Network Standard

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NS285

Title:
Pillar type and site selection

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Revision

No	Date	Description	Technical Approver	Authorised By
0	14/06/2026	New Network Standard	Matthew Cupples / Joseph Metti	Murray Chandler

Table of Contents

List of Annexures

Scope

This Network Standard sets the minimum requirements for the type and physical location of new low voltage pillars on Ausgrid's underground distribution network, and for the relocation of existing low voltage pillars where affected by new developments.

This Standard does not apply to the Sydney CBD area, and to some locations in the Newcastle CBD area, due to the configuration of the low voltage network (refer to NS224).

This Standard does not address the assembly of the pillar (refer to NS127 and NS224) or the electrical loading or configuration (refer to NS110 and NS112).

Reference Documents

All work covered in this document shall conform to all relevant Legislation, Standards, Codes of Practice and Network Standards.

Ausgrid Documents

NS001 Glossary of Terms

NS110 Design and Construction Standard for Underground Residential Subdivisions

NS112 Design Standards for Industrial and Commercial Developments

NS127 Low Voltage Cable Joints and Terminations

NS130 Laying Underground Cables up to and including 11kV

NS143 Easements, Leases and Rights of Way

NS224 Low Voltage Suburban Commercial and Industrial Underground Distribution Utilising Pillars

Other Standards and Documents

AS 1428.1 Design for access and mobility – General requirements for access – New building work

AS 1428.4.1 Design for access and mobility – Means to assist the orientation of people with vision impairment – Tactile ground surface indicators.

NSW Streets Opening Coordination Council (SOCC) – Guide to Codes and Practices for Streets Opening

Acts and Regulations

Electricity Supply (General) Regulation 2014 (NSW)

Electricity Supply (Safety and Network Management) Regulation 2014

Clause	Standard Requirements

1 Objectives

1.1 The key objectives of pillar type and site selection shall be as follows:

- provide safe access for network maintenance and new connections;
- provide an efficient means to access underground electrical assets;
- ensure a safe clearance for movement of members of the public;
- reduce the impact on public safety in terms of the risk of collision, trips and falls;
- ensure adequate clearance for vehicle movements to reduce the likelihood of collisions; and
- improve visual amenity of the streetscape where practicable.

1.2 This Network Standard is intended to:

- provide clear and consistent requirements for the location of pillars;
- ensure pillars are located safely, efficiently and with awareness of the local streetscape constraints and the built environment; and
- ensure consistency of consent conditions by local government authorities and Ausgrid.

2 Pillar selection

2.1 Two types of low voltage pillars, as shown in Figures 1 and 2, are available for installation on Ausgrid's underground distribution network:

- turret pillars – for underground residential subdivisions and other approved locations. Refer to Section 4; and
- commercial pillars – for commercial and industrial developments and other approved locations. Refer to Section 5.

2.2 The appropriate pillar shall be selected based on the electrical requirements of NS110 and NS112 and shall be consistent with the built environment at the location.

Figure 1 – Turret Pillar

Figure 2 – Commercial Pillar

3 Site selection

3.1 Minimum clearances

3.1.1 The above ground clearances of Table 1 shall be maintained around turret and commercial pillars. Refer to Annexure A for diagrams showing the typical minimum clearances around pillars.

3.1.2 Refer to Annexure B for a visual guide to acceptable and unacceptable pillar locations.

Table 1 – Minimum above ground clearance around pillars

Category	Clearance from	Turret pillar clearance (mm)[1]	Commercial pillar clearance (mm)
External site clearance	Each side of pillar	500	50[2]
	Rear of pillar	120[3]	25
	Top of pillar	1500	100
	Front of pillar	2000[4]	2000[4]
Third party assets	Above ground fire hydrants	3000[5]	3000[5]
	Below ground valves and hydrants	2000	2000
	Access covers for accessible pits and shafts	1000	1000
Building	Corner of building	1000	500
	Edge of doorway	1000[6]	500[6]
	Edge of window frame	25[7]	25[7]
Intersections	Corner of property boundary	1000	500
Property boundary	Street Alignment	140 / 160[8] (short / long side parallel)	25[9]
Vehicular	Driveway – Residential	300	300
	Driveway – Industrial / Commercial	1000	1000
Footway	Pillar face – for minimum thoroughfare width	1200[10]	1200[10]
Easement[11]	Each side of pillar	500	500[12]
	Rear of pillar	300	300[12]
	Front of pillar	2000[13]	2000[13]
	Top of pillar (vertically above)	2000	1500[12]
Environment	Tidal prone land	1000 above MHWM[14]	1000 above MHWM[14]

1 Turret pillar clearances shall be measured from the turret connecting bolts (horizontal) or from the turret top (vertical).

2 Increased to 500mm in open-air environments where the cabinet is to be lifted into place with all electrical hardware installed.

3 Minimum above ground clearance to accommodate below ground turret base structure in narrow footways, high traffic areas or congested sites. At other locations, pillars shall comply with the property boundary clearance (footway sites), or the easement rear clearance (off-street sites), as applicable.

4 Front of pillar clearance can overlap with other open spaces including the pedestrian thoroughfare, nature strip, carriageway and the like.

