

ETSA Utilities

Delivering energy to South Australians

ETSA Utilities, ABN 13 332 330 749,
a partnership of:
CKI Utilities Development Limited,
ABN 65 090 718 880.
HEI Utilities Development Limited,
ABN 82 090 718 951.
CKI Utilities Holdings Limited,
ABN 54 091 142 380.
HEI Utilities Holdings Limited,
ABN 50 091 142 362.
CKI/HEI Utilities Distribution Limited,
ABN 19 091 143 038.
each incorporated in The Bahamas

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GENERAL STANDARD

FOR

**UNDERGROUND RESIDENTIAL DISTRIBUTION
OF ELECTRICITY**

General Standard TS-104

Issue: February 2004

1. DEFINITIONS

In the interpretation of this General Standard unless the context shall otherwise require or admit:

- 1.1 Words defined in the Works Agreement have the same meaning in these General Standards;
- 1.2 the term "Applicant" means the Applicant named in the Works Agreement;
- 1.7.5 the term "ETSA Utilities" means :-
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 each incorporated in The Bahamas.
 1 Anzac Highway, Keswick, South Australia, 5035.
- 1.4 the term "Development" means the residential development proposed by the Applicant on the Land and any land external to that land but included in the Applicant's proposal;
- 1.5 the term "Plan of Division" means the Applicant's Plan of the proposed division of the land into residential allotments, public roads, reserves and the like as varied from time to time;
- 1.6 the term "Contractor" includes but is not limited to licensed subcontractors, consultants and subconsultants and engaged by the Applicant.
- 1.7 The term "Licensed Contractor" means an individual who is registered as a Restricted Electrical Worker in accordance with The Plumbers, Gas Fitters and Electricians Act 1995, for the relevant endorsements of "Limited to works on overhead lines" or "Limited to cable jointing and underground distribution systems up to consumers terminals excluding (or including) lead"
- 1.8 the term "Works" means the term Works as defined in the Works Agreement;
- 1.9 the term "Points of Connection" are the points nominated by ETSA Utilities for the connection of the Development to ETSA Utilities' Distribution System;
- 1.10 the term "Points of Supply" are the positions beyond which the Customer is responsible for the provision and maintenance of the electrical installation, except metering equipment; and are normally located at low voltage service pillars inside allotment boundaries
- 1.11 the term "URD" means underground residential distribution for the supply of electricity;
- 1.12 the term "Works Agreement" means the Agreement for the Design, Construction and Testing of Electrical Services entered into by ETSA Utilities and the Applicant for the Development of the Land;

- 1.13 the term "Non-electrical Works" includes trenching, excavation, backfilling, conduiting, pits, footings and restoration.
- 1.14 the term "Electrical Works" includes:
- All cable laying, cable jointing and street lighting required to service the Development, and any works required to connect the Development to the ETSA Utilities distribution system but does not include Low Voltage electricity reticulation beyond the first point of supply that is either on private property and remaining in private ownership, or is in the common property, or a strata development and remains in the ownership of the strata corporation.
 - Padmount transformer and switching cubicle installation.
- 1.15 the term "the Council" means the local government authority for the site of the Development.
- 1.16 the term "Electrical Connection Works" include:
- Those works required for the connection of the proposed Development to ETSA Utilities distribution system
 - Any works (electrical or non-electrical) that involve work on around under or above the existing network
- 1.17 the term "Terms and Conditions" means ETSA Utilities' publication Terms and Conditions for Underground Residential Distribution of Electricity to Developments Creating Two or More Additional New Allotments, as amended from time to time.
- 1.18 the term "Easement Standard" means the Easement Standard for Distribution Networks TS 102, issued by ETSA Utilities as varied from time to time.

2. SCOPE

- 2.1 These General Standards are applicable to the process where ETSA Utilities will connect a Development to ETSA Utilities' own electricity supply on the condition that the Applicant is fully responsible for the complete design of and installation of the electrical infrastructure up to the points of supply. The Standard is intended to guide the process from the point where the Applicant requests basic design information, and includes the obtaining of competitive quotations for the design and construction of the electrical infrastructure from other sources, through to and including where specified the connection (but not electrification) of the installation to ETSA Utilities' grid.
- 2.2 The process will allow an Applicant the option of choosing Contractor for the design and/or construction of the required electricity reticulation subject to satisfying ETSA Utilities requirements in regard to design, material specification and Contractor qualification. ETSA Utilities may offer to sell materials to the Contractor and will be entitled to recover its costs ensuring that the Design and the execution of the Works with ETSA Utilities' requirements.
- 7.5 Certain works may be required to augment ETSA Utilities' existing system from the new development. Where these works are required, the Applicant shall be responsible for the design and construction at the Applicant's cost. These works shall be subject to a full augmentation reimbursement as calculated by ETSA Utilities.

3. PRELIMINARY DESIGN ISSUES

3.1 Design Initiation

To initiate Design arrangements for the Works the Applicant must:

- 3.1.1 Complete an Application and Agreement form attached to the Terms and Conditions.
- 3.1.2 Supply two copies of the Council approved Plan of Division showing the complete layout of the Development including dimensioned allotment frontages on a single sheet as specified in Appendix 6.
- 3.1.3 Supply Council Statement of Requirements.
- 3.1.4 Supply any other details concerning specific matters which may affect the design information to be provided by ETSA Utilities (e.g. dwellings incorporating under floor heating, cluster housing, commercial developments).

3.2 Basic Design Information

ETSA Utilities will generally supply basic design information relating to the Development within 14 days of receiving the Application, however, if additional time is required, the Applicant will be informed of the expected delay within the two week period. The information will include but not be limited to:

- 3.2.1 High Voltage (HV) and Low Voltage (LV) connection points external to the Development.
- 3.2.2 HV and LV reticulation requirements from connection points to the Development.
- 3.2.3 HV and LV system augmentation works or any other works supplied from the Development.
- 3.2.4 Design After Diversity Maximum Demand kVA (ADMD) if not 4.0 kVA.
- 3.2.5 General locations for Padmount Transformers if there is a specific requirement..
- 3.2.6 HV switching cubicle locations/arrangements.
- 3.2.7 Required HV feeder layout.
- 3.2.8 Developments requiring special earthing arrangements in accordance with ETSA Utilities' MEN requirements.
- 3.2.9 Requirements for termite resistant LV cables
- 3.2.10 Any special conduit requirements including spares.
- 3.2.11 Any special requirements for Bushfire Risk Areas.
- 3.2.12 Any special requirements for public lighting.
- 3.2.13 The scope of works to be undertaken by ETSA Utilities.

- 3.2.14 Indicative related works (at the Applicant's cost) which ETSA Utilities may be required to undertake.
- 3.2.15 Connection to ETSA Utilities' Point (s) of Connection which are excluded from the scope of the Works, e.g. connecting to existing live overhead 11kV mains
- 3.2.16 Access Permit requirements
- 3.2.17 Other requirements

Whilst all care will be used by ETSA Utilities in providing this information, ETSA Utilities shall not be liable to the Applicant or to any third party engaged by the Applicant for any error, omission or misdescription contained in the Basic Design information provided by ETSA Utilities to the Applicant.

4. DESIGN REQUIREMENTS FOR THE WORKS

4.1 Designer

The Design works must be carried out by a Contractor who meets ETSA Utilities' requirements for design or otherwise approved by ETSA Utilities, or by ETSA Utilities itself at the Applicant's cost.

4.2 ETSA Utilities Publications

The design and Construction must comply with the latest issue of the following ETSA Utilities' publications:

- Terms and Conditions for Underground Residential Distribution of Electricity to Developments Creating Two or More Additional New Allotments (Terms and Conditions)
- TS 085 (Trenching Standard for Underground Cable Networks)
- TS 086 (Conduit Standard for New Residential Land Divisions)
- TS 087 (Construction Standard for New Residential Land Divisions)
- TS 100 (Electrical Design Standard for New Residential Land Divisions)
- TS 101 (Lighting Design Standard for New Residential Land Divisions)
- TS 102 (Easement Standard for Distribution Networks)
- TS 105 (Testing Standard)

These publications as determined by ETSA Utilities from time to time will be considered to be incorporated in, and form part of, these General Standards (TS 104).

