

\*\*\*Electromagnetic locating techniques as well as ground penetrating radar have been\*\*\*  
utilised in the location of underground services. These results are not infallible and a  
non destructive dig process should be carried out to confirm service identification,  
positions and particularly heights, where these are critical. Although all reasonable effort  
has been made in locating and mapping the underground services, the completeness of  
the this Utility survey information cannot be guaranteed.

SUBSURFACE UTILITY INFORMATION (SUI) CLASSIFICATION  
QUALITY LABELING UTILITY INFORMATION BY A CLASSIFICATION CODE ALLOWS THE USER  
OF THIS INFORMATION TO UNDERSTAND CLEARLY HOW THE INFORMATION WAS COLLECTED  
AND THEN PLACE AN APPROPRIATE AMOUNT OF RELIANCE ON IT. PROJECT RISKS  
RELATED TO UNDERGROUND UTILITIES CAN THEN BE PROPERLY MANAGED. QUALITY A:  
INFORMATION IS THE HIGHEST POSSIBLE LEVEL OF ACCURACY AND IS OBTAINED  
EXPOSING THE UNDERGROUND UTILITY USING A NON DESTRUCTIVE EXCAVATION (POT  
HOLING) TECHNIQUE. THE VERTICAL INFORMATION FOR THIS LOCATING METHOD IS TO THE  
TOP OF THE SHALLOWEST PART OF THE LOCATED SERVICE. THE 3D LOCATION IS  
RECORDED AS AN X,Y,Z COORDINATE. QUALITY B: INFORMATION IS COLLECTED BY  
DESIGNATING THE HORIZONTAL AND VERTICAL LOCATION OF UNDERGROUND UTILITIES BY  
USING ELECTROMAGNETIC PIPE AND CABLE LOCATORS, SONDES OR FLEXI TRACE,  
GROUND PENETRATING RADAR AND ACOUSTIC PULSE EQUIPMENT. THIS IS THE MOST  
COMMON FORM OF UTILITY LOCATING AND ALTHOUGH AN X,Y, AND Z AXIS CAN BE  
ESTABLISHED IT IS NOT ALWAYS ENTIRELY ACCURATE DUE TO DIFFERING  
ELECTROMAGNETIC FIELDS, SOIL CONDITIONS AND MULTIPLE BANKS OF CABLES  
AFFECTING THE LOCATING SIGNAL. QUALITY C: INFORMATION IS COLLECTED BY  
CORRELATING THE SURVEY OF VISIBLE UTILITY SURFACE FEATURES SUCH AS MARKER  
PLATES OR WATER HYDRANTS AND ACQUIRED DATA BEFORE YOU DIG PLANS TO DRAW A  
STRING WHICH SHOWS THE APPROXIMATE POSITION OF SERVICES. THIS METHOD DOES  
NOT USUALLY SHOW MULTIPLE BANKS OF CABLES AND DOES NOT ALWAYS SHOW THREE  
DIMENSIONAL INFORMATION. QUALITY D: INFORMATION IS THE MOST BASIC LEVEL OF  
UTILITY LOCATIONS USING ONLY INFORMATION BASED ON EXISTING DATA BEFORE YOU DIG  
PLANS AND BY MEASURING BOUNDARY OFFSETS ETC. THIS METHOD OF UTILITY LOCATION  
SHOULD ALWAYS BE TREATED AS AN INDICATION OF THE PRESENCE OF A SERVICE ONLY  
AND SHOULD NOT BE USED FOR DESIGN.



#### Key for underground services

Air line	
Communications cable	
Comms optic fibre	
Electric cable	
Electric earth cable	
Electric HV cable	
Fuel line	
Gas pipe	
Irrigation line	
Chilled water pipe	
Heated water pipe	
Oil pipe	
Sewer/Waste Pipe	
Sewer Pressure Main	
Sewer/Waste vent pipe	
Stormwater/Drainage pipe	
Telstra cable	
Traffic cable	
Unidentified	
Water pipe	
Multi User Duct	
Overhead service	
Survey Boundary	
Cable/Pipe banding	
End of trace	
End of trench scar	
Characteristic change	
Spot Level	
Where chamber extents are significantly greater than the cover size, their approximate extents are shown thus:	
Inaccessible areas, shown thus:	