[5] Clearance can be reduced to 2000mm following consultation with the local fire authority.
[6] Clearance can be reduced to 300mm for pre-existing doorways, where a greater separation cannot be reasonably achieved due to restricted site conditions. Reduced clearances require prior consultation with the premises owner.
[7] Pillars shall not be installed in front of windows, except where prior consultation has occurred with the premises owner.
[8] For footway sites – measured at rear of pillar with the short / long side parallel to boundary. Equivalent to a distance of 300mm (approx.) measured from centre of pillar. Assumes no other buried utilities between lot boundary and pillar.
[9] For footway sites – measured at rear of pillar. Assumes no other buried utilities between lot boundary and pillar.
[10] Location to maintain minimum 1.2m clearance for pedestrian thoroughfare except where existing fixed location obstacles already restrict access. Refer to Clause 3.4.3.
[11] For off-street sites within the property boundary. Refer to Clause 3.3.
[12] For wall recess installations, the easement shall be the same size as the wall recess opening. Refer to Clause 5.4.
[13] Easement extends to the front boundary line only, where this distance is less than 2m. In these situations, access from the footway zone shall be unrestricted, and the front of pillar clearance shall extend into the footway.
[14] Mean High Water Mark (MHWM)

3.2 Additional site constraints

3.2.1 Pillars shall not be installed in areas prone to local inundation due to stormwater run-off or water accumulation. Designers shall review the local government authority flood studies for flood prone locations.

3.2.2 Pillars on footway sites within the road reserve shall not be located:

- where an established access or probable future access to a property would be affected;
- within the footway allocation of other utilities (communications, gas, water, rail, etc), except with the prior written permission of the relevant utility.

3.2.3 Where other utilities impinge within the Ausgrid footway allocation, the pillar location and any necessary service relocation works shall be negotiated with the relevant utility.

3.3 Off-street locations

The following requirements shall be addressed for pillars on off-street sites within the property boundary. These sites:

- shall be sited with one edge of the overall pillar site boundary at the front road boundary where site conditions allow;
- shall have an easement provided for the pillar site and, where the pillar site is not located adjacent to a public road boundary, an easement and right-of-way for cable and personnel access. Refer to Table 1 and the requirements of NS143;
- shall not have services such as drains, sewers, pipes and wiring passing under the pillar site area;
- shall be protected from damage by vehicles in areas classified as high risk for vehicle impact, such as adjacent to driveways, drive-thru areas, community / customer car parking etc.;
- shall comply with the landscaping requirements in Section 7; and
- shall be provided with access from the street in accordance with Clause 8.3.

3.4 Footway sites - alignment and orientation

3.4.1 The following requirements shall be addressed for pillars on footway sites within the road reserve. These sites:

- shall be installed within the restrictions specified by NSW Streets Opening Coordination Council, “Guide to Codes and Practices for Streets Opening” where site conditions allow;
- shall be installed adjacent to the street alignment in accordance with Table 1;
- shall be positioned so that the top of the pillar base is level and 50mm above the footway level. Refer to NS130;
- shall be aligned with the lot boundary between two adjacent neighbouring lots where site conditions allow;

- shall be orientated with the long edge parallel to the street alignment, except for turret link pillars which shall have the short edge parallel. Refer to NS130;
- shall not be located directly opposite (across the line of travel of) other fixed assets in the road reserve (e.g. power pole, rubbish bin, bus shelter etc.) where the main footway thoroughfare width would be reduced to less than the minimum clearance in Table 1;
- shall not be located where an existing paved footpath thoroughfare width would be reduced to less than the minimum clearance in Table 1, except where the paved footpath can be safely widened in consultation with the local government authority; and
- shall not be located where trees, shrubs or plants, other than lawn grass, will encroach within the minimum external site clearances of Table 1.

3.4.2 Where the building line of a new development is set back from the street alignment, the pillar shall be installed as follows:

- as an off-street site adjacent to the building line, and an easement shall be obtained for the pillar site, cables and access path in accordance with Clause 3.3; or
- as a footway site within the road reserve where there is a clear pedestrian thoroughfare and the pillar is installed in alignment with, and within 1000mm of, other permanent street furniture such as poles, bins, fixed seating and plants; or
- as a footway site using a commercial pillar in accordance with Clause 5.2.

3.4.3 Where the existing footway thoroughfare width is less than the minimum clearance in Table 1, the pillar location shall be:

- aligned with existing fixed location obstacles such that the pedestrian thoroughfare is not further reduced; or
- reviewed by the designer where a reduction in pedestrian thoroughfare is unavoidable, and further consultation undertaken with Ausgrid and the local government authority.

3.4.4 Where a pillar poses a potential trip hazard in the main pedestrian thoroughfare, the impact shall be mitigated by using one or more of the following measures:

- the additional contrast measures in Clause 6.4; or
- alignment with, and within 1000mm of, other permanent street furniture; or
- a gradual transition of the paved footpath around the pillar; or
- ground surface markings such as edge stripes for delineation; or
- tactile ground surface indicators; or
- by other measures.

4 Turret pillars

4.1 Turret pillars are suitable for use in underground residential subdivisions.

4.2 Turret pillars shall not be used in commercial and industrial areas, except where there is deemed to be:

- no potential trip hazard; and
- a low impact on public safety.

4.3 Where site conditions allow, turret pillars shall be installed with a minimum rear clearance to the property boundary, in accordance with Table 1, to reduce pedestrian impacts.

4.4 Where a turret pillar poses a potential trip hazard in the main pedestrian thoroughfare, the impact shall be mitigated by using one or more of the measures in Clause 3.4.4.

5 Commercial pillars

5.1 Commercial pillars are suitable for use in commercial and industrial developments.

5.2 Commercial pillars may also be used in residential areas, as an alternative to turret pillars, where:

- the footway thoroughfare width would be less than the minimum clearance in Table 1 with a turret pillar installed; or
- the pillar is in a public area, remote from a property boundary, and it cannot be installed in alignment with, and within 1000mm of, other permanