APPLICATION ON NOTIFICATION – CROWN DEVELOPMENT

Type of development:	SECTION 49 - PUBLIC INFRASTRUCTURE
Development Number:	660/V002/19
Applicant:	ElectraNet Pty Ltd
Nature of Development:	Expansion of the Davenport Substation comprising: (a) extension of the existing substation footprint; (b) installation of two synchronous condensers contained within separate buildings; and (c) associated electrical infrastructure (including transformers, firewalls and gantries), second access road, perimeter fencing, drainage and civil works.
Subject Land:	230 Port Patterson Road, Port Paterson (CT 6202/318)
Development Plan:	Port Augusta C(ity) Development Plan
Zone / Policy Area:	Industry Zone
Contact Officer:	Simon Neldner
Phone Number:	08 7109 7058
Consultation Start Date:	28 March 2019
Consultation Close Date:	19 April 2019

During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders St, Adelaide, during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).

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

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

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

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

Email Address: scapreps@sa.gov.au

Government of South Australia

Department of Planning, Transport and Infrastructure

DEVELOPMENT ACT 1993

SECTION 49A - ELECTRICITY INFRASTRUCTURE

NOTICE OF APPLICATION FOR CONSENT TO DEVELOPMENT

Notice is hereby given that an application has been made by **ElectraNet Pty Ltd** for consent to undertake an expansion of the Davenport Substation. **Development Number: 660/V002/19.**

The project will comprise: (a) extension of the existing substation footprint; (b) installation of two synchronous condensers contained within separate buildings; and (c) associated electrical infrastructure (including transformers, firewalls and gantries), second access road, perimeter fencing, drainage and civil works.

The subject land is situated at 230 Port Paterson Road, Port Paterson (Allotment 501, DP82120: CT 6202/318), adjacent the south-western corner of the existing Davenport substation. The development site is located within the Industry Zone of the Port Augusta Council Development Plan (Consolidated 7 July 2016).

The application may be examined during normal office hours at the office of the State Commission Assessment Panel (SCAP), Level 5, 50 Flinders Street and at the office of the Port Augusta Council, 4 Mackay Street, Port Augusta. Application documentation may also be viewed on the SCAP website http://www.saplanningcommission.sa.gov.au/scap/public_notices.

Any person or body who desires to do so may make representations concerning the application by notice in writing delivered to the Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 **NOT LATER THAN 19 APRIL 2019.** Submissions may also be emailed to: scapreps@sa.gov.au

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

Submissions may be made available for public inspection.

Should you wish to discuss the application and the public notification procedure please contact Simon Neldner on (08) 7109 7058 or simon.neldner@sa.gov.au

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

PN3671

www.sa.gov.au

PN3671
22x2 (63mm)
Adelaide Advertiser, Transcontinental
27 March 2019

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

Applicant:	ElectraNet PL
Development Number:	660/V002/19
Nature of Development:	Expansion of the Davenport Substation
Zone / Policy Area:	Industry Zone
Subject Land:	230 Port Patterson Road, Port Paterson (CT 6202/318)
Contact Officer:	Simon Neldner
Phone Number:	7109 7058
Close Date:	19 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: *(please tick one)*

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

By: *(please tick one)*

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

Signature: _____

Date: _____

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

SECTION 49 & 49A – CROWN DEVELOPMENT
DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: Port Augusta (City)

APPLICANT: ElectraNet Pty Ltd

ADDRESS: 52-55 East Tce, Adelaide

CROWN AGENCY: ElectraNet - S49A

FOR OFFICE USE

DEVELOPMENT No: _____

PREVIOUS DEVELOPMENT No: _____

DATE RECEIVED: / /

CONTACT PERSON FOR FURTHER INFORMATION

Name: Scott Haynes

Telephone: 0408883559 [work] _____ [Ah]

Fax: _____ [work] _____ [Ah]

Email: haynes.scott@electranet.com.au

NOTE TO APPLICANTS:

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

☐ Complying
☐ Merit
☐ Public Notification
☐ Referrals

Decision: _____

Type: _____

Finalised: / /

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

EXISTING USE: Substation

DESCRIPTION OF PROPOSED DEVELOPMENT: Minor substation expansion for installation of two Synchronous Condensers and associated electrical infrastructure including construction of a second access road

LOCATION OF PROPOSED DEVELOPMENT: Davenport Substation

House No: _____ Lot No: 8 Street: _____ Town/Suburb: Port Paterson

Section No [full/part] FP9786 Hundred: Davenport Volume: 5493 Folio: 240

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

LAND DIVISION:

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

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

DEVELOPMENT COST [do not include any fit-out costs]: $ 45,000,000.00

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: 28 / 2 / 19

REAL PROPERTY ACT, 1886
South Australia

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

Certificate of Title - Volume 6202 Folio 318

Parent Title(s) CT 5493/596

Creating Dealing(s) RTC 12849719

Title Issued 10/01/2018 **Edition** 1 **Edition Issued** 10/01/2018

Estate Type

FEE SIMPLE

Registered Proprietor

TRANSMISSION LESSOR CORPORATION
OF 200 VICTORIA SQUARE ADELAIDE SA 5000

Description of Land

ALLOTMENT 501 DEPOSITED PLAN 82120
IN THE AREA NAMED PORT PATERSON
HUNDRED OF DAVENPORT

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON D82120 FOR WATER SUPPLY PURPOSES (RTC 12849719)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON D82120 FOR SEWERAGE PURPOSES (RTC 12849719)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON D82120 FOR DRAINAGE PURPOSES (RTC 12849719)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON D82120 FOR GAS SUPPLY PURPOSES (RTC 12849719)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON D82120 FOR THE TRANSMISSION OF TELECOMMUNICATION SIGNALS BY UNDERGROUND CABLE (RTC 12849719)

SUBJECT TO FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A ON D82120 (RTC 12849719)

Schedule of Dealings

Dealing Number	Description
9061500	LEASE TO ELECTRANET PTY. LTD. COMMENCING ON 31/10/2000 AND EXPIRING ON 30/10/2200 PURSUANT TO ELECTRICITY CORPORATIONS (RESTRUCTURING AND DISPOSAL) ACT 1999

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

APPROVED FX253285

Administrative Interests

SIGNIFICANT ENVIRONMENTAL BENEFIT 2006_3072

Davenport Sychronous Condensers Substation Expansion

Development Application Report

February 2019

Version 1.0

Security Classification: Public

ElectraNet Corporate Headquarters
52-55 East Terrace, Adelaide, South Australia 5000 • PO Box 7096, Hutt Street Post Office, Adelaide, South Australia 5000
Tel: (08) 8404 7966 • Fax: (08) 8404 7956 • Toll Free: 1800 243 853

Copyright and Disclaimer

Reasonable endeavours have been used to ensure that the information contained in this report is accurate at the time of writing. However, ElectraNet gives no warranty and accepts no liability for any loss or damage incurred in reliance on this information.

Revision Record

Date	Version	Description	Author	Checked By	Approved By
22/2/19	1.0	Syncronous Condensors DA Report	Scott Haynes	Crina Costan	Dorin Costan

Contents

Figures

1. Introduction

To facilitate the construction and installation of Synchronous Condensers to the electricity grid in response to an identified system strength gap, there is a need to expand the Davenport Substation.

2. Background

ElectraNet Pty Ltd (ElectraNet) is the principal electricity Transmission Network Service Provider (TNSP) in South Australia, operating as part of the National Electricity Market under National Electricity Rules. The company's revenue is set by the Australian Energy Regulator (AER).

ElectraNet's role is to own and manage the high-voltage transmission lines and substations that connect this State's electricity generation system to multiple customer connection points, including SA Power Network's lower-voltage distribution network. The role of ElectraNet in the electricity supply chain is shown in Figure 2-1:

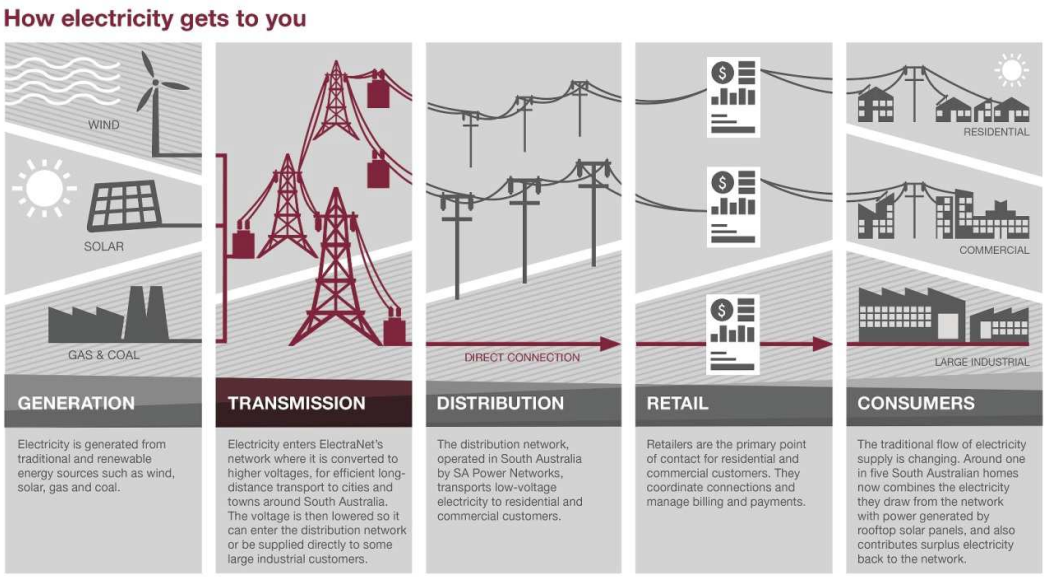


Figure 2-1: Role of ElectraNet in the electricity supply chain

ElectraNet's transmission network is one of the most extensive regional transmission systems in Australia, extending across some 200,000 square kilometres of the State. This network consists of transmission lines operating at 132,000 and 275,000 Volts, which are supported by both lattice towers and large stobie poles.

2.1.1 Project Need

South Australia has become a world leader in renewable energy generation. This means that traditional synchronous generation sources, such as gas-fired units, now operate less often.

A secure power system needs adequate levels of system strength and inertia, which to date have been provided by traditional synchronous generators.

To maintain and manage the security of the power system this traditional source of system strength now needs to be provided by other means. In October 2017, the Australian Energy Market Operator (AEMO) declared a gap in system strength in South Australia, which requires ElectraNet to use its reasonable endeavours to address this gap on an ongoing basis.

AEMO's notice identified a system strength gap at the Davenport 275 kV transmission connection point of 620 MVA each year for the remainder of the current five-year NSCAS planning horizon and beyond.

System strength relates to the ability of a power system to manage minor fluctuations in supply or demand while maintaining stable voltage levels, ensuring stable and secure supply for customers. A lack of system strength on the power system brings with it an increased risk of system instability and supply interruptions.

ElectraNet has been investigating options to address this gap to ensure we can provide customers with a reliable and secure power system, while also keeping costs down. Options include entering into contracts with generators or installing synchronous condensers.

Following an analysis of these options through a generator tendering process and advice from independent energy market experts, the installation of synchronous condensers on the network has been determined to be the most efficient and least cost option.

Synchronous Condensers can provide some very strong system benefits that offer great value to the operation of the grid:

- Increase in Short-Circuit Strength: Synchronous Condensers are the only technology that significantly increases fault current.
- Increase in System Inertia: Synchronous Condensers are the only technology that increases system inertia which benefits frequency stabilization.

The implementation of a synchronous condenser solution has the support of AEMO, the AER and the South Australian Government. It is expected to be fully operational by the end of 2020.

Network analysis by ElectraNet has determined that synchronous condensers should be connected at Davenport (near Port Augusta), Robertstown (in mid north of South Australia) and potentially a metropolitan site in Adelaide.

This application is for the Davenport site. A separate application for synchronous condensers at Robertstown will be lodged in the near future.

3. Subject Site

3.1 Location

Davenport Substation is located immediately south of Port Augusta near the old Port August power stations as shown in Figure 3-1.

Figure 3-1 Substation location Plan

3.2 Property

The subject property is defined as Allotment 8, F9786, Certificate of Title 5493 / 596 refer Appendix A.

4. Nature of Development

As identified in Section 2.1.1, synchronous condensers are required to be installed at Davenport substation.

“In electrical engineering, a synchronous condenser (sometimes called a synchronous capacitor or synchronous compensator) is a DC-excited synchronous motor, whose shaft is not connected to anything but spins freely. Its purpose is not to convert electric power to mechanical power or vice versa, but to adjust conditions on the electric power transmission grid. Its field is controlled by a voltage regulator to either generate or absorb reactive power as needed to adjust the grid's voltage, or to improve power factor. The condenser’s installation and operation are identical to large electric motors and generators” (Wikipedia).

To facilitate the connection of the two synchronous condensers, an expansion on the south-western side of the substation will be required as illustrated in Figure 4-1, 4-2 & 4-3. The substation expansion area measures approximately 164.5m x 65.5m as illustrated in detailed drawings contained in Appendix B.

A previous DA (660/V003/16) was submitted and approved on 7 February 2017 for a minor expansion in this same location however that particular expansion did not eventuate.

The two synchronous condensers will be contained within separate buildings measuring approximately 31.5m x 23.5m x 10m high for weather protection. The buildings will be constructed using insulated colorbond sheet metal material in a neutral, low reflective colour.

Each synchronous condenser will have an associated new transformer, firewalls, gantries and associated electrical equipment to connect to the substation.

No new transmission lines are proposed as part of this application.

The site will require the construction of a new access track from Port Paterson Road to the southern section of the substation. This is required due both the weight capacity required for the road plus a safety requirement for secondary egress from the substation should the northern access / egress be obstructed.

ElectraNet has obtained cultural heritage clearance for the substation expansion area and will have monitors supervising earthworks in accordance with the Davenport Substation Cultural Heritage Management Plan.

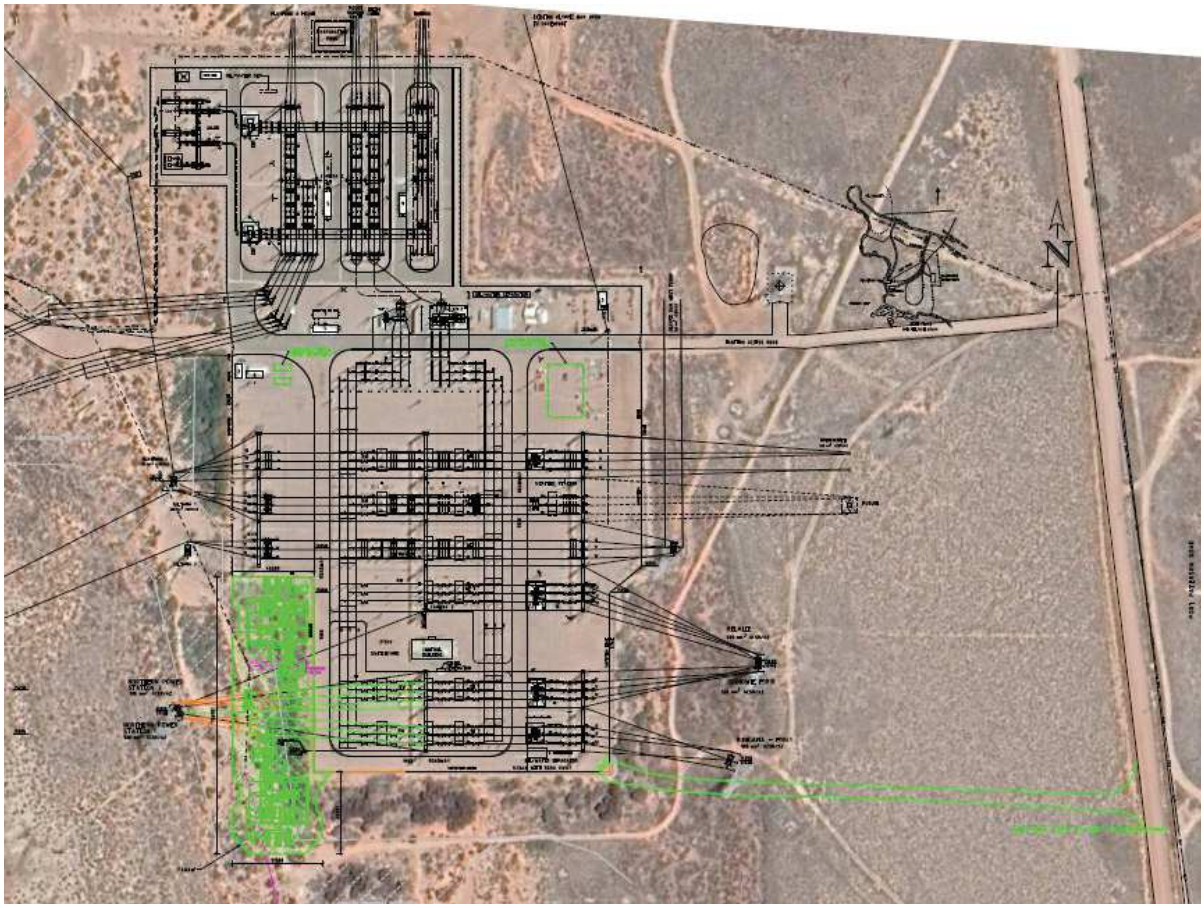


Figure 4-1 Proposed Layout (refer Green lines)

Figure 4-2 Davenport proposed expansion area - current (view looking north)

Figure 4-3 Davenport proposed expansion area - (view looking east)

4.1 Synchronous Condenser

4.1.1 Main Components

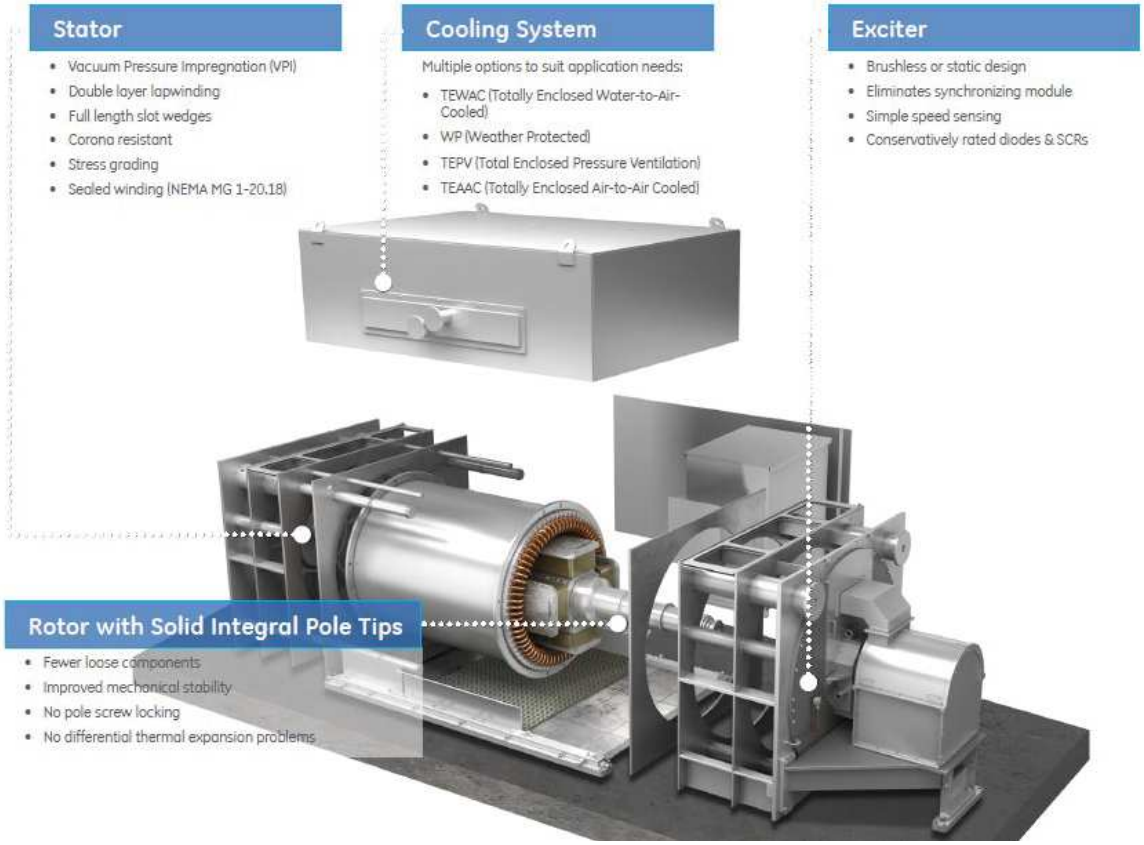


Figure 4-4 Synchronous Condenser Main Components (source:gegridsolutions.com)

4.1.2 Typical configuration

Figure 4-5 Example Synchronous Condensers

5. Development Assessment

The Port Augusta (City) Development Plan (Consolidated 7 July 2016) is the relevant plan for this proposal.

The subject site is located within the Industry Zone (Refer Maps 31, 32 and 38). The proposed development will not affect any neighbouring property with the nearest dwelling some 900-1000m away.

The proposed expansion of the substation is not at variance with the zone provisions and represents orderly development.

6. Recommendation

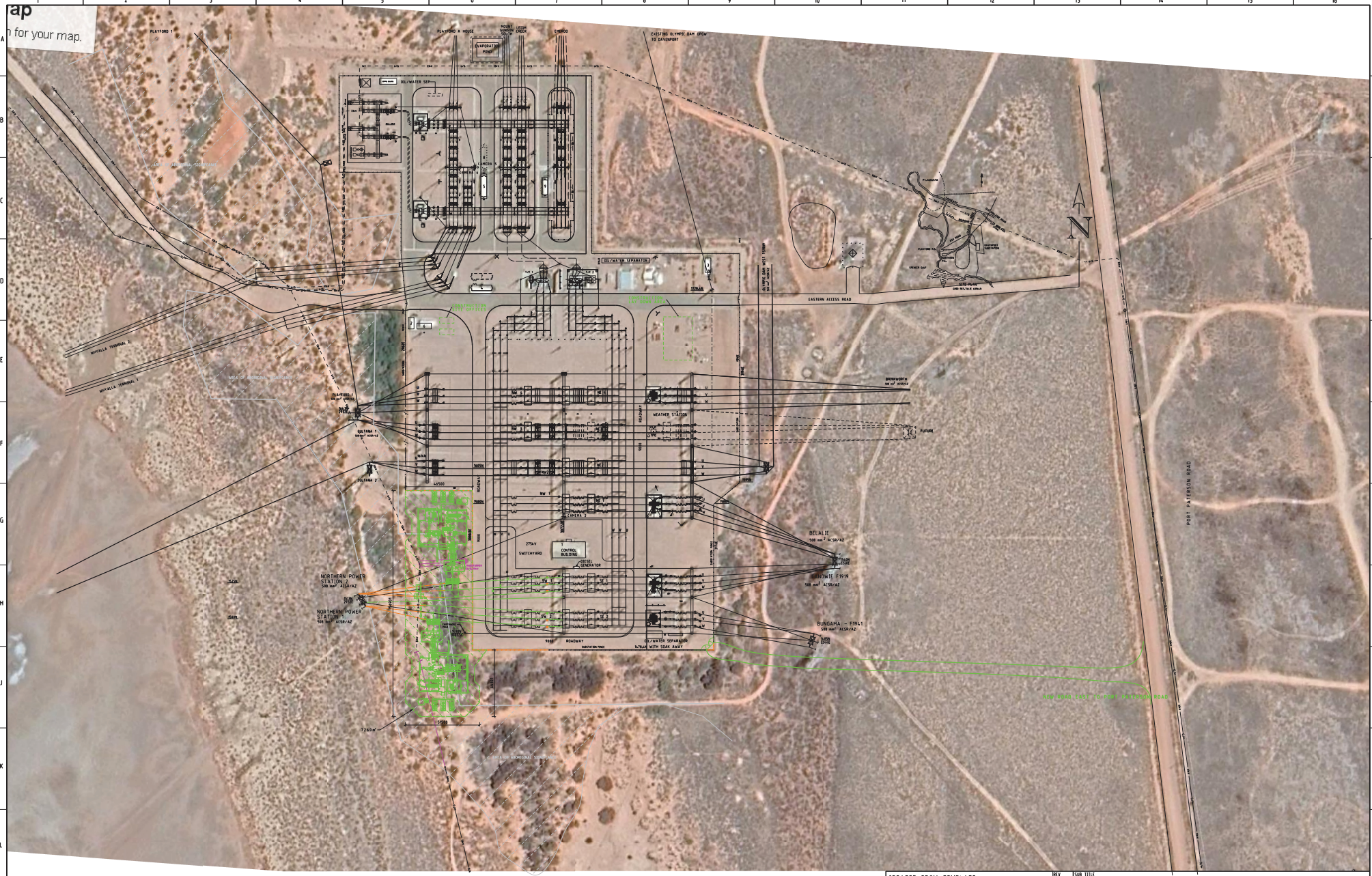
That the proposed development is granted Crown Development Approval pursuant to Section 49A being Electricity Infrastructure Development.

Davenport Sychronous Condensers Substation Expansion

Appendices

February 2019

Security Classification: Public



TOLERANCES UNLESS OTHERWISE SPECIFIED REFER DRAWING‡

REV	DETAILS OF REVISION	DRN	CKD	APD	DATE
A	FIRST ISSUE ENET 14219	DCC	CC	CC	

REFERANCE DRAWINGS‡

LEGEND
CURRENT S.O.W.
FUTURE S.O.W.
EXISTING ASSETS
DECOMMISSIONED
TO BE RELOCATED

ElectraNet
ISSUED FOR INFORMATION
22/02/19 REV A.2
PROJECT # 14219
SIGNED

DRN	D.CALDWELL
CKD	C.COSTAN
INSP	T.PATWA
AUTH	C.COSTAN

CREATED FROM TEMPLATE‡
DRAWING WAS PREVIOUSLY‡

REV
SUB TITLE
SITE LAYOUT SYNCHRONOUS CONDENSERS
ElectraNet – electricity transmission
TITLE
PRELIMINARY LAYOUT
DAVENPORT SUBSTATION
SCALE 1:1000
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REV A
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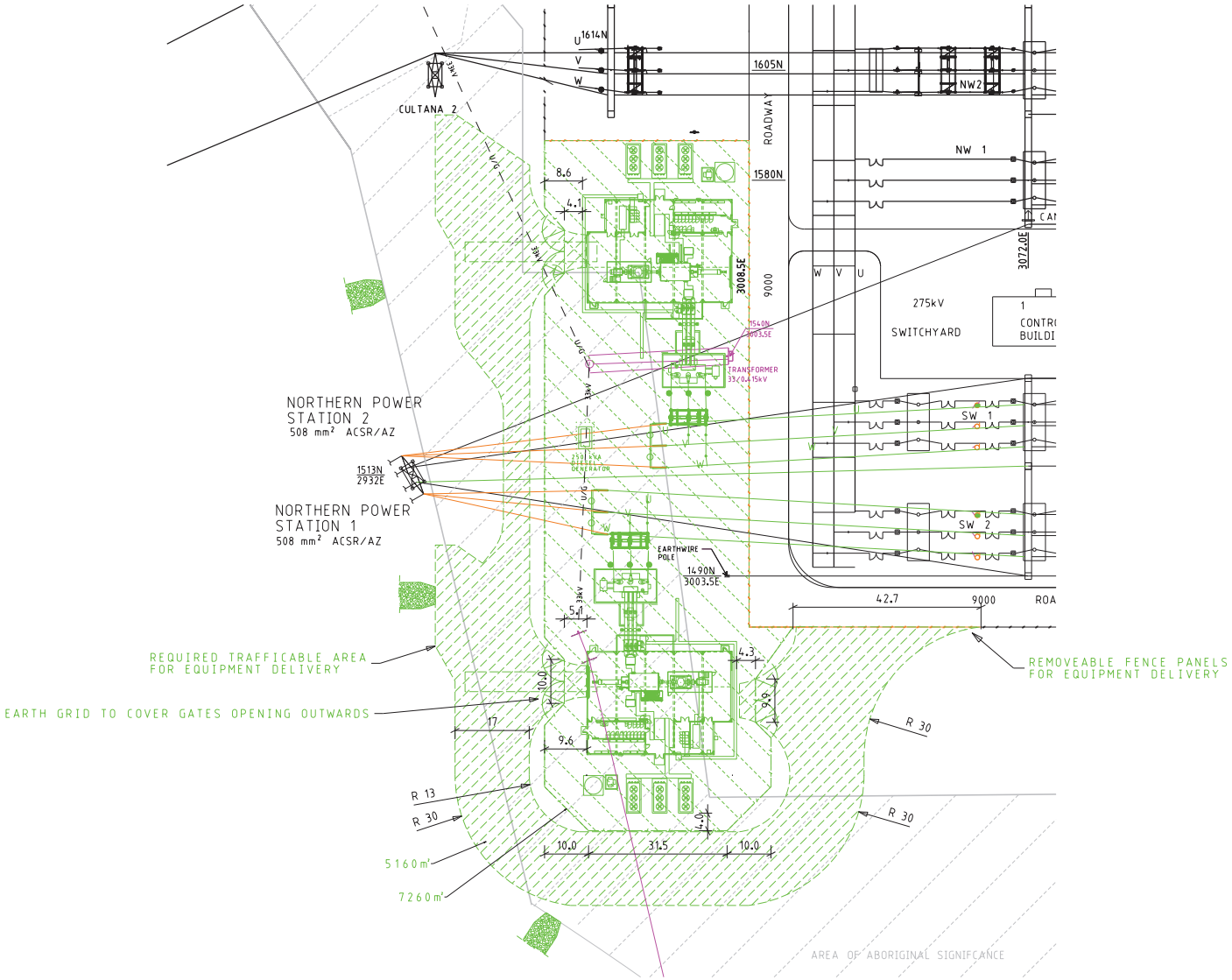

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A	FIRST ISSUE ENET 14219	RVD	CKD	APD	DATE

LEGEND
- CURRENT S.O.W.
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AUTH	C.COSTAN

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SUB TITLE
SYNCHRONOUS CONDENSORS AREA

ElectraNet – electricity transmission

TITLE
PRELIMINARY LAYOUT
DAVENPORT SUBSTATION

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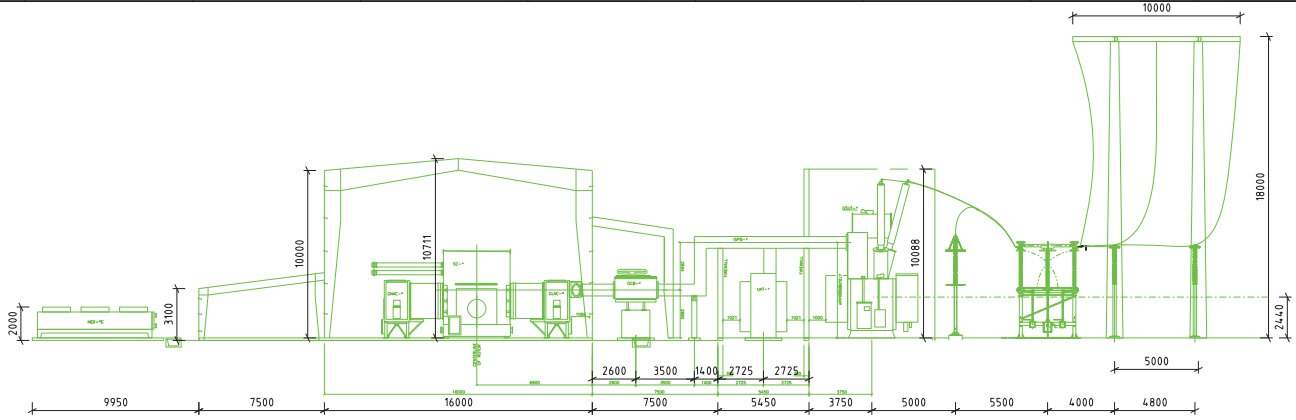

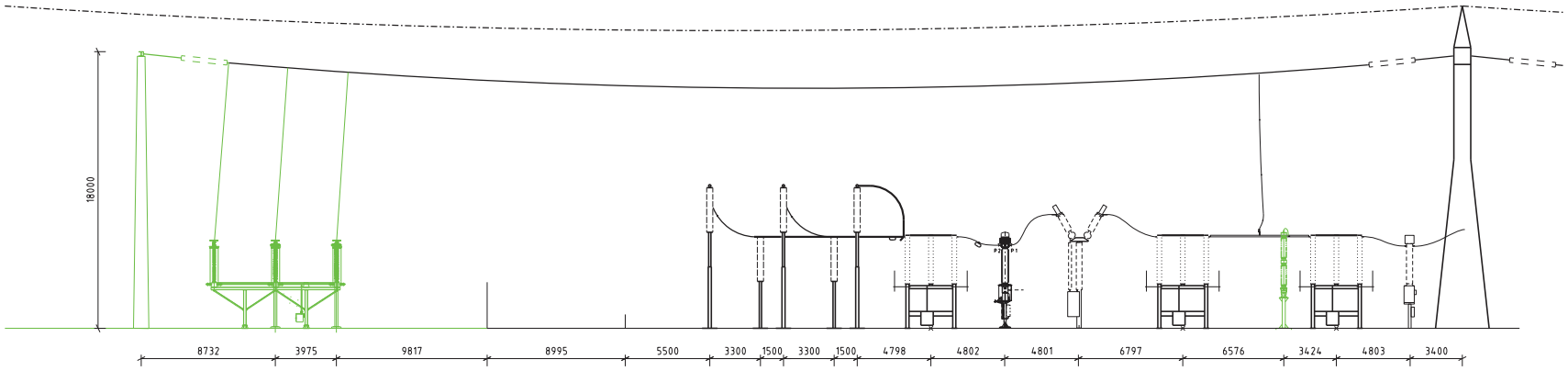

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SUB TITLE: SYNCHRONOUS CONDENSORS AREA

ElectraNet – electricity transmission

TITLE: PRELIMINARY SECTION ELEVATION DAVENPORT SUBSTATION

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