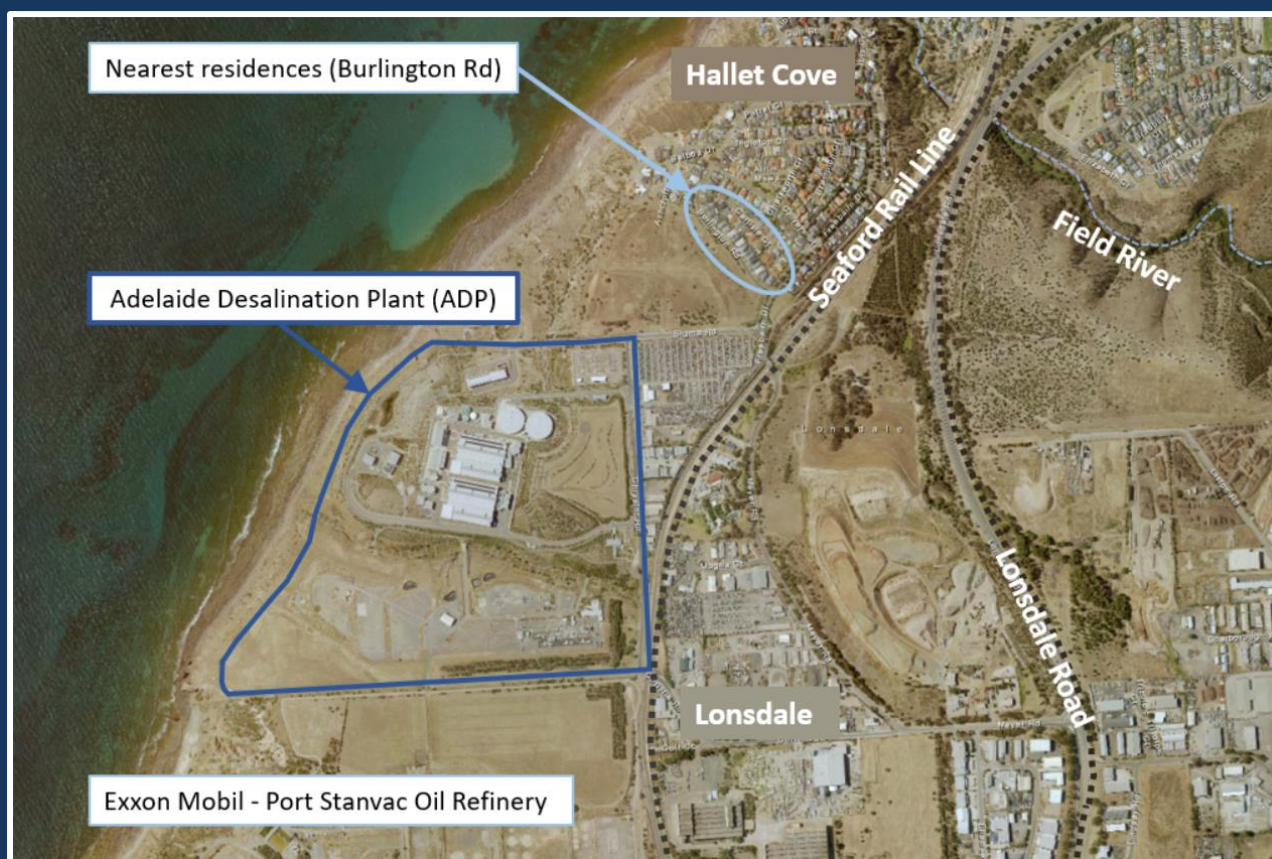


Figure 2. ADP and surrounding land uses. Note: boundaries are approximate and shown for illustrative purposes only. Base image source: Location SA Map Viewer, <http://location.sa.gov.au/viewer/>

Subject Area

The southern portion of the ADP site has been identified as the preferred positioning for the bulk of the proposed development, as well as two smaller areas situated along the eastern boundary and northern boundary lines, respectively (see Figure 3 for greater detail).

The portion of the existing ADP site identified as the preferred positioning of the solar PV arrays and associated infrastructure is largely undeveloped and does not form part of existing or future operational capabilities at the plant. While the identified areas are largely free of built form, parts of this land have previously been disturbed as part of works associated with ADP and include hardstand bituminised surfaces (within Area 2), drainage swales and planted vegetation.

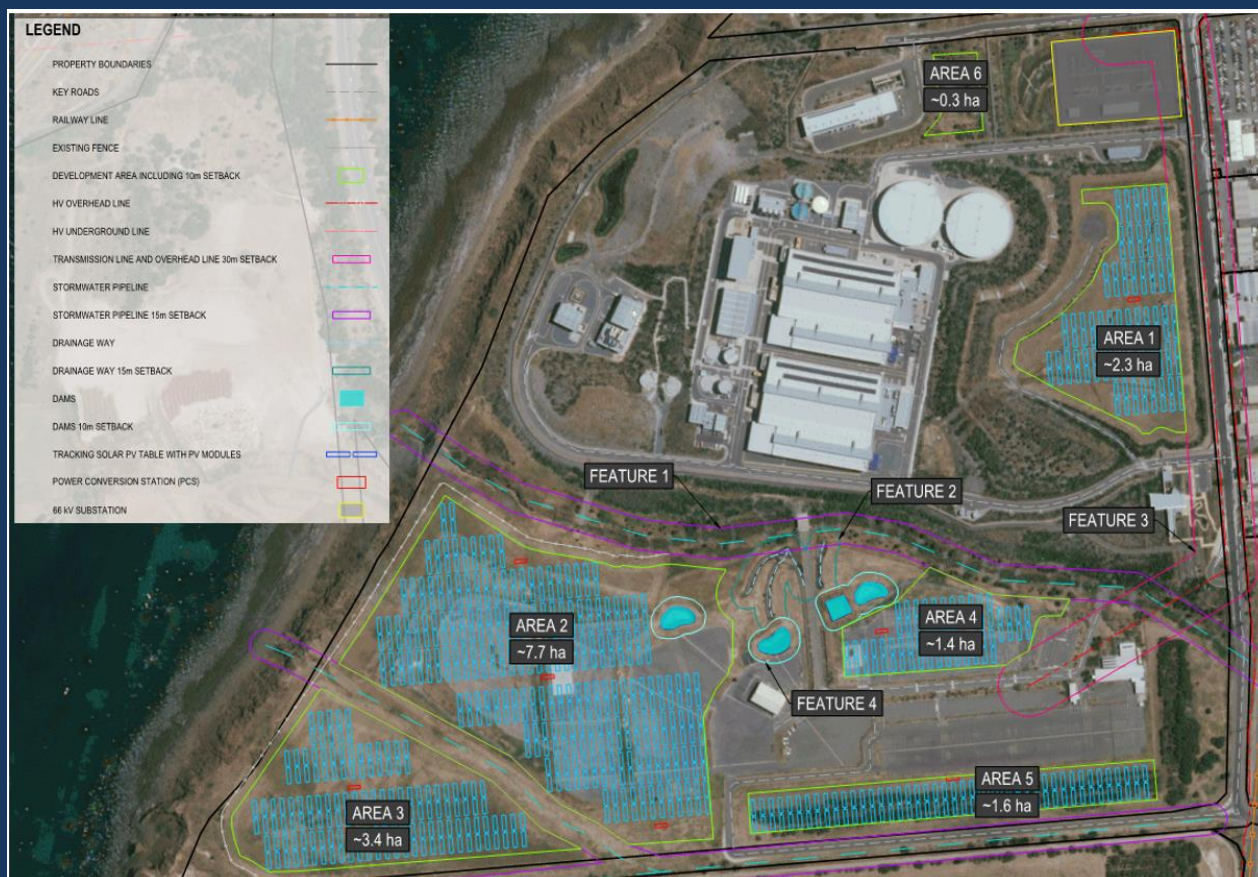


Figure 3. Proposed area for development (green shading) within the ADP1 site (excerpt from Site Plans). Base image source: Location SA Map Viewer, <http://location.sa.gov.au/viewer/#>

The western boundary of 'Area 2' and 'Area 3' has allowed for a setback of 10m from an existing fence line parallel to the cliff face. This setback ensures consistency with Conditions imposed by the Governor in relation to the development authorisation granted for the Adelaide Desalination Plant (declared a Major Development, in accordance with Section 46 of the *Development Act 1993*), where a 10m buffer was to be established along the coastal cliff and to serve as a 'no-go' zone for construction. While the western-most property boundary generally aligns with the coastal cliff, in this instance a more conservative approach has been applied so that the 10m setback distance of the proposed solar PV infrastructure has been measured from an existing fenceline which is slightly inset from the western property boundary. The more conservative setback distance has also been informed through assessment by SA Water's Cultural Heritage experts to ensure that existing Aboriginal heritage sites and objects are afforded the appropriate protection. The proposed setback distance, measured from the existing fenceline parallel to the western property boundary is further considered to;

- Avoid disruption to, and protect the proposed infrastructure from coastal processes;
- Preserve existing coastal native vegetation;
- Ensure access and free-movement of vehicles (including Emergency Services vehicles); and
- Not prejudice any potential for future establishment of a Coastal Linear Park and walkway.

ADP land is under ownership by SA Water and consists of two (2) separate allotments, with the proposed development to be situated across each of these. Descriptions for the the two (2) parcels are provided below:

Certificate of Title Details:

Northern parcel:

1. 8 Chrysler Road, Lonsdale,
CT: 6152/198

Owner: SA Water Corporation

Plan/Parcel: Filed Plan 85837, Lot 51

Southern parcel:

2. Chrysler Road, Lonsdale
CT: 6033/738

Owner: SA Water Corporation

Plan/Parcel: Filed Plan 80713, Lot 12

See Appendix A – Certificate of Title/s for further detail.

Site photos taken from various points within ADP1 land and surrounds assist in understanding the existing landscape, as shown within Figures 4-7, below.



Figure 4. ADP site photo – standing within existing carpark / hardstand area towards the south-southeast of ADP land, looking west-southwest over Area 5 and parts of Areas 2 and 3.



Figure 5. ADP site photo – Standing near to centre of Area 2 and looking west towards the coastal perimeter.



Figure 6. ADP site photo – Standing towards southeastern corner of ADP land and looking past existing vegetation towards the Adelaide Metro Seaford train line and further, the industrial uses surrounding Chrysler Road.



Figure 7. ADP site photo – standing at western edge of most northerly building within ADP, looking northeast towards Hallet Cove, beyond raised land and vegetation in foreground.

3 Proposed Development

3.1 Description of Proposal

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

- Approximately 22,560 individual 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 8);
- Approximately seven (7) Power Conversion Stations (PCSs), installed within shipping containers (or similar) for weather proofing;
- Battery Energy Storage Systems (BESS) equipment (model specifications to be confirmed by construction partner);
- Associated groundworks and levelling, including the provision of a lay-down area for construction ;
- Electrical cabling, installed via underground trenching;
- Surface upgrades to existing access tracks to ensure all-weather access;
- Upgrades to existing security fencing (where required).

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

In total, the proposal requires approximately 16.7 hectares of land for the installation of solar PV arrays and associated infrastructure within the boundary of the ADP site.

