Reading Ausgrid Plans
COMN0119

1 Property Lines

"property line" (PL), sometimes referred to as **"building line" (BL),** is the standard dimensioning reference point on all Ausgrid plans and represents property boundaries.

Typically, the PL is the boundary between private property and local council's footpath area or nature reserve. Most residential fences and office blocks are erected along the PL.

"kerb line" (KL) is less frequently referred to on Ausgrid plans, and where used will be identified clearly as KL.

Numbers listed within property boundaries should correspond to recognised "street numbers" (refer to figure 1).

Figure 1

2 Datum References

"datum references" identify distances (in metres) from significant features (such as corners of property boundaries) to reference points such as Ausgrid assets (eg: "conduits", "cables", "joints") (refer to figure 2).

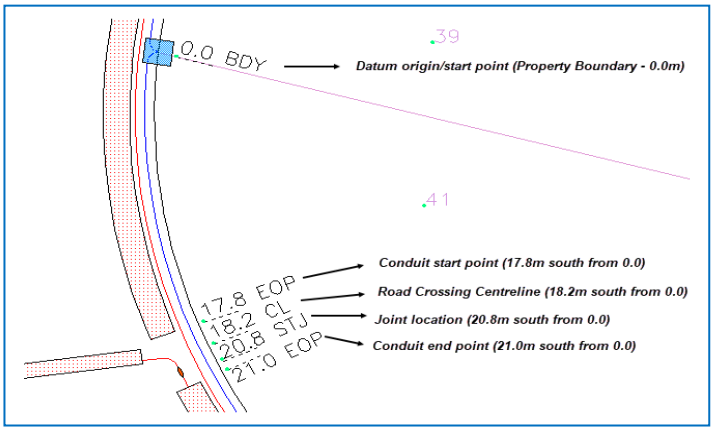


Figure 2

3 Cross Sections

A "cross sections" displayed on Ausgrid plans detail information relating to the relative position (ie: distance from the **"property line",** and the depth of **"cover"**) of Ausgrid assets.

"Cover" is a term used to refer to the depth of cables underground.

A "cross section" leader line will be drawn indicating the location of the displayed **"cable"** or **"conduit"** information on Ausgrid plans.

The distance from **"property line"** (in metres) and depth of **"cover"** (in metres) references are displayed as; ie: 0.6 metres from PL and 0.5 metres underground.

Where distance and cover are not recorded, they will be clearly marked as **"NR".**

NOTE: Distance and cover where indicated may be different to the actual position of the cables (eg: fill may have been placed at site that has changed the ground level).

"PL" distance shown in cross sections is an indicative measure to the centre of the trench allocation from the adjacent property line.

On some plans the "cross sections" may also be shown with a specific number (eg: HR1). This number will match with a cross section detail found in the border of the plot or on a separate plot page (refer to figures 3 and 4).

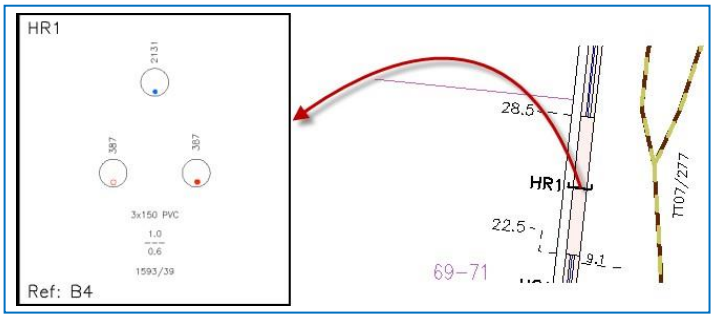


Figure 3

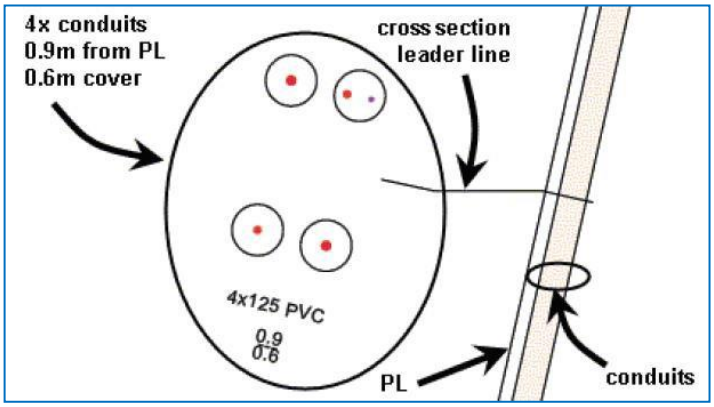


Figure 4

4 Cable Joints and Joint Reports

"cable joints" (numbered individually) and **"joint reports"** (attached to Ausgrid plans) can provide information relating to the relative position of Ausgrid assets, distance from the "property line" (in metres), and the depth of "cover" (in metres) (refer to figures 5 and 6).

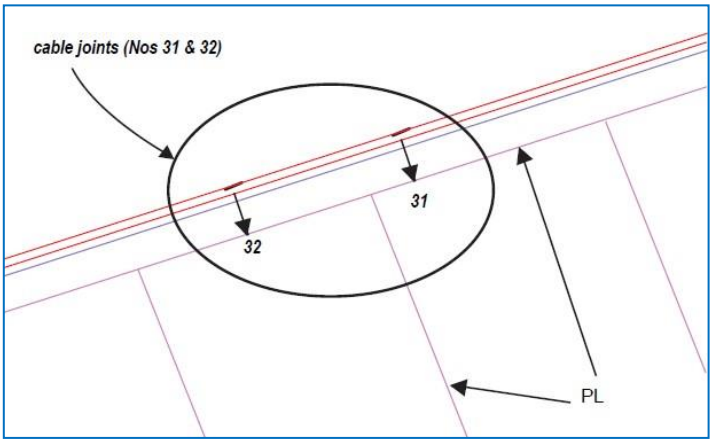


Figure 5

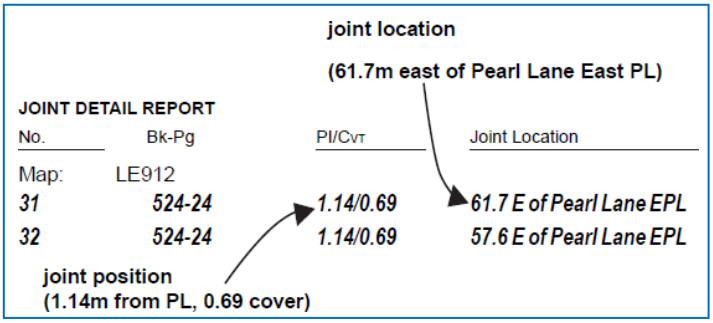


Figure 6

5 Cross Section Detail Boxes

"cross section" detail boxes on the sides of an Ausgrid plan are used when there is insufficient room to display **"cable"** and/or "conduit" information on the Ausgrid plan.

Ausgrid plans (refer to figure 7) are bordered by numeric identifiers along the top and bottom borders and alpha identifiers along the side borders.

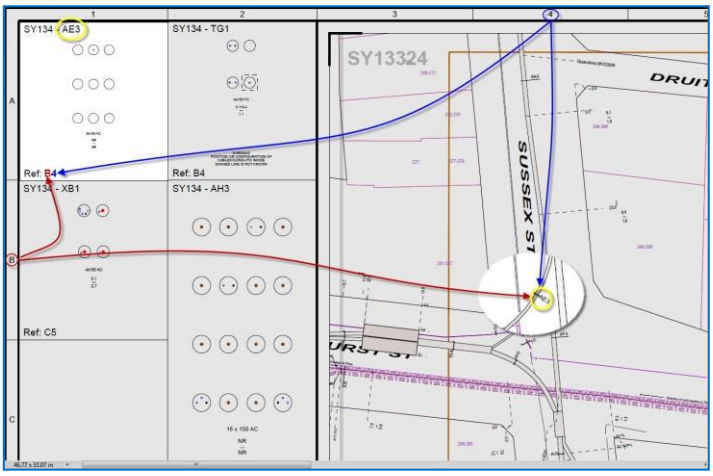


Figure 7

"Cross section" leader line and annotation is drawn on the Ausgrid plan for a reference to **"cable"** and/or **"conduit"** information in the **"cross section"** detail boxes. There are areas where underground work may have been issued for construction by Ausgrid, but details are not yet completely displayed on Ausgrid plans. In such cases a shaded "proposal area" is displayed on the Ausgrid plan, indicating underground work may have commenced in the vicinity but is not yet complete.

6 Pits

Underground **"pits"** are numbered on Ausgrid plans, positioned relative to the **"property line" (PL)**, and can be found on either the footpath (nature strip) or the road (refer figure 8).

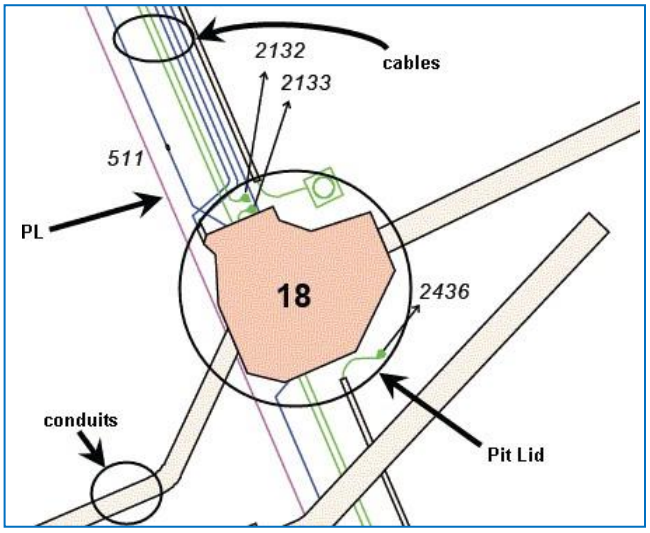


Figure 8

7 Proposal Areas

In some instances, cables and other assets within the shaded **"proposal area"** will be shown in a **bright magenta** colour, indicating that the proposed new work displayed within the shaded area is based on initial planning documentation (refer to figure 9).

Figure 9

In other instances, the shaded **"proposal area"** itself may be shown as a blue colour, indicating that the new work displayed within the shaded area on the Ausgrid plan is yet to include details regarding final depths and dimensioning (refer to figure 10).

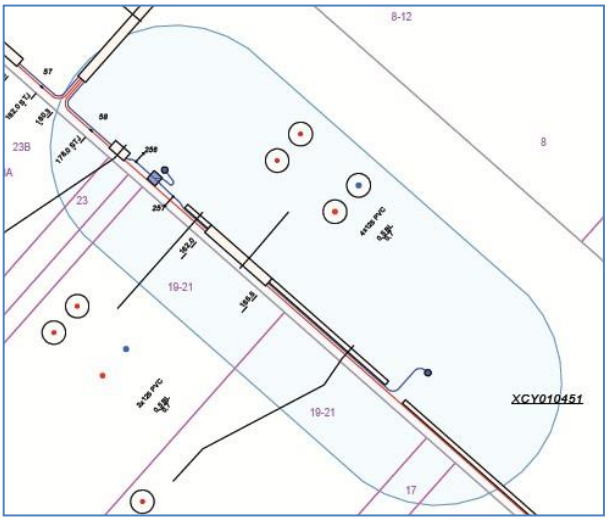


Figure 10

NOTE: In cases where these shaded **"proposal areas"** are displayed on Ausgrid plans.

"Ausgrid's design plans showing the proposed position of its underground cables, overhead lines and structures have been prepared solely for Ausgrid's own planning use. They show the proposed position of such underground cables, overhead lines and structures as proposed at the time of planning and have not necessarily been corrected to take into account any changes to road widths, road levels, fences and buildings subsequent to proposed installation.

Actual installations may vary from proposed installations as it may be necessary to take account of unforeseen above ground or subterranean constructions. Therefore, Ausgrid does not hold out that the design plans show more than the proposed presence or absence of its underground cables, overhead lines and structures in the street and will accept no liability for inaccuracies in the information shown on such design plans from any cause whatsoever."

Any further information regarding information displayed for "proposal areas" can be obtained by contacting the Ausgrid Dial Before You Dig (DBYD) office at the number indicated on the response to your DBYD enquiry for further information.

8 Ausgrid Maps

Depending on the size of the DBYD request, the response will either be a **single map area** or **a cover sheet** and several standard maps.

8.1 Single Map Area Response

The single map area response will have a buffer area shown on the plan that should relate to the original Dial Before You Dig request.

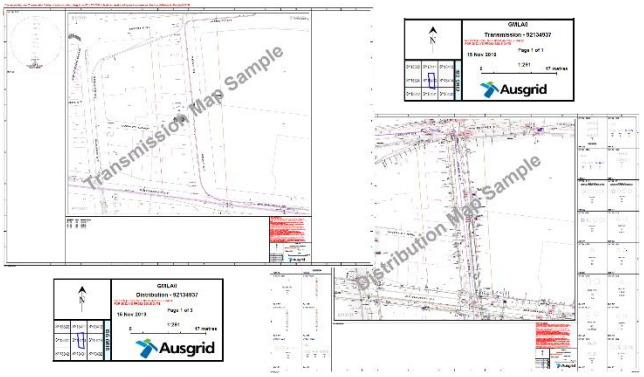


Figure 11

The **map grid index box** on Ausgrid plans should be used when reading the **"joint report"** (see part 4 of this document for more detail) to accurately locate underground cables. The buffer area will display on the grid index box for single map area responses

There are two different size maps that can be produced – A3 will be issued if there are no cross sections in the area, and an A0 will be issued if there are cross sections that are required to be displayed in the detail boxes on the side.

A single map area response could include two maps in the Sydney region. Ausgrid plans are separately labelled as "**Distribution – nnnnnnn"** and **"Transmission – nnnnnnn"**, where **"nnnnnnn"** refers to the DBYD sequence number quoted. If the request does not include any Transmission assets, then only one Distribution map will be issued.

In the Hunter region, the Ausgrid plans show combined **"distribution"** and **"transmission"** voltage assets, are clearly labelled as **"Distr + Trans – nnnnnnn"** where **"nnnnnnn"** refers to the DBYD sequence number.

Some Hunter plans may have transmission cables in the area, when these cables are present there will be a warning printed at the top of the plan supplied: "**"You are working near Transmission Cables. You must contact Ausgrid on (02) 4951 9200 at least two weeks before work commences. See Ausgrid Network Standard NS156"**

8.2 Cover Sheet Response

On a response that includes a cover sheet, the buffer area will only be shown on the cover sheet and it will not appear on the standard maps. The cover sheet will indicate which standard maps have been included and provide a high-level view of the location of the underground details (Figure 12). The standard maps will have the detail of the underground assets (Figure 13).

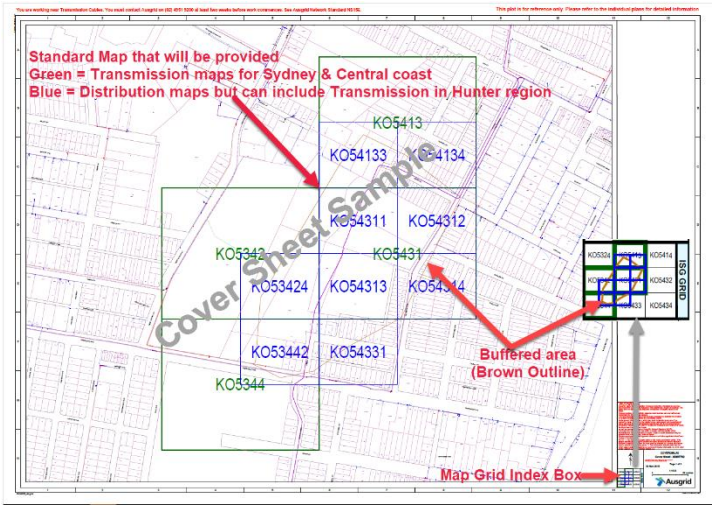


Figure 12

A **map grid index box** has been included in the cover sheet and on the standard maps. The buffer area will only display on the grid index box on the cover sheet and not on standard maps (Figure 12 + Figure 13).

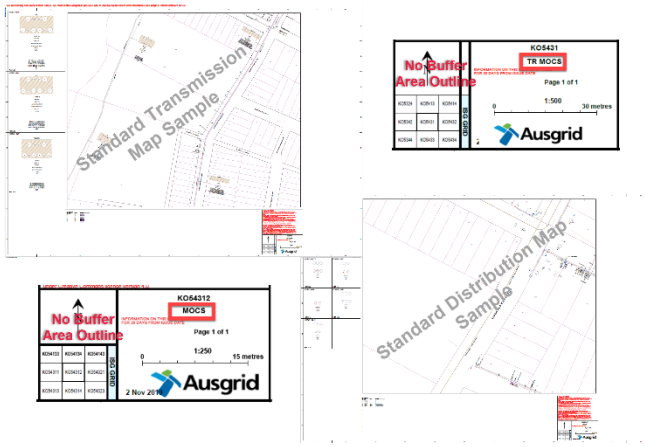


Figure 13

9. Shifting Land Base" on Ausgrid Distribution and Transmission Plans

In some instances, the plans supplied may indicate road or property outlines that appear to have shifted in relation to the Ausgrid assets displayed (refer to figure 14).

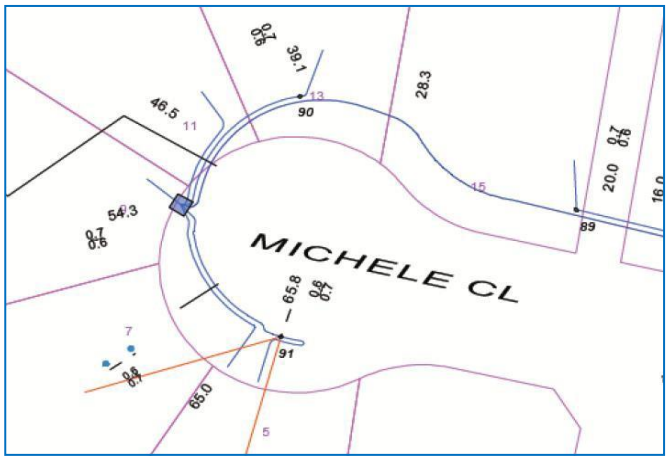


Figure 14

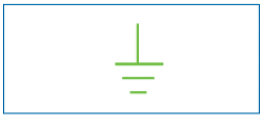
In such instances, always refer to the **"property line"** (in metres) and depth of **"cover"** (in metres) references displayed on the nearest relevant **"cross sections"** to obtain Ausgrid asset location information (*see* Reading Ausgrid Plans, clause 3, Cross Sections for more detail).

10. "Underground Earthing Infrastructure"

In some instances, the plans supplied may also indicatethe presence of underground earthing infrastructure associated with underground and/or overhead Ausgrid assets.

The **"Earth Point"** symbol (refer to figure 15) will be shown on plans to minimize risk of disturbance or damage to any Ausgrid underground earthing infrastructure in the vicinity.

Figure 15



11. Hazardous Cables – Specific Excavation Hazard

Certain low voltage cables are susceptible to deterioration or defects that may pose a risk of electric shock when working near them particularly in damp ground. Other low voltage cables may have an exposed conductive sheath or armour which may, under certain conditions, become energised. These cables may pose a significant risk and will be illustrated as in figures 15 and 16 below.
For all work on or near Ausgrid's network where workers have been trained in Ausgrid's "Working near or around underground cables" course the work practices outlined in NS156 "Working near or around underground cables", NS199 "Safe Electrical Work on Low Voltage Underground Assets" for low voltage cables susceptible to deterioration and the Electrical Safety Rules for low voltage exposed conductive sheath or armoured cables must be adhered to.
All other persons must contact Ausgrid before excavating near or accessing areas where these cables are present to arrange for appropriate precautions to be applied.

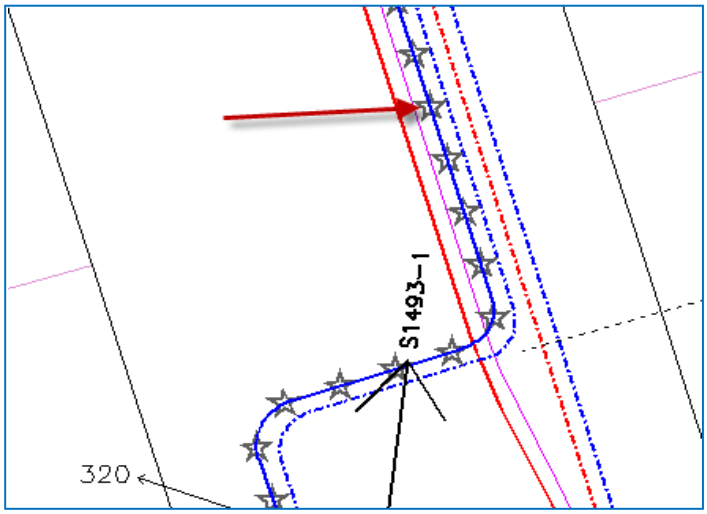


Figure 15

The **"star"** symbols over the cable indicates that it may be susceptible to deterioration or defects or the cable may contain an exposed conductive sheath or armour which could pose an electrical risk to workers.
Cables that are in duct lines have this symbology covered so an at-risk cable is indicated only within a cross section by a **"#"** appended to its cable code as illustrated below.

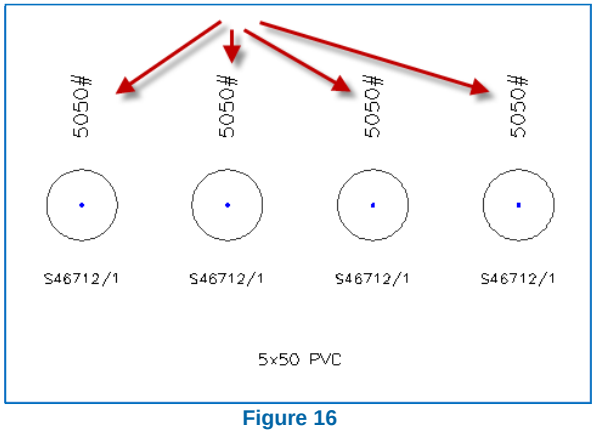


Figure 16

Ausgrid Underground Map Symbology

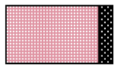
NOTE: Please note symbology is subject to change. This document provides underground (UG) related objects only. In cases where you are unsure of the data presented, please contact Ausgrid's DBYD for clarification *prior* to any planning/excavation works.

Object		Symbol
HV Cable	HV (High Voltage) 5kV-22kV	In Service / Out of Service
	TR (Transmission) 33kV – 330kV	In Service / Out of Service
LV Cable (Low Voltage)	Mains (Dark blue)	In Service / Out of Service
	Street Lighting (Green) Note: Mains Connector also used as Street Lighting (dark blue)	In Service / Out of Service
	Service (Light blue)	In Service / Out of Service
	Stars are used to highlight At Risk cables	In Service Risk / In Service Risk / In Service Risk
	Unknown	
Auxiliary Cable	Data, Comms, Telco, Protection, Fibre Optic, Pilot	In Service / Out of Service

Object		Symbol
HV UG Joint	Straight Through, Parallel Branch or Tee	
	Switchgear, End Box or Transition	
HV UG Termination	Sealed end	
	Pot End	
	UGOH	
HV Cable Repair	5kV-330kV (HV & TR)	
LV UG Joint	Straight Through, Parallel Branch, Tee or Service	
	Network Box	
LV UG Termination	Switchgear, End Box or Transition	
	Sealed end	
	Pot End	
	UGOH	

Object		Symbol
Auxiliary Fix	Pilot Window	
Auxiliary Joint	Straight Through, Parallel Branch or Tee	
Auxiliary Termination	UGOH or Pole Termination	
	Pilot	P
	UGOP-ADSS Termination	
Cable Pit (Can be various shapes)	Auxiliary	
	Distribution	
	Transmission	
LV Pillar	Distribution	
	Switch	1-3 WAY / 4+WAY
	SL Pillar	NO SLCP / SLCP
	SL Cubicle	
	Fargo	F
	Private	P
LV Auxiliary Pillar	All Types	
LV Link Box	2 Way & 4 Way	

Ausgrid Underground Map Symbology

Object		Symbol
Substation	Cottage & Chamber	
	Ground & Subtransmission Ground	
	Kiosk & Subtransmission Kiosk	
	Zone	
	Transmission	
	Bulk Supply Point	
	Metering Station & Subtransmission Metering	
Switching Station	Isolating & Earth	
	Other – OH & UG	
	Ring Main Unit	
Earthing	UG Earth Cable	
	Earth Point	
Frequency Marker	Distribution and Transmission Power	 Ball or Disc Type Marker
	Auxiliary Communications	 Ball or Disc Type Marker
	Distribution and Transmission Power	Tape Marker
	Auxiliary Communications	Tape Marker

Object		Symbol
Trench	Centreline	
Conduit (Can be various shapes)	Coverage (Distribution)	
	Coverage (Transmission)	
	Coverage (Underbore – cross hatched)	
Cross Section	Marker (Staple)	
	User Line	
Measure-ment Point		
Miscella-neous Point Feature	Cable Clamp	
	Cable Core split (Trifurcation)	
	Cable Marker	
	Electrolysis Point	
	End Of Pipe	
	Frequency Injection Unit	
	Gas Charger	
	Gas Control Cabinet	
	Gas Control Kiosk	
	Gas Control Point	
	Gas Control Valve	
	Gatic Pit lid	

Object		Symbol
Miscella-neous Point Feature	Inspection Box	
	Link point	
	Oil Control Valve	
	Oil Gauge	
	Oil Tank	
	Sniffer Box	
	Thermocouple Box	
	Transmission Cable Marker	
	Transmission Link Point	
Miscella-neous Linear Feature	All Geometries	
Map Note	Location & Text	 Text about note
Dimension Feature	Placement Change	
Lead Cable	Oil/Gas/ Thermocouple	
	Bonding	
	Electrolysis	

Ausgrid