4.3 Padmount Transformers and Switching Cubicles

Where required, padmounted transformer and switching cubicle sites are to be shown on the survey plan as unencumbered sites. For further information regarding the survey plan, please refer to the Easement Standard for Distribution Networks. To assist, ETSA Utilities may indicate the site location and position of its equipment.

5. DESIGN REVIEW AND ALTERATIONS AND AMENDMENTS, BOTH BEFORE AND DURING EXECUTION OF THE WORKS

5.1 Lodge for Review

The completed design must be lodged with ETSA Utilities for a review before the commencement of the construction of the Works. Included with the design documentation must be all information reasonably required by ETSA Utilities.

5.2 Time for Review

Two weeks is required for a review of the design, however if additional time is required, the Applicant will be informed of the expected delay within the two week period.

5.3 Amendment Design

ETSA Utilities retains the right to require the Applicant's design to be omitted and resubmitted if the design fails to meet ETSA Utilities requirements or the requirements of any statute in relation to the works proposed by the design.

5.4 Further Review

Where the Applicant has prepared an amended design, the Applicant must lodge the amended design with ETSA Utilities for further review.

5.5 Amendment of Plan of Division

If the position of any transformer/switching cubicle and underground cable is to be altered at any time during the design process or the execution of the Works, the survey plan must be amended to reflect the change as described in the Easement Standard for Distribution Networks.

6. AWARDING THE CONTRACT

All works must be carried out by Licensed Contractors whether they be construction contractors or subcontractors.

The Electrical Works (as defined) may be performed by ETSA Utilities if requested by the Applicant at the Applicant's cost. If requested, ETSA Utilities may provide a quotation for the whole of the Electrical Works from the Point of Connection to the Point of Supply or other electrical segment.

7. EXECUTION OF THE WORKS

7.1 General

The Applicant is responsible for ensuring that all works undertaken by the Applicant's Licensed Contractor are carried out in accordance with these General Standards, the appropriate legislation and subordinate legislation applicable thereto and with the requirements and standards of the persons having authority to exercise any powers under the Occupational Health and Safety Act, 1986 and any amendments and relevant regulations.

7.2 Notification to Proceed

Prior to construction of the Works, the Applicant shall provide ETSA Utilities with the following information:

- Name of Licensed Contractors
- Expected start date and works programme
- Bank Guarantee to cover Security Bond (if required)
- Written Council acceptance of lighting proposals
- Details of Insurance policies for all contractors
- Details of all materials not being sourced from ETSA Utilities, including Test Certificates and Statements of Compliance.

Upon receipt of the above information, ETSA Utilities will issue an Authority to Proceed to the Applicant. The electrical works shall not commence until ETSA Utilities has issued this authority.

7.3 Works to be Retained in Private Ownership.

Low Voltage electricity reticulation on property that is solely private property, common property within a strata title plan that is solely for the development which is the subject of the Application to which these General Standards applies, and which will remain under private ownership and control, will be installed by the Applicant in accordance with Australian Standard AS3000 (SAA Wiring Rules).

7.4 Inspection and Testing

ETSA Utilities' Inspector shall have at all reasonable times access to the work site, and shall have the power at all reasonable times, to inspect, examine, and test materials and workmanship of the works during its manufacture and/or installation

7.5 Notice of Work

The Applicant shall ensure that the Contractor responsible for the works, notifies ETSA Utilities' Inspector;

- 7.5.1 one week before any work commences on the site, and
- 7.5.2 2 days notice prior to the testing of any equipment, and
- 7.5.3 two weeks notice before connection to ETSA Utilities' system.

7.6 DAC Approval

Electrical works will not be allowed to commence until Provisional Development Planning Approval has been granted by the Development Assessment Commission to proceed. The Applicant is responsible for all approvals from the relevant authorities.