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

The positioning of the proposed solar arrays will incorporate sufficient setback from each of the property boundaries to allow for the free-movement of vehicles associated with ongoing maintenance as well as with the continued operations at ADP. An approximate setback distance of 10 metres from all allotment perimeters (or from the existing fence line in the case of the western boundary) has been included within the attached site plans. Appropriate setbacks of approximately 30m have also been provided from the existing High Voltage overhead powerlines, and approximate setbacks of 15m from stormwater pipelines and drainage ways have also been allowed.

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.

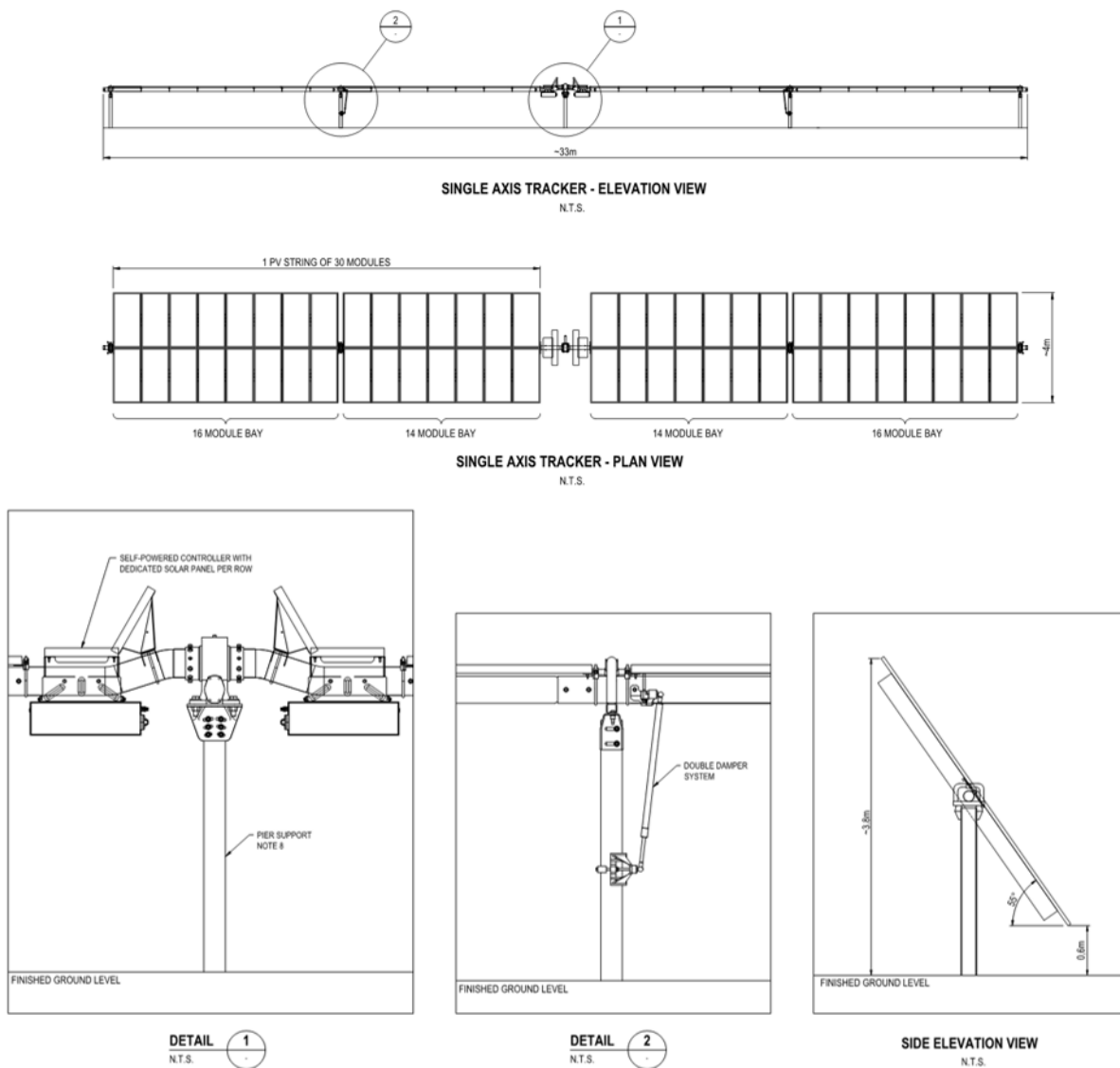


Figure 8 . Typical Ground-mounted, Single Access Tracking (SAT) Solar Panel Layout (see Appendix B- Design Drawings for greater detail)



Figure 9. Typical Ground-mounted Solar Panel Layout



Figure 10. 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 8 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 surrounding residents. The Stakeholder Engagement Team will ensure that consultation is ongoing throughout design and construction to minimise any impacts. In the case of the proposed installation of solar PV arrays and associated infrastructure at ADP, the level of disturbance is expected to be minimal given the appropriate 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 Water's Environmental and Heritage Services team, along with an Aurecon representative, met with City of Onkaparinga Development Services staff on 3rd September 2018 to discuss the proposed development at the Adelaide Desalination Plant. Additionally, this meeting included discussion of a number of additional sites identified within the City of Onkaparinga region which are intended for the installation of solar PV and associated infrastructure as part of the Zero Cost Energy Future project. Through these discussions, City of Onkaparinga 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 Onkaparinga are made aware of any important milestones, and so that we can more readily address any items raised by Council staff.

Furthermore, we note that Zero Cost Energy Future project members from SA Water have consulted with the Department of Energy and Mining to ensure the proposed positioning solar PV arrays and associated infrastructure will not limit the continued operation of the Emergency Diesel Generators located within the southeastern portion of the ADP site. Ongoing discussions between SA Water and the Department for Energy and Mining will ensure that the respective operations will be undertaken in a manner which does not prejudice the objectives of either party.

4 Planning Assessment

The site of the proposed development is located within the City of Onkaparinga, accordingly the Onkaparinga Council Development Plan (consolidated 20 December 2018) is the relevant Development Plan against which this proposal shall be addressed. As delineated within the Onkaparinga Council Development Plan, the proposed development lies wholly within the Urban Employment Zone and Infrastructure Policy Area 13.

To the immediate northeast of the ADP land lies the City of Marion council area. The adjoining land which is abutting to the north-western ADP perimeter is zoned Open Space, Hallett Cove Buffer Policy Area 9, in accordance with the Marion Council Development Plan (consolidated 29 November 2018). The majority of surrounding land to the proposed solar PV site falls within the Urban Employment Zone, with the exception of the linear Coastal Conservation Zone along the western perimeter.

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

Table 1. Relevant Development Plan Provisions

Council Wide		
	Objectives	Principles of Development Control
Design and Appearance	1, 2	5, 15, 22
Energy Efficiency	1, 2	1, 3, 4
Hazards	1, 2, 3, 4, 5, 7, 9	1, 2, 3, 4, 5, 7
Infrastructure	1, 2, 3	1, 3, 5, 9, 10, 11, 12, 17
Interface between Land Uses	1, 2, 3	1, 2
Natural Resources	1, 4, 6, 8, 10, 12, 13	1, 7, 13, 27, 28, 29, 38, 39
Orderly and Sustainable Development	1, 2, 3, 4, 5	1, 6, 8
Renewable Energy Facilities	1, 2, 3	1
Siting and Visibility	1	1, 5, 6, 8
Transportation and Access	2	2, 8, 14, 22, 23, 24

Zone Specific		
Urban Employment Zone	Objectives	1, 4, 5, 6, 8, 9
	Principles of Development Control	1, 3, 4, 12, 14, 23
Infrastructure Policy Area 13	Objectives	1, 2, 3, 4
	Principles of Development Control	1, 2, 3

4.1 Design, Appearance, Siting and Visibility

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

The proposed development will be laid out in a way which is easy to understand and navigate, and existing landscaping will be retained wherever possible to maintain the visual amenity of the locality. The proposed development footprint also allows for a minimum setback distance of 10 metres from all perimeter boundaries, consistent with the setback distances of existing built form within ADP. As outlined within previous descriptions of the development subject area, the 10m setback distance has been measured from an existing fence line parallel and inset to the western property boundary.

The proposed development is positioned within an established infrastructure land use and is well separated from sensitive land uses. Views towards the proposed development from existing dwellings, public roads and open spaces are largely restricted due to existing topographic elements, built form and site security associated with ADP and existing vegetation.

Accordingly, it is considered the proposal is broadly consistent with the below Development Plan provisions:

Design and Appearance OBJECTIVES

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

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

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

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

22 Except in areas where a new character is desired, the setback of buildings from public roads should:

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

(b) contribute positively to the function, appearance and/or desired character of the locality

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

Siting and Visibility OBJECTIVES

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

PRINCIPLES OF DEVELOPMENT CONTROL

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

- (a) the natural, rural or heritage character of the area,*
- (b) areas of high visual or scenic value, particularly rural and coastal areas,*
- (c) views from the coast, near-shore waters, public reserves, tourist routes and walking trails,*
- (d) the amenity of public beaches.*

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

6 *The number of buildings and structures on land outside of urban areas should be limited to that necessary for the efficient management of the land or the harvesting of wind resources for the generation of renewable energy.*

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

4.2 Energy Efficiency

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

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

OBJECTIVES

- 1** *Development designed and sited to conserve energy.*
- 2** *Development that provides for on-site power generation including photovoltaic cells and wind power.*

PRINCIPLES OF DEVELOPMENT CONTROL

- 1** *Development should provide for efficient solar access to buildings and open space all year around.*
- 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, including lighting and telephones, should be designed to generate and use renewable energy.*

4.3 Hazards

The proposed development is not located within an area identified as susceptible to flooding, bushfire, acid sulphate soils or other natural hazards. Notwithstanding this, the proposed siting and design of the proposal ensures that disruption to natural processes and the potential for damage to life or property as a result of these processes (such as flooding or bushfires) is suitably minimised.

The solar panel arrays are positioned upon raised frameworks, which avoids the impeding of floodwaters and protects the infrastructure from potential damage in the event of flooding. The raised framework and relatively open design also minimises the potential trapping of debris, thereby reducing the presence of potential bushfire fuel material. Furthermore, the proposal is located within an area identified as 'Excluded' from areas of General, Medium and High bushfire risk, as delineated within *Bushfire Protection Area BPA Map Onka/6* of the Onkaparinga Council Development Plan.

It is expected that access to the proposed development will be obtained via the existing points of entry into ADP, with the creation of further internal access tracks throughout the development footprint likely required (subject to confirmation within forthcoming Detailed Designs).

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

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

OBJECTIVES

- 1 Maintenance of the natural environment and systems by limiting development in areas susceptible to natural hazard risk.*
- 2 Development located away from areas that are vulnerable to, and cannot be adequately and effectively protected from the risk of natural hazards.*
- 3 Critical community facilities such as hospitals, emergency control centres, major service infrastructure facilities, and emergency service facilities located where they are not exposed to natural hazard risks.*
- 4 Development located and designed to minimise the risks to safety and property from flooding.*
- 5 Development located to minimise the threat and impact of bushfires on life and property.*
- 7 The environmental values and ecological health of receiving waterways and marine environments protected from the release of acid water resulting from the disturbance of acid sulphate soils.*
- 9 Appropriate assessment and remediation of site contamination to ensure land is suitable for the proposed use and provides a safe and healthy living and working environment.*

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 The location of critical community facilities or key infrastructure in areas of high natural hazard risk should be avoided.*
- 5 Development should not occur on land where the risk of flooding is likely to be harmful to safety or damage property.*
- 7 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 is situated within the boundary of an established public infrastructure land use (the Adelaide Desalination Plant), allowing for the consolidation of infrastructure, as well as the use of existing utilities and access arrangements. The proposed solar PV arrays and associated infrastructure have been sited so as to ensure a reduced visual impact, adequate drainage and to avoid areas of high environmental significance.

The proposed development will utilise existing infrastructure wherever possible. This includes the use of existing access arrangements, internal movement systems, existing drainage systems, as well as the existing electrical sub-station within the ADP site.

The proposed solar PV array and associated infrastructure positioning ensures adequate separation from the existing operational components of the desalination plant as well as from associated utility easements to avoid the potential for impact upon these. As well as not delimiting the continued operations of ADP, the proposal will be for the direct benefit of this existing infrastructure and will provide urety in the provision of cost-effective and reliable power generation and energy storage systems.

This will ensure the provision of infrastructure in an economical and environmentally sensitive manner, utilising existing infrastructure where possible.

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

OBJECTIVES

- 1 Infrastructure provided in an economical and environmentally sensitive manner.*
- 2 The visual impact of infrastructure facilities minimised.*
- 3 The efficient and cost-effective use of existing infrastructure.*

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should not occur without the provision of adequate utilities and services, including: (a) electricity supply (b) water supply (c) drainage and stormwater systems (d) waste disposal (e) effluent disposal systems (f) formed all-weather public roads (g) telecommunications services (h) social infrastructure, community services and facilities (i) gas services.*
- 3 Development should only occur where it provides, or has access to, relevant easements for the supply of infrastructure.*
- 5 Development should not occur until adequate and co-ordinated drainage of the land is provided.*
- 9 Electricity infrastructure should be designed and located to minimise visual and environmental impacts.*
- 10 Utilities and services, including access roads and tracks, should be sited on areas already cleared of native vegetation. If this is not possible, their siting should cause minimal interference or disturbance to existing native vegetation and biodiversity.*
- 11 Utility buildings and structures should be grouped with non-residential development, where possible.*
- 12 Development in proximity to infrastructure facilities should be sited and be of a scale to ensure adequate separation to protect people and property.*
- 17 Development should not compromise the viability of transmission line corridors and substation sites*

4.5 Interface between Land Uses

The proposed development has been situated within land that presently comprises an established public infrastructure land use within the Urban Employment Zone to ensure that the potential for impact upon sensitive land uses is minimised as far as practicable.

The proposed development is designed and located to ensure that operations at ADP are not detrimentally affected, and to ensure that the land can continue to fulfill the intended outcomes of this zone. The proposal is reasonably separated from the nearest residential properties, situated approximately 350m to the north-northeast along Burlington Road, and utilises variable terrain, vegetation and existing built form within the ADP site to minimise impact upon these sensitive land uses.

Furthermore, 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.*
- 2 Protect community health and amenity and support the operation of all desired land uses.*
- 3 Protect desired land uses from the encroachment of incompatible development.*

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 Natural Resources

The proposed development has been situated within an established public infrastructure land holding which has been largely cleared or disturbed as part of previous development. The proposal requires relatively minimal alteration to the existing landform and will seek to maintain existing hydrological systems within this land as far as possible, through minimising the introduction of impermeable surfacing. Specific management and mitigation measures for stormwater runoff

throughout construction and the ongoing operation of the solar PV infrastructure are to be confirmed within forthcoming Detail Designs provided by SA Water's construction partner.

A 10m setback, as measured from the existing fence line to the commencement of the solar PV arrays and associated infrastructure within Areas 2 and 3 has been incorporated to preserve existing coastal processes and coastal vegetation occurring along the cliff face. While some vegetation clearance is required for the installation of solar PV arrays and associated infrastructure, this is limited to areas containing vegetation previously planted for the purpose of visual screening. Areas of remnant vegetation, namely that identified along the cliff face, will not be impacted by the proposal.

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

OBJECTIVES

- 1** Retention, protection and restoration of the natural resources and environment.
- 4** Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.
- 6** Development sited and designed to:
 - (a) protect natural ecological systems
 - (b) achieve the sustainable use of water
 - (c) protect water quality, including receiving waters
 - (d) reduce runoff and peak flows and prevent the risk of downstream flooding
 - (e) minimise demand on reticulated water supplies
 - (f) maximise the harvest and use of stormwater
 - (g) protect stormwater from pollution sources.
- 8** Native flora, fauna and ecosystems protected, retained, conserved and restored.
- 10** Minimal disturbance and modification of the natural landform.
- 12** Protection of areas prone to erosion or other land degradation processes from inappropriate development.
- 13** Protection of the scenic qualities of natural and rural landscapes.

PRINCIPLES OF DEVELOPMENT CONTROL

- 1** Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.
- 7** Development should be sited and designed to:
 - (a) capture and re-use stormwater, where practical
 - (b) minimise surface water runoff
 - (c) prevent soil erosion and water pollution
 - (d) protect and enhance natural water flows
 - (e) protect water quality by providing adequate separation distances from watercourses and other water bodies

- (f) not contribute to an increase in salinity levels*
- (g) avoid the water logging of soil or the release of toxic elements*
- (h) maintain natural hydrological systems and not adversely affect:*
 - (i) the quantity and quality of groundwater*
 - (ii) the depth and directional flow of groundwater*
 - (iii) the quality and function of natural springs.*

13 Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.

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

28 Development should be designed and sited to minimise the loss and disturbance of native flora and fauna, including marine animals and plants, and their breeding grounds and habitats.

29 Native vegetation should be conserved and its conservation value and function not compromised by development if the native vegetation does any of the following:

- (a) provides an important habitat for wildlife or shade and shelter for livestock*
- (b) has a high plant species diversity or includes rare, vulnerable or endangered plant species or plant associations and communities*
- (c) provides an important seed bank for locally indigenous vegetation*
- (d) has high amenity value and/or significantly contributes to the landscape quality of an area, including the screening of buildings and unsightly views*
- (e) has high value as a remnant of vegetation associations characteristic of a district or region prior to extensive clearance for agriculture*
- (f) is growing in, or is characteristically associated with a wetland environment.*

38 Development should be designed and sited to prevent erosion.

39 Development should take place in a manner that will minimise alteration to the existing landform.

4.7 Orderly and Sustainable Development

The proposal is consistent with the provisions of the Urban Employment Zone and will not limit the continuance of operations within ADP, nor the ability of surrounding land uses to achieve the relevant provisions of respective adjoining zones. As outlined in Section 4.4, addressing the proposals consistency with the General Section – Infrastructure provisions, the proposed installation of solar PV arrays has sought to maximise the use of existing infrastructure (including for access arrangements, stormwater management and electrical utilities) and will not jeopardise and/or prejudice the orderly use and development of land in this zone, nor surrounding zones.

The bulk of the proposed development will be situated within the southern portion of the ADP landholding, and a relatively small area only of solar PV arrays is proposed along the northern perimeter which is adjoining to the City of Marion Open Space Zone (Hallett Cove Buffer Policy Area 9). Views from within this adjacent Open Space Zone towards the proposed development will be largely restricted by variable terrain, existing vegetation and the existing security fencing which

lines the northern perimeter of the ADP land. To this effect, the proposal is not considered to limit the continued function of this adjoining Councils' zone as a zone in which the open space character is preserved in order to provide a visual contrast to the surrounding urban area.

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

OBJECTIVES

- 1 Orderly and economical development that creates a safe, convenient and pleasant environment in which to live.*
- 2 Development occurring in an orderly sequence and in a compact form to enable the efficient provision of public services and facilities.*
- 3 Development that does not jeopardise the continuance of adjoining authorised land uses.*
- 4 Development that does not prejudice the achievement of the provisions of the Development Plan.*
- 5 Development abutting adjoining Council areas having regard to the policies of that Council's 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.*

4.8 Renewable Energy Facilities

The chosen location, siting, design and operation of the proposed development minimises the potential for adverse impacts to the environment, local community and other land uses. The proposed siting and design (further confirmation available within forthcoming Detail Designs) will ensure that the generating capacity of the solar PV arrays is maximised by securing a north-facing site with minimal shadowing from terrain, existing built form and mature vegetation. Further, positive impacts of the development are maximised through the provision of onsite energy storage capabilities via batteries (technical specifications / model type to be confirmed by construction partner).

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

OBJECTIVES

- 1 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.*
- 3 Location, siting, design and operation of renewable energy facilities to avoid or minimise adverse impacts on the natural environment and other land uses.*

PRINCIPLES OF DEVELOPMENT CONTROL

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

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

4.9 Transportation and Access

The existing access arrangement which serves present operations at ADP 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 and alterations to existing internal gateways and access tracks within the ADP land may be required to ensure the safe access and movement of larger vehicles associated with construction. This information will be provided as part of the Detail Designs, once confirmed by SA Water's construction partner.

The use of the existing access arrangement, in conjunction with required alterations identified within forthcoming Detailed Designs will ensure a broad level of consistency with the below provisions:

OBJECTIVES

2 Development that:

- (a) provides safe and efficient movement for all 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*
- (e) provides convenient and safe access to public transport stops.*

PRINCIPLES OF DEVELOPMENT CONTROL

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

8 Development should provide safe and convenient access for all anticipated modes of transport

14 Development should provide for the on-site loading, unloading and turning of all traffic likely to be generated.

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

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

- (a) avoids unreasonable interference with the flow of traffic on adjoining roads*
- (b) provides appropriate separation distances from existing roads or level crossings*
- (c) accommodates the type and volume of traffic likely to be generated by the development or land use and minimises induced traffic through over-provision*
- (d) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.*

24 Development should not restrict access to publicly owned land such as recreation areas.

4.10 Urban Employment Zone

It is envisaged that Onkaparinga Council's Urban Employment Zone will be a high quality enterprise and employment destination of importance to the broader region of Southern Adelaide, where offices and other supporting establishments will compliment the current predominantly Industry land uses. However, the intrusion of inappropriate land uses which are incompatible with industry and supporting activities, and which may reduce the ongoing operation of industrial activities, is to be discouraged.

The desired character statement for Infrastructure Policy Area 13 specifically highlights that the existing Adelaide Desalination Plant is of regional importance in the context of Metropolitan Adelaide and must be protected from the encroachment of urban development, whilst attention should be paid to ensure that core activities maintain appropriate separation from surrounding residential uses.

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 and significantly important use of this land as a water desalination plant that serves the City of Onkaparinga and the whole of Metropolitan Adelaide. The proposal has been carefully sited and designed to ensure that it minimises impact upon existing and future planned operations within the ADP land, and has also been designed to ensure maximum energy generating capacity is achieved, thereby solidifying it's important functionality to the plant. Once operational, the solar PV infrastructure will deliver significant and immediate benefit to the operations of ADP by reducing operational costs and allowing for greater security in the ongoing provision of reliable power.

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

OBJECTIVES

- 1 A mixed use employment zone that accommodates a wide range of industrial land uses together with other related employment and business activities.*
- 4 The effective location and management of activities at the interface of industrial/commercial activity with land uses that are sensitive to these operations.*
- 5 A high standard of development which promotes distinctive building, landscape and streetscape design, with high visual and environmental amenity, particularly along arterial roads and the boundaries of adjoining zones.*
- 6 Development that promotes business clusters that provide a range of economic and environmental benefits.*
- 8 Adequate and co-ordinated servicing of land and provision of infrastructure before development takes place.*
- 9 Development that contributes to the desired character of the zone*

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 The following forms of development, or combination thereof, are envisaged in the zone:*
 - bulky goods outlet (outside the Core Industry Area)
 - consulting room (outside the Core Industry Area)
 - electricity substation
 - fuel depot
 - indoor recreation centre (outside of the Core Industry Area)
 - industry (other than special industry)
 - general industry (within the Core Industry Area)
 - motor repair station
 - office
 - petrol filling station

- prescribed mains
- public service depot
- road transport terminal
- service trade premises
- service industry
- shop or group of shops
- training facility
- store
- warehouse.

3 Development should be in accordance with the relevant Concept Plan Map Onka/29 - Core Industry and Interface Areas.

4 Development should not impede the operation of established land uses through encroachment, over development of sites or noise/emissions or any other harmful or nuisance-creating impact.

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

14 Development should be set back at least 8 metres from any primary road frontage except where it satisfies (a) or (b), (c), (d) and (e):

- (a) the set back of the proposed building is consistent with the set back of existing buildings on adjoining or nearby land
- (b) off street car parking is provided at the rate specified Table Onka/3 - Off Street Vehicle Parking Requirements either partially or fully to the side or rear of the site
- (c) is an appropriate bulk and scale so as not to dominate the street
- (d) is a high standard of building design that improves streetscape appearance and character
- (e) landscaping and lighting is provided to enhance visual impact and improve pedestrian comfort.

18 Any plant or equipment with potential to cause an environmental nuisance (including a chimney stack or air-conditioning plant) should be sited as far as possible from adjoining boundary of another zone or policy area intended to accommodate residential land uses and should be designed to minimise its effect on the amenity of the locality.

23 Development should be adaptable to allow for flexibility of use over time and accommodate multiple uses and shared facilities where practical, including training areas and car parking.

24 Buildings should not occupy more than 50 percent of the total area of the site upon which they are located, unless it can be demonstrated that stormwater can be harvested, treated, stored and reused on the site of the development to minimise impacts on external stormwater infrastructure.

26 Landscaping should be designed, implemented and maintained in accord with the guidelines listed in Table Onka/6 - Landscaping Guidelines for Non-Residential Development.

Infrastructure Policy Area 13

OBJECTIVES

1 Primarily, a policy area for the provision of infrastructure including water, waste water, waste management and renewable energy technologies.

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

3 Watercourse and public cycling or walking trails should be protected from the impacts associated with the encroachment of development.

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 storm water retention basin

- *electricity substation*
- *landfill*
- *methane extraction plant*
- *public service depot*
- *rail infrastructure*
- *sewerage infrastructure*
- *waste transfer depot*
- *stockpiling of fill material*
- *renewable energy facility*
- *passive recreation opportunities at Pedler Creek*
- *training or interpretive facility*
- *interpretive / directional signage*
- *water desalination/recycling and related activities.*

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

3 *Landscaping should:*

- (a) provide an effective landscaped buffer to assist screening from outside the zone*
- (b) be located on suitably raised ground or mounds capable of sustaining native trees and shrubs, where at least 50 per cent of the plantings are trees*
- (c) comprise locally indigenous plant species that are suitable for the locality in terms of tolerance and environmental weed control*
- (d) reduce the potential for dust migration to areas adjoining the zone*
- (e) be selected to attract native birds and other wildlife (but not those considered pest species to the region)*
- (f) minimise maintenance costs*
- (g) be linked to rehabilitation areas to provide biodiversity corridors.*

5 Environmental Considerations

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

Table 2. Construction Activities and Associated Environmental Impacts

Activity / Aspect	Potential Environmental Issues/Impact
Use of vehicles, equipment & plant	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Spills leading to pollution and contamination of soil, water Damage to vegetation and fauna Emissions of noxious / toxic gases
Washdown of equipment/plant	<ul style="list-style-type: none"> Pollution to water (watercourses or stormwater) Introduction/spread of weed seeds or plant pathogens Damage to vegetation and fauna
Excavation and earthworks	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Aesthetics – litter/ debris Inappropriate waste disposal/landfill Resource use
Import of fill material	<ul style="list-style-type: none"> Introduction of weeds and diseases (phytophthora) Contamination (imported)
Site / compound establishment	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • Pollution • Water management and flooding • Contamination • Damage to vegetation
Management of contaminated or hazardous materials	<ul style="list-style-type: none"> • Pollution to soil or water

5.1 Surface waters, stormwater and hydrogeology

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

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 assess 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 PV arrays and associated infrastructure comprises land previously cleared or disturbed through the construction of the ADP infrastructure. While some parts of the proposed development footprint include areas of native vegetation, these comprise plantings which were undertaken at the time of ADP's construction and do not form remnant vegetation. In accordance with the *Native Vegetation Act 1991*, the proposed clearance of previously planted vegetation does not require approval from the Native Vegetation Council. Furthermore, the

proposed setback distance of 10m from the existing fence line along the western boundary ensures that native vegetation present nearer to the cliff face is preserved.

5.4 Heritage

The land comprising of the Adelaide Desalination Plant is on the 'Country' of the Kaurna. 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 three (3) known Aboriginal Heritage Sites and Objects recorded on the Aboriginal Affair Register for the SA Water owned land parcels at Adelaide Desalination Plant. Because of this, SA Water has previously engaged with the Kaurna People during the construction of the Adelaide Desalination Plant, which included the establishment of the Kauwi Interpretive Centre which houses a number of identified artefacts. Known sites within the ADP landholding are presently identifiable and protected by exclusionary fencing. The proposed development which is the subject of this report has ensured that the installation of solar PV arrays and associated infrastructure will allow appropriate separation from known items of heritage significance.

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

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

5.5 Waste management

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

5.6 Traffic management

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

6 Conclusion

The proposed installation of solar PV arrays at key SA Water operating sites, such as at ADP land, 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 an established public infrastructure land use which is well separated from main roads, sensitive land uses and areas of high visibility and is considered to be broadly consistent with the relevant provisions of the local development control document; the Onkaparinga Council Development Plan (consolidated 20 December 2018).

The proposal will not conflict with the ongoing operations at ADP, 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 and council areas. 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



REAL PROPERTY ACT, 1886



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



Certificate of Title - Volume 6033 Folio 738

Parent Title(s) CT 5608/586, CT 5752/89

Creating Dealing(s) RTC 11150911

Title Issued	16/04/2009	Edition	4	Edition Issued	22/10/2013
--------------	------------	---------	---	----------------	------------

Estate Type

FEE SIMPLE

Registered Proprietor

SOUTH AUSTRALIAN WATER CORPORATION
OF ADELAIDE SA 5000

Description of Land

ALLOTMENT 12 DEPOSITED PLAN 80713
IN THE AREA NAMED LONSDALE
HUNDRED OF NOARLUNGA

Easements

NIL

Schedule of Dealings

NIL

Notations

Dealings Affecting Title NIL

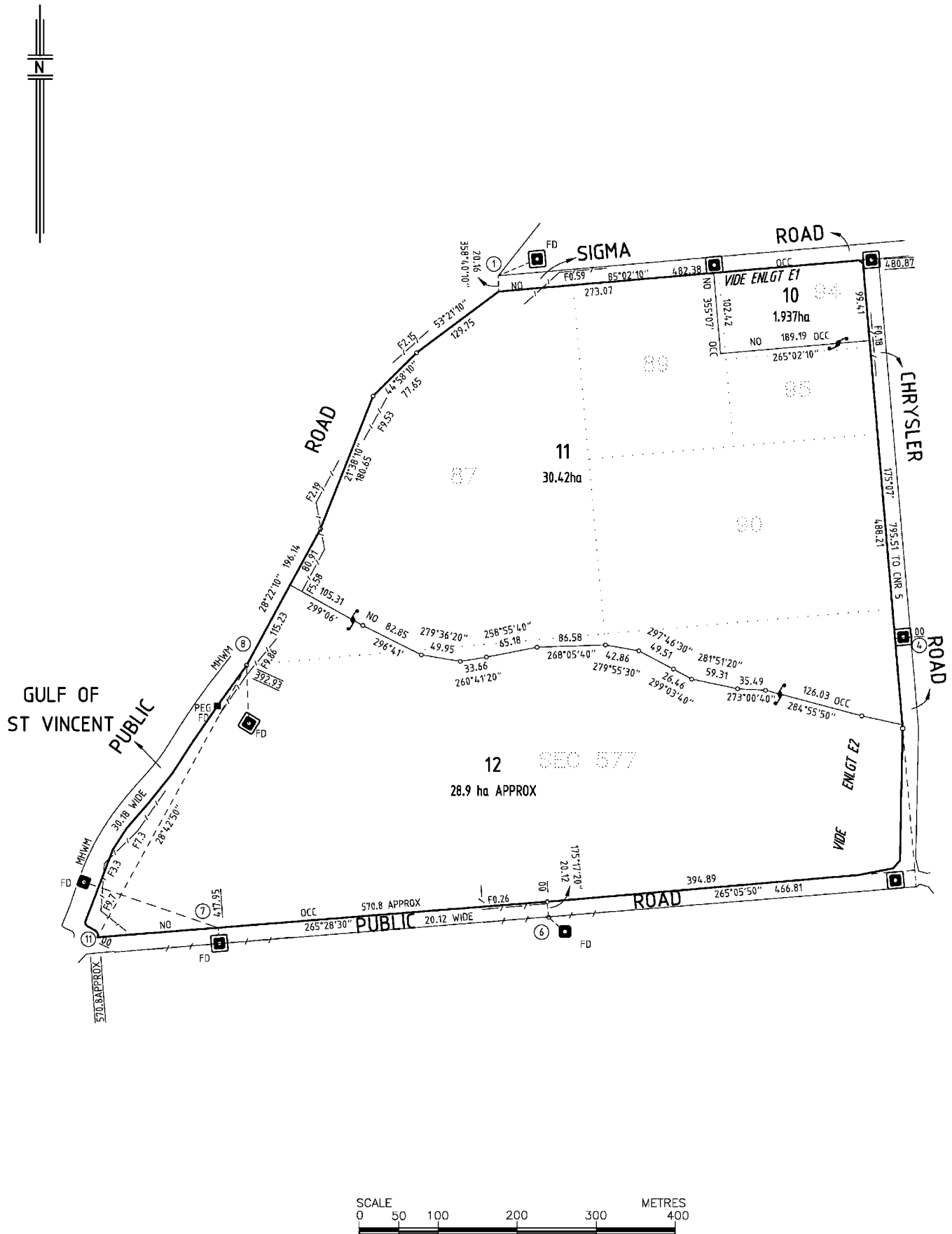
Priority Notices NIL

Notations on Plan NIL

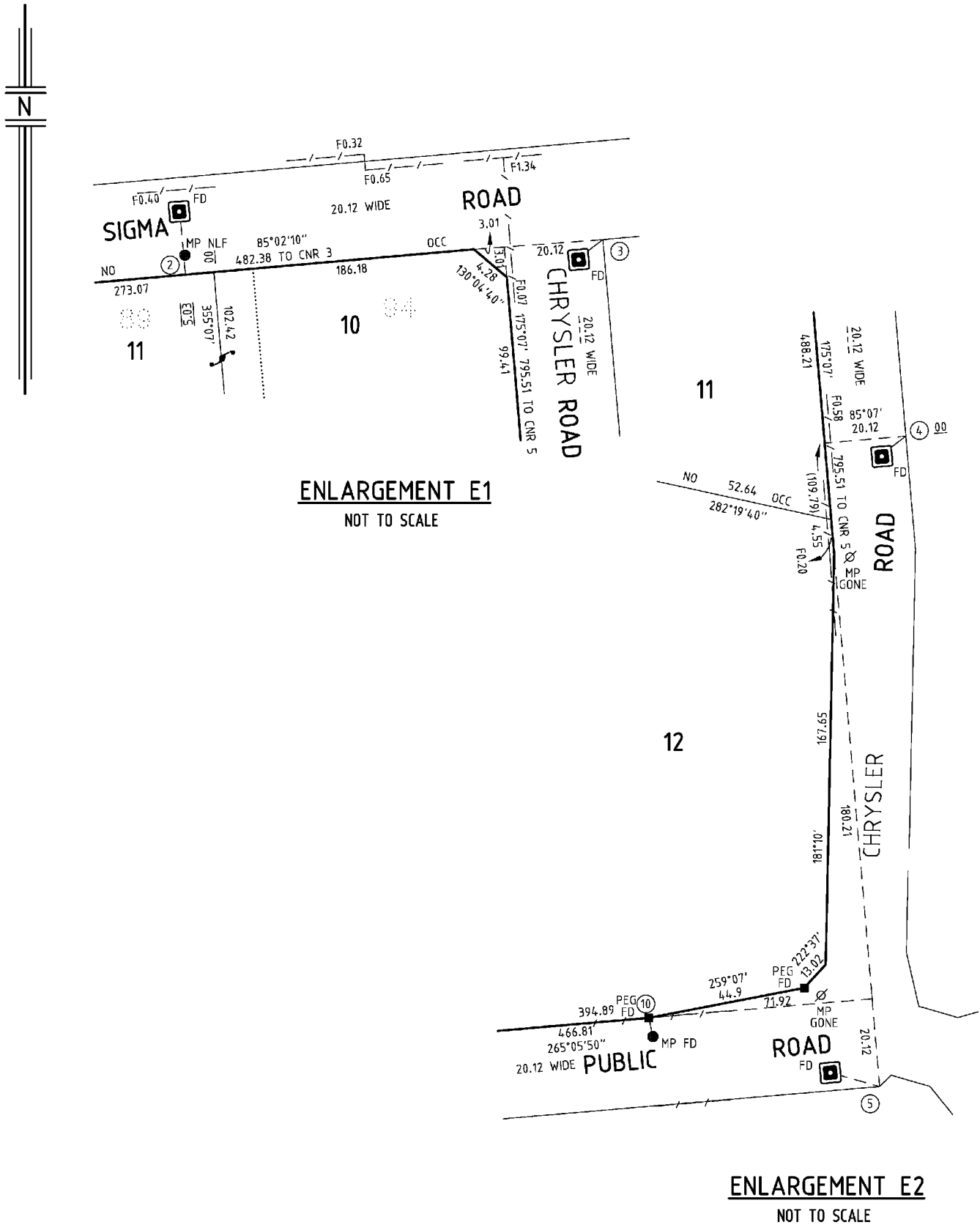
Registrar-General's Notes

AMENDMENT TO DIAGRAM VIDE 11936319
APPROVED FILED PLAN FOR LEASE PURPOSES FX52801

Administrative Interests NIL



SURVEY INFORMATION IS DERIVED FROM DEPOSITED PLAN 80713





REAL PROPERTY ACT, 1886



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



Certificate of Title - Volume 6152 Folio 198

Parent Title(s)	CT 6089/347			
Creating Dealing(s)	SC 12265932			
Title Issued	12/02/2015	Edition	1	Edition Issued 12/02/2015

Estate Type

FEE SIMPLE

Registered Proprietor

SOUTH AUSTRALIAN WATER CORPORATION
OF ADELAIDE SA 5000

Description of Land

ALLOTMENT 51 DEPOSITED PLAN 85837
IN THE AREA NAMED LONSDALE
HUNDRED OF NOARLUNGA

Easements

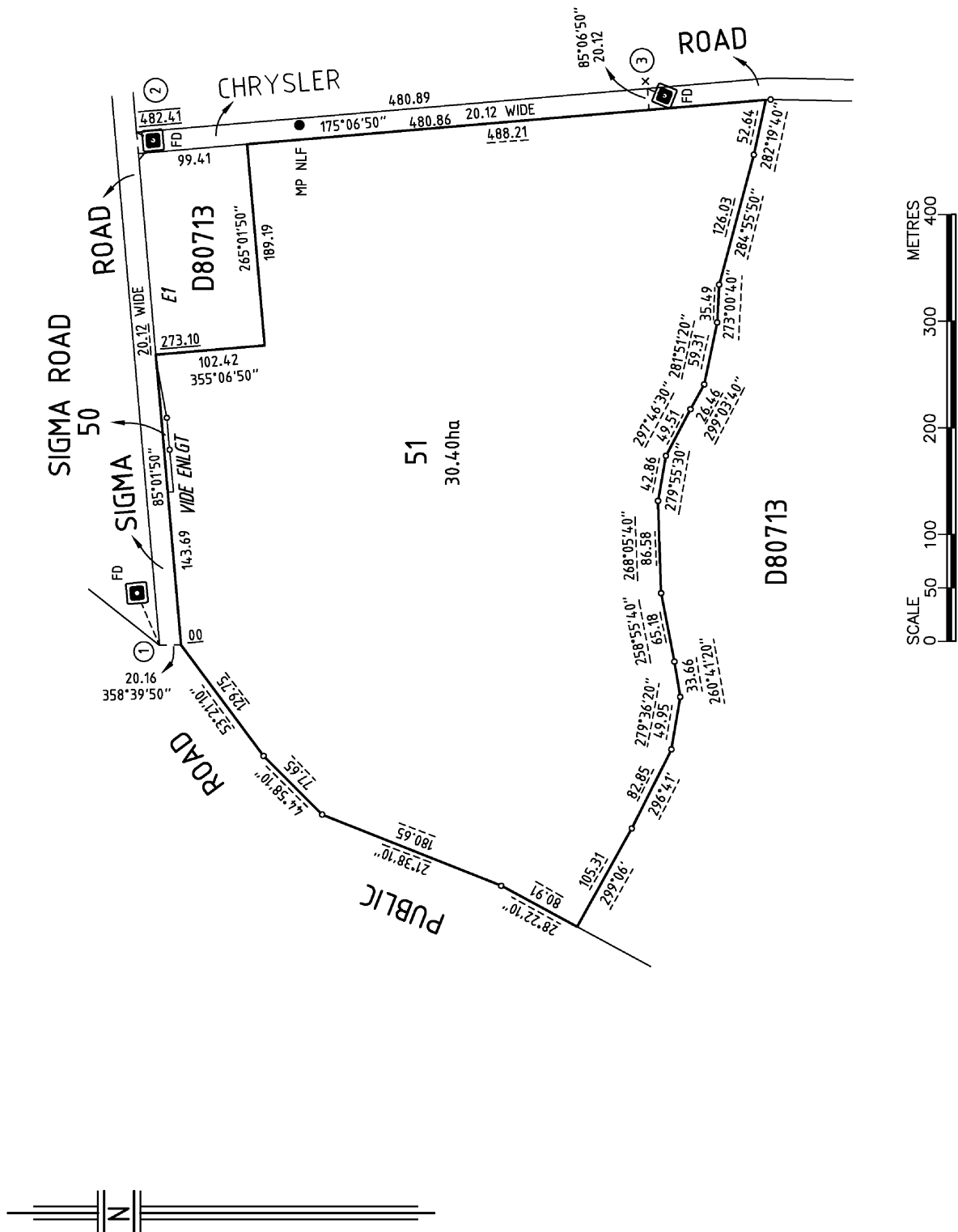
NIL

Schedule of Dealings

Dealing Number	Description
11199414	ENCUMBRANCE TO MOBIL OIL AUSTRALIA PTY LTD

Notations

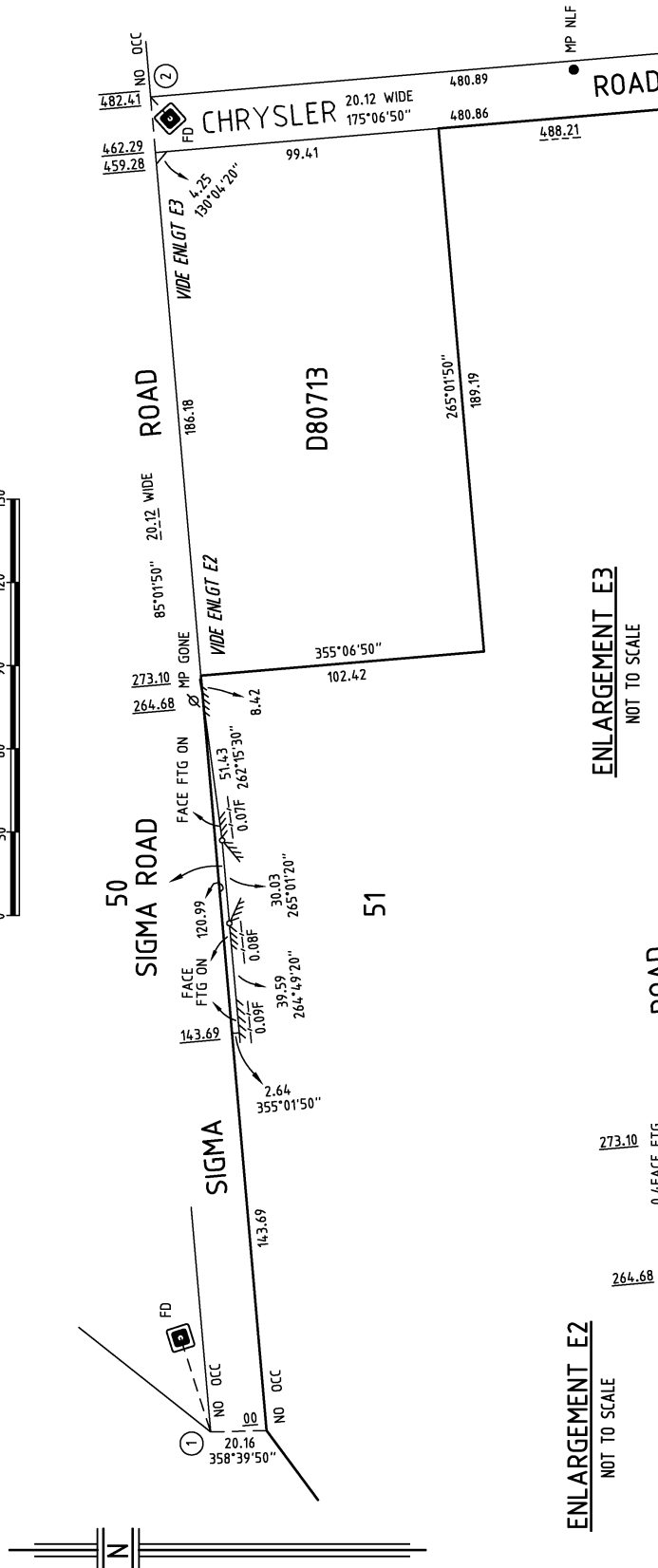
Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL



SURVEY INFORMATION IS DERIVED FROM DEPOSITED PLAN 85837

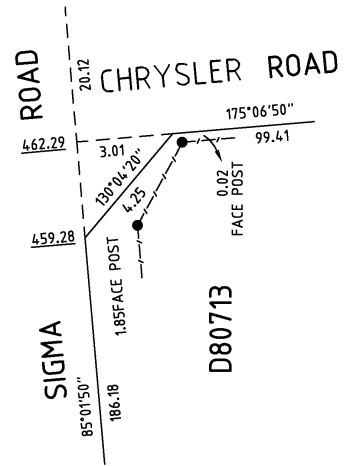


ENLARGEMENT E1



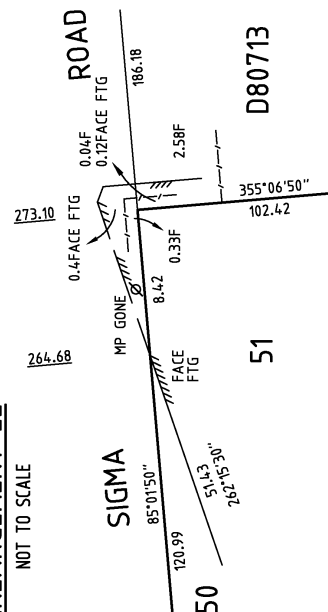
ENLARGEMENT E3

NOT TO SCALE



ENLARGEMENT E2

NOT TO SCALE



Appendix B Design Drawings



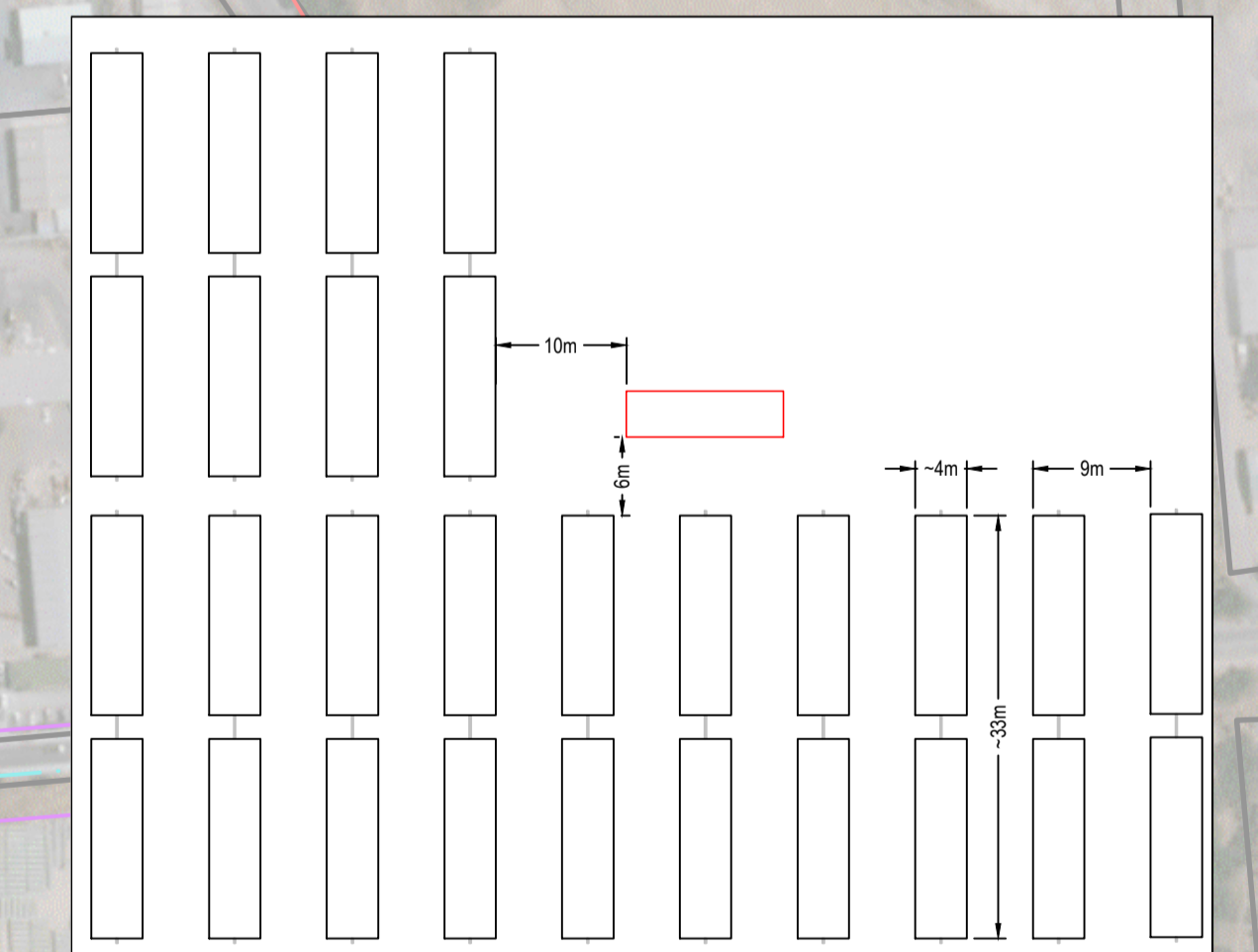
LEGEND

PROPERTY BOUNDARIES	
KEY ROADS	
RAILWAY LINE	
EXISTING FENCE	
DEVELOPMENT AREA INCLUDING 10m SETBACK	
HV OVERHEAD LINE	
HV UNDERGROUND LINE	
TRANSMISSION LINE AND OVERHEAD LINE 30m SETBACK	
STORMWATER PIPELINE	
STORMWATER PIPELINE 15m SETBACK	
DRAINAGE WAY	
DRAINAGE WAY 15m SETBACK	
DAMS	
DAMS 10m SETBACK	
TRACKING SOLAR PV TABLE WITH PV MODULES	
POWER CONVERSION STATION (PCS)	
66 kV SUBSTATION	

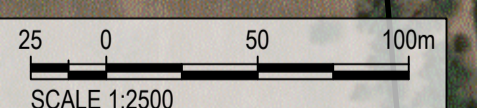
NOTES

- FEATURE 1: 15m SETBACK APPLIED TO EXISTING STORMWATER PIPELINES.
- FEATURE 2: 15m SETBACK APPLIED TO DRAINAGE WAYS.
- FEATURE 3: 30m SETBACK APPLIED TO EXISTING TRANSMISSION AND OVERHEAD LINES
- FEATURE 4: 10m SETBACK APPLIED TO EXISTING DAMS.

INDICATIVE LAYOUT DIMENSIONS

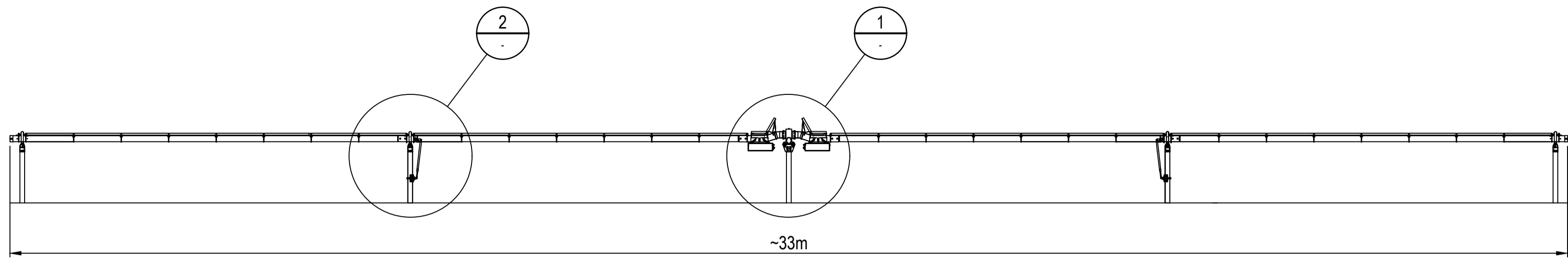


SCALE: NTS

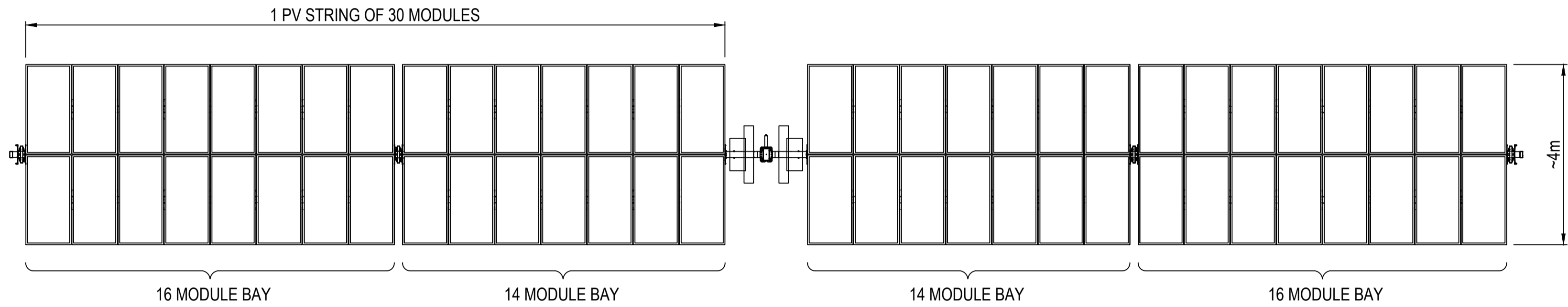


REVISION PANEL					
REV	DATE	DRN	DETAILS		APR'D
A	2019.02.14	ND	DRAFT SINGLE-AXIS TRACKING LAYOUT		
CURRENT REVISION CONTRACTOR:					

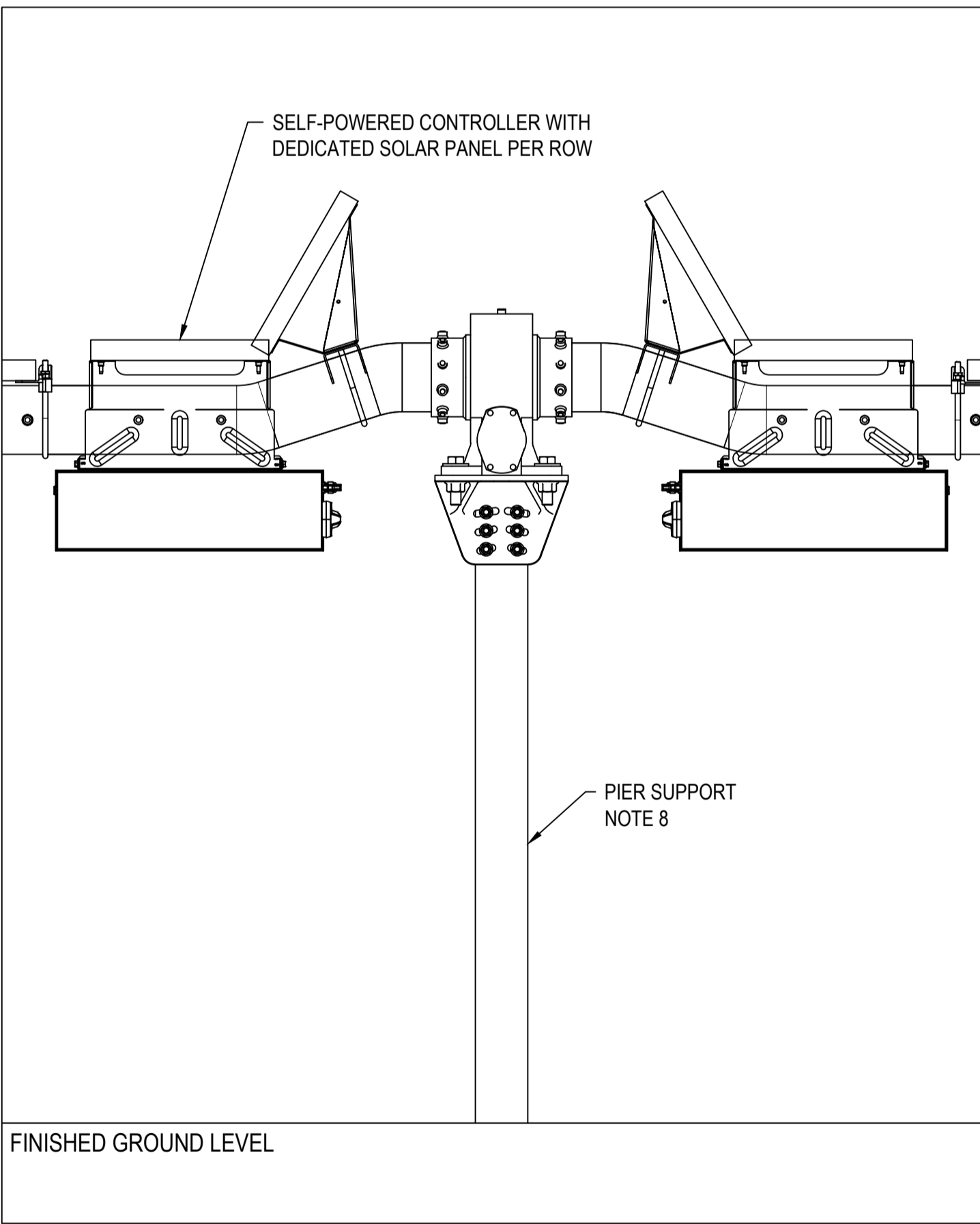
DESIGN PANEL		AUTHORISED
DESIGNED	N.DLAMINI	
DRAWN	N.DLAMINI	SIGNATURE
REVIEWED		
CONTRACTOR:		



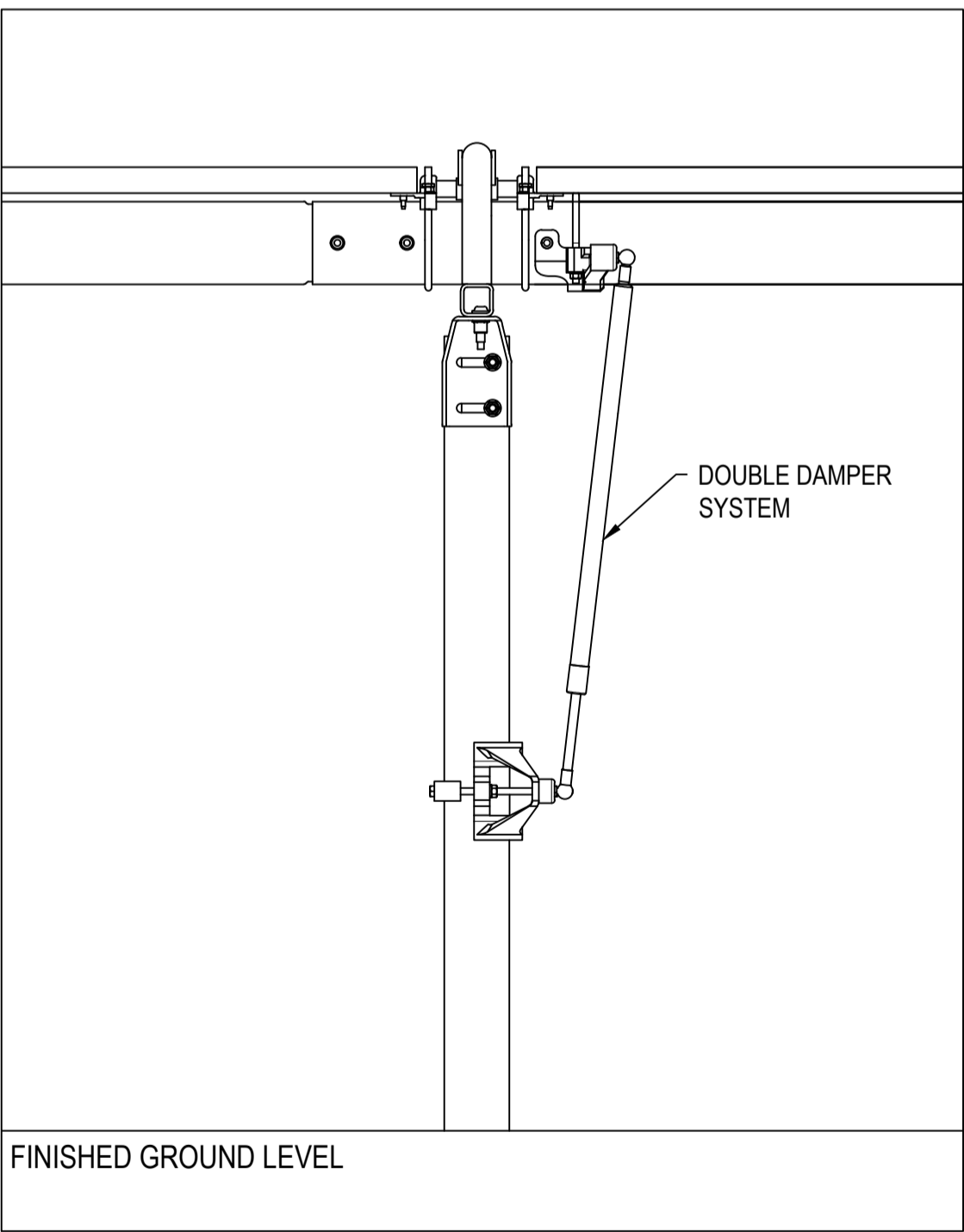
SINGLE AXIS TRACKER - ELEVATION VIEW
N.T.S.



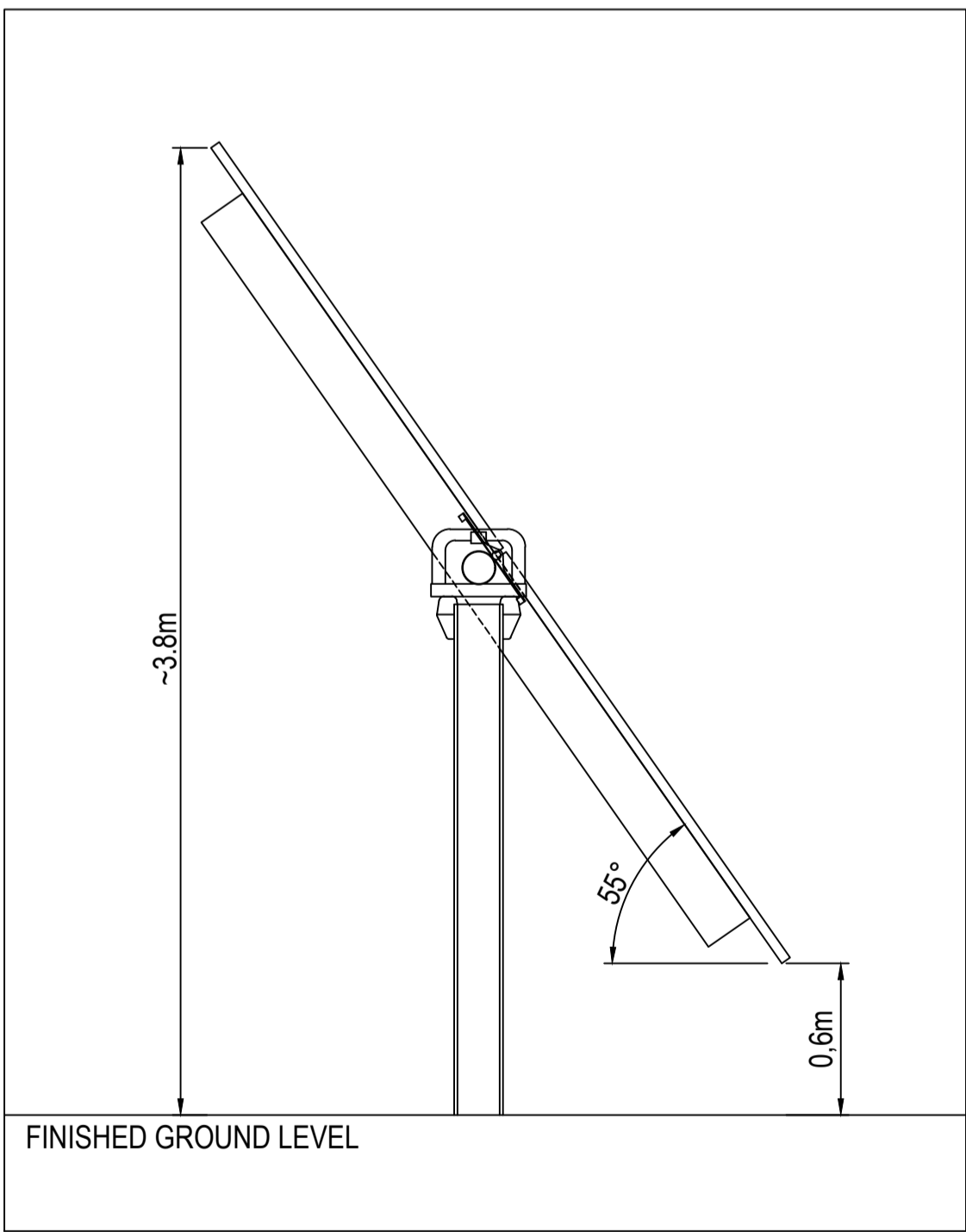
SINGLE AXIS TRACKER - PLAN VIEW
N.T.S.



DETAIL 1
N.T.S.



DETAIL 2
N.T.S.



SIDE ELEVATION VIEW
N.T.S.

NOTES

1. THIS DRAWING HAS BEEN PROVIDED FOR INFORMATION PURPOSES ONLY.
2. THIS DRAWING INDICATES THE PROPOSED TRACKER TECHNOLOGY FOR THE ZERO COST ENERGY FUTURE PV PLANT LOCATED AT THE ADELAIDE DESALINATION PLANT.
3. THIS DRAWING HAS BEEN ADAPTED FROM VARIOUS MANUFACTURER'S CAD DRAWINGS AND DATA SHEETS.
4. THE DIMENSIONS AND CONFIGURATION HAVE BEEN OBTAINED AND ADAPTED FROM VARIOUS MANUFACTURER'S CAD DRAWINGS AND DATASHEETS.
5. THE TRACKER HAS A TRACKING RANGE OF $\pm 55^\circ$.
6. THE SYSTEM IS DRIVEN BY A SLEW GEAR, 24 VDC MOTOR SELF-POWERED CONTROLLER WITH A DEDICATED SOLAR PANEL PER ROW.
7. EACH PV TABLE HAS 2 ROWS OF PV MODULES WITH A MAXIMUM ROW LENGTH OF 30 PV MODULES.
8. THE FINAL HEIGHT OF THE PIER ABOVE GROUND LEVEL WILL DEPEND ON THE SURVEYOR'S REQUIREMENTS AND TRACKER TOLERANCES.

REFERENCES

VARIOUS MANUFACTURER'S DRAWINGS AND DATASHEETS

REVISION PANEL						
REV	DATE	DRN	DETAILS			APR'D
						CURRENT REV AUTHORISED
						SIGNATURE
A	2018.11.09	AF	INDICATIVE SINGLE AXIS TRACKER DETAILS			
CURRENT REVISION CONTRACTOR:						

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



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

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

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



Ref: 2017/01873.01 D18133459

15 October 2018

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

Energy and Technical
Regulation

Office of the
Technical Regulator

Level 8, 11 Waymouth Street
Adelaide SA 5000

GPO Box 320
Adelaide SA 5001

Telephone: 08 8226 5500
Facsimile: 08 8226 5866

www.sa.gov.au/otr

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.

Energy and Technical Regulations

Level 8, 11 Waymouth Street Adelaide SA 5000 | GPO Box 320 Adelaide SA 5001 | DX541
Tel (+61) 8 8226 5500 | Fax (+61) 8 8226 5866 | www.dpc.sa.gov.au | ABN 83 524 915 929



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

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

Yours sincerely

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

Rob Faunt
TECHNICAL REGULATOR

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

Appendix D Preliminary Environmental Management Plan

Part B: Project Environment Management Plan

1 Objectives of the Environmental Management Plan

The general objectives of this Environmental Management Plan are to:

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

2 Legal and other requirements

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

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

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

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

Act	Description	Tick if relevant to project	Status/Assessment outcome/ comments	Summary of approval/ assessment conditions (if relevant)
Standard for the Production and Use of Waste Derived Fill (WDF)				
Native Vegetation Act 1991	Approval for clearance of native vegetation is required under the Act. Native vegetation includes trees, shrubs, groundcovers and grasses.	<input type="checkbox"/>	The Native Vegetation Act 1991 does not apply at this project location.	Existing vegetation within the proposed development footprint is identified to comprise previous amenity plantings associated with earlier ADP construction.
National Parks and Wildlife Act 1972 (SA)	Scientific Permit.	<input type="checkbox"/>	No impacts to National Parks land	N/A
Aboriginal Heritage Act 1988	Authorisation from the Minister for Aboriginal Affairs is required to interfere, damage or disturb Aboriginal heritage sites, objects or remains.	<input checked="" type="checkbox"/>	Three (3) Aboriginal Heritage Sites and Objects have been identified within the Aboriginal Affair Register for the SA Water owned land parcels at Lonsdale (ADP).	All Aboriginal sites and objects protected under the Aboriginal Heritage Act 1988. Exclusionary buffers have been provided for known items and appropriate cultural managemtn activities will be developed for the contractor EMP. In event of discovery, stop work follow the SA Water SOP for Discovery of Aboriginal heritage Sites
Natural Resources Management Act 2004 (Section 175—transporting declared plants)	Consultation with NRM Board is required if transporting plants declared under Part 175 of NRM Act	<input checked="" type="checkbox"/>		The Contractor will be responsible for obtaining authorisation from the Natural Resources Management Board to transport declared plants on a public road, in accordance with Section 175 and 188 of the Natural Resources Management Act 2004 (SA).
Native Title Act 1993	Notice to be issued if works Native Title. Note: ILUA notification process may be applicable in some areas.	<input type="checkbox"/>	The Crown Solicitors office confirmed with regards to the ADP project site that any native title which existed over the subject land have been extinguished.	N/A

Act	Description	Tick if relevant to project	Status/Assessment outcome/ comments	Summary of approval/ assessment conditions (if relevant)
<i>Local Government Act 1999 (SA)</i>	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).	<input type="checkbox"/>	N/A	
<i>Road Traffic Act 1961 (SA)</i>	Section 33 Council approval is required for temporary closure of a public road to facilitate an event	<input type="checkbox"/>	Approval required if temporary closure if a Council Road	N/A
<i>Parliamentary Committees Act 1991 (SA)</i>	16A: Certain public works referred to Public Works Committee (PWC) Subject to subsection (3), a public work is referred to the PWC by force of this section if the total amount to be applied for the construction of the work will, when all stages of construction are complete, exceed \$4M	<input checked="" type="checkbox"/>	Infrastructure construction works in excess \$4M require Public Works Committee (PWC) referral and associated Cabinet Submission	As the total expected construction cost exceeds \$4m, a referral to the Public Works Committee (PWC) will be undertaken.

3 Environmental Management System and Structure

3.1 Environmental system requirements

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

3.2 Inductions and Training

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

A record of inductions must be maintained.

3.3 Records and record keeping

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

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

3.4 Roles and Responsibilities

3.4.1 Superintendents Representative (SA Water Project Manager)

The nominated Superintendents Representative is responsible for:

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

3.4.2 Contractor's Site Supervisor/ Site Manager

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

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

3.4.3 Employees, sub-contractors and Labour hire personnel

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

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

3.5 Inspections and Monitoring of Environmental Performance

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

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

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

Frequency	Issues
Prior to works	<ul style="list-style-type: none">• 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

Frequency	Issues
	<ul style="list-style-type: none"> Location of spill control measures and spill kits available
Daily	<ul style="list-style-type: none"> Site is neat and tidy Waste contained appropriately Chemicals and materials stored appropriately No evidence of dust nuisance No evidence of water contamination/runoff from site Adjacent roads clean (not covered in sediment etc.).
Before/during rainfall events	<ul style="list-style-type: none"> Runoff controls in place and maintained Protection of stormwater entry points Drainage lines clear of debris
Weekly/monthly	<ul style="list-style-type: none"> Overall environmental management measures as per CEMP in place.

3.5.1 Audits and Inspections

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

3.5.2 Non -conformance and corrective actions

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

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

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

4 Emergency Response and Environmental Incidents

4.1 Emergency Planning, Preparedness and Response

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

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

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

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

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

4.2 Environmental Incident Management

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

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

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

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

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

5 Environmental Management Controls

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

Environmental Impact	Water Quality Impacts / Pollution of Water
Objective	Prevent or minimise adverse effects on surface water and groundwater quality, flows and drainage
Performance indicators	<ul style="list-style-type: none"> 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	<p>Pre-Construction</p> <ul style="list-style-type: none"> 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). <p>Construction</p> <ul style="list-style-type: none"> 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 from 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.

	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • No unauthorised clearance. • Protection in place (bunting, marking off) for vegetation on site where appropriate.
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> • 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). <p>Construction</p> <ul style="list-style-type: none"> • 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 ($\geq 50\text{mm}$) are discovered during the works these are to be bridged where possible. Roots discovered $<50\text{mm}$ 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	<ul style="list-style-type: none"> • Pest plants / pathogens not introduced into worksite or spread as result of works. • No movement of declared plants in an uncontrolled manner.
Performance indicators	<ul style="list-style-type: none"> • No new incursions of declared plants or plant pathogens post construction. • Weed and hygiene measures in place.
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> • Ensure any declared plants within work area are identified.

	<ul style="list-style-type: none"> Ensure plant and machinery washed down prior to entry to work zone. <p>Construction</p> <ul style="list-style-type: none"> Ensure imported material is 'weed free' by applying a risk based approach, material is considered weed/pest free if: <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Fauna within works area not adversely impacted.
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> Ensure contact list for local/regional fauna rescue organisation available. <p>Construction</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 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	<p>Pre-Construction</p> <ul style="list-style-type: none"> • 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 <p>Construction</p> <ul style="list-style-type: none"> • Follow requirements of the SA EPA Guideline for stockpile management including: <ul style="list-style-type: none"> ◦ 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	<ul style="list-style-type: none"> • 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	<p>Pre-Construction</p> <ul style="list-style-type: none"> • Identify site access, laydown areas and stockpile locations • Identify sensitive receivers and dust monitoring requirements. <p>Construction</p> <ul style="list-style-type: none"> • 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.

	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> No complaints related to noise or vibration. No property damage resulting from vibration.
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> 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 (through 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. <p>Construction</p> <ul style="list-style-type: none"> Construction activities should be in accordance with the EPA Construction Noise Information Sheet (EPA 425/17): <ul style="list-style-type: none"> 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 (through 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).

	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Hazardous substances stored appropriately and spill kits on site. • No impact to soil/groundwater associated with storage use of hazardous substances.
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> • 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. <p>Construction</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Identify potential contamination issues on site. • Manage such issues to protect employees, the public and the environment.

Performance Indicators	<ul style="list-style-type: none"> • No impact to soil/groundwater associated with contaminated material. • No risk to employees from encountering and managing contaminated material.
Controls	<p>Construction</p> <ul style="list-style-type: none"> • 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 (licensed waste transporter and to EPA licensed facility). • Waste transfer certificates retained for contaminated material and available on request. • If contaminated material discovered: Isolate the suspected contaminated area. <ul style="list-style-type: none"> ◦ 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Management of any Aboriginal discoveries in accordance with the SA Water SOP for the Discovery of Aboriginal Heritage (Refer to Appendix A)
Controls	<p>Construction</p> <ul style="list-style-type: none"> • The SA Water SOP for the Discovery of Aboriginal Heritage must be available on site and all construction personnel inducted into this procedure. <ul style="list-style-type: none"> ◦ 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	<ul style="list-style-type: none"> • Ensure compliance with South Australian Country Fire Act 1989. • To ensure that construction activities do not cause an emergency incident such as starting a fire.
Performance indicator	<ul style="list-style-type: none"> • No emergency incidents as a result of construction activities.
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> • 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. <p>Construction</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Compliance with waste management requirements
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> • Adopt the principles of the waste management hierarchy and plan/procure materials that : <ul style="list-style-type: none"> ◦ 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. <p>Construction</p>

	<ul style="list-style-type: none"> • 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. <p>For spoil management refer to the Stockpile management section.</p>
--	---

Impact	Visual Amenity
Objective	<ul style="list-style-type: none"> • Prevent or minimise negative impacts from construction activities on the visual amenity of the local area.
Performance indicator	<ul style="list-style-type: none"> • No community complaints regarding visual amenity during the construction period or post project associated with site condition (e.g. demobilisation).
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> • 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. <p>Construction</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • To minimise the impact to the public associated with the construction of this project.
Performance indicator	<ul style="list-style-type: none"> • Minimise complaints from the public regarding traffic management.
Controls	<p>Pre-Construction</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ◦ Traffic management measures proposed during (including any sub-contractors).

	<ul style="list-style-type: none">○ Any temporary access to properties affected by the works.○ Proposals for detours/deviations, placement of barriers etc. <p>Construction</p> <ul style="list-style-type: none">● 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