#### Abbreviations for underground services

AC	Asbestos cement	NL-A	Not located - route assumed
ALK	Alkaline	NL-I	Not located - route plotted
AR	Assumed Route	NL-R	Not located - route plotted
BD	Back drop	NL-T	Not located - route plotted
BH	Bore hole		
Br	Brick		
CA	Compressed air		
CATV	Cable tv	NRV	Non return valve
CCTV	Closed circuit television	NS	No signal
CH	Coal hole	o/h	Overhead
C	Cast iron	PVC	Polyethylene
CL	Cover level	pe	Pot ended
CM	Cable marker	PR	Pipe riser
CONC	Concrete	PRV	Pressure reducing valve
C/PIT	Catch pit	PVC	Polyvinyl chloride
CU	Copper	RE	Rodding eye
CR	Cable riser	RG	Road gully
DB	Direct buried	RS	Road sign
DI	Ductile iron	RWP	Rain water pipe
DTB	Depth to base	S/A	Sewerage
ECP	Electric cable pit	SC	Stop cock
EHV	Extra high voltage	SE	Side entry
EB	Electric joint box	SI	Spun iron
EP	Electricity pole	SL	Soil level
ER	Earthing rod	SP	Soil pipe
ES	Earthing strap	ST	Steel
FI	Fire hydrant	SV	Stop valve
FL	Floor level	SWP	Soil vent pipe
Fit	Floodlight	SW	Sink waste
F/O	Fibre optic	TCB	Telephone call box
FP	Feeder pillar	TIC	Telecom inspection chamber
G	Gully		
GM	Gas meter	T/I	Trapped inlet
GV	Gas valve	T/O	Trapped outlet
HV	High voltage	TP	Telephone pole
IC	Inspection chamber	UST	Underground storage tank
IL	Invert level	UTL	Unable to lift
Kv	Kilo volts	UTF	Unable to find
LD	Land drain	UTGA	Unable to gain access
LH	Lamp hole	UTR	Unable to rod
LP	Lamp post	UTS	Unable to survey
LPG	Liquid petroleum gas	UTT	Unable to trace
LV	Low voltage	VC	Verified clay
MDPE	Medium density polyethylene	VP	Vent pipe
MH	Manhole	WL	Water level
Mkr	Marker post	WM	Water meter
NFI	No further information	WO	Wash out

#### SUI Class Definition, Quality Level Locates

QUALITY A shown after pipe size or depth in small case -ca		
QUALITY B shown after pipe size or depth in small case -bc		
QUALITY C shown after pipe size or depth in small case -cc		
QUALITY D shown after pipe size or depth in small case -cd		

#### Notes for underground services

I. Where no cover level is available, depths to pipe inverts are shown thus; *at 0.00*  
II. Depths of services at inspection chambers, where possible, are shown thus; *at 0.00*  
III. Depths obtained electronically are generally to the centre of the service and are shown thus; *(0.80)*  
IV. Number of duct ways, where known, shown thus; *2W*  
V. Pipe sizes, which cannot be obtained by visual survey, are taken from record drawings/marker plates where available.  
VI. Cable routes shown as a single line may actually consist of many cables.  
VII. Electric cable routes shown are assumed to be LV unless otherwise annotated.  
VIII. Information taken from records is suffixed thus; *(R)*  
IX. Drainage pipe sizes & invert levels have been determined without man entry into chambers. Every effort has been made to correctly obtain this information, however, accuracy is dependent on visibility from the surface.  
X. To assist with clarity of presentation, services and drains have been extended within buildings.

REV	REVISION DESCRIPTION	DATE	SIG	CHK
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SHEET 1 OF 21

**Land Surveys**

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Drawing to be read in conjunction with  
survey drawing number:  
1501601\_Sandstone\_TOPOSURVEY.dwg  
All disclaimers as per Land Surveys drawing apply to this drawing.



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Surveyed	SH/CB/AB	Date	15/04/16
Drawn	AMM	Scale at A1	1:400
Checked	SHH	DBYD Ref	VARIOUS

Drawing No.	NSW16-02-01	Rev.	0
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