7.7 Obstructions on Padmount Transformer and Switching Cubicle Sites

If obstructions are encountered during installation of the transformer or switching cubicle, it will be the responsibility of the Applicant to make the necessary arrangements to relocate these services clear of the site. If the position of the transformer/switching cubicle is to be altered, the survey plan **must** be amended to reflect the change as described in the Easement Standard for Distribution Networks.

7.8 Restoration of Landscape on Easement

The restoration of landscaping within the boundaries of easements is the responsibility of the Applicant.

7.9 Ground Subsidence

Where pits, pillars, transformers, lighting columns or the like are affected in any way due to the subsidence of the ground either during construction or the Maintenance Period, which results in equipment not complying with ETSA Utilities' requirements, such equipment shall be rectified at the Applicant's cost in accordance with clause 10 of the Terms and Conditions.

8. EASEMENTS

8.1 Easements to be Provided

Where required by ETSA Utilities, the Applicant must provide registered easements for electrical infrastructure, where the responsibility for the infrastructure will vest to ETSA Utilities, in accordance with the Easement Standard for Distribution Networks.

The provision of easements shall be in accordance with ETSA Utilities' Standard for Easements (TS 102).

8.2 Easement Provision - Additional Costs

The Applicant will be liable for any additional costs incurred by ETSA Utilities due to a failure on the part of the Applicant to promptly satisfy ETSA Utilities' easement requirements.

9. CIVIL WORKS

9.1 Applicant's Responsibilities

The Applicant shall be responsible for:

- ensuring that all allotment pegs, including any replacement pegs, easement pegs and level pegs are correctly placed, clearly visible, and numbered to show allotment numbers, reserves, easements etc.
- carrying out and co-ordinating all the pegging, trenching, backfilling, reinstatement, levelling, and associated work including retaining walls, necessary for the installation of cables, transformers and switching stations, service pits and pillars and lighting columns.
- the safety of the open trench and any liability arising from the Applicant's works.
- all street and ground openings and all costs including the compaction and reinstatement of road and footpath surfaces and services where disturbed or damaged, to the satisfaction of the authority or owner concerned.
- arrangements with the local authorities and public service utilities for the temporary disturbance of any driveway, culvert, pipe, drain, kerb, survey mark etc.
- excavations of padmount transformer vaults and switching cubicle vaults and for the reinstatement of the remaining excavation surrounding vaults
- damage caused to vaults and associated equipment during backfilling and compaction

9.2 Contaminated soil

Where ETSA Utilities constructs the Works, it is the Applicant's responsibility to ensure that the soil is free from any contaminants that may be a risk to the health of ETSA Utilities' distribution workers. Written assurance may be required to demonstrate that the soil is free from contamination and if necessary a report detailing known contamination and steps taken to alleviate the health risks. Further testing may be required before ETSA Utilities agrees to work on the site.

APPENDIX 1 -Bank Guarantee

Refer to Clause 12 of the Terms and Conditions

Example of form acceptable to ETSA Utilities, (May be used as the actual guarantee)

BANK GUARANTEE

BY:

TO:

ETSA Utilities

ETSA Utilities, ABN 13 332 330 749, a partnership of:

CKI Utilities Development Limited, ABN 65 090 718 880.

HEI Utilities Development Limited, ABN 82 090 718 951.

CKI Utilities Holdings Limited, ABN 54 091 142 380.

HEI Utilities Holdings Limited, ABN 50 091 142 362.

CKI/HEI Utilities Distribution Limited, ABN 19 091 143 038.

each incorporated in The Bahamas.

1 Anzac Highway, Keswick, South Australia, 5035.

Sirs,

At the request of (hereinafter called "the Owners") and in consideration of ETSA Utilities accepting this undertaking as security for all or any amounts payable now or in the future to ETSA Utilities by the Owners pursuant to ETSA Utilities General Standards for Underground Residential Distribution of Electricity in their application to the subdivision or development of

.....

The (hereinafter called "the Bank") unconditionally undertakes to pay on demand any sum which may from time to time be demanded by ETSA Utilities to a maximum aggregate sum of

This undertaking is to continue until a notification has been received from ETSA Utilities either that such sum is no longer required by ETSA Utilities or until payment to ETSA Utilities by the Bank of the whole of the said sum or such part as ETSA Utilities may require.

Should the Bank be notified in writing, purporting to be signed for and on behalf of ETSA Utilities that ETSA Utilities desires payments to be made of the whole or any parts of the said sum, it is unconditionally agreed that such payment or payments will be made to ETSA Utilities forthwith without further reference to the Owners, and notwithstanding any notice given by the Owners to the Bank not to pay same. Provided always that the Bank may at any time without being required so to do pay to ETSA Utilities the said sum of less any amount or amounts it may previously have paid under this guarantee or such lesser sum as may be required and thereupon its liability here under shall immediately cease and determine.

It is further agreed that the Bank shall not be discharged or released from this Guarantee by any arrangement made between the Owner and ETSA Utilities with or without the assent of the Bank or by any alteration in the obligations of the Owner or by any forbearance whether as to payment, time, performance or otherwise.

IN WITNESS whereof THE BANK has executed this deed the

..... day of 19

..... Signed Name

..... Witnessed Name

APPENDIX 3 -Definitions for Development and Design Plans

**DEFINITIONS FOR THE DEVELOPMENT PLAN
AND ELECTRICITY RETICULATION DESIGN PLAN**

DEVELOPMENT PLAN AND ELECTRICITY RETICULATION DESIGN PLAN PAPER COPY

General

The paper copy will be used as a file record of the Development and must be a single sheet drawn to a scale of 1:500 showing the proposed development and existing adjoining allotments.

Required Information

The plan must contain the following details:

- 1) Location plan, road boundaries and general notes as relevant.
- 2) Proposed allotments, allotment numbers, road boundaries, pathways, allotment dimensions and general notes as relevant.
- 3) Future development stages, if relevant, detailing allotments and streets.

APPENDIX 4 -Certificate of Practical Completion (Refer to Clause 7 of the Terms and Conditions)

CERTIFICATE OF PRACTICAL COMPLETION

Contractor Contact Person/Phone Number	
Applicant	
Estate Name and Stage	
Location	
ETSA Utilities URD Agreement N°	

I/We being the Applicant of the above estate hereby certify that the electricity Works detailed on the accepted design has been completed as follows:

- All cables, padmount transformers, switching cubicles, service pillars and pits, street lighting and other equipment have been installed as required by the relevant standard as shown on the two copies of the As CONSTRUCTED Finished Plans attached and signed by me/us.
- All trenching, backfilling, and retaining walls have been installed as required by the relevant standard as shown on the two copies of the As CONSTRUCTED Finished Plans attached and signed by me/us.
- All HV & LV switches, LV fuses & open points as shown on the AS Constructed Works Plan are OPEN.
- Polarity and phasing correct at every service pit and street light.
- All temporary earths installed during testing have been removed.
- Main earths have been installed at all locations as required by the approved design drawings.
- All Access Permits have been released.

I/We further certify that:

- (1) electrical testing has been satisfactorily completed and detailed on the attached "Certificate of Tests",and
- (2) every employee and Contractor of the Applicant has been advised that the Works are to be considered to be electrified.

The Works shown on the two As CONSTRUCTED Finished Plan No(s)
.....are safe and ready for commissioning.

Dated thisday of19.....

.....
Applicant (Name) (Signature)

Agreed Practical Completion Date	Date:
---	-------------

ETSA Utilities Representative

(Name)..... Signature:

(Note: Transfer of the Works is subject to Clause 7.4 of the Terms and Conditions.)

ETSA Utilities acknowledges that the following has been received.

		YES	NO	COMMENTS
1	As Constructed Plan (2 Copies)			
2	DXF file of As Constructed URD			
3	Certificates of Test			
4	Cable Drum Numbers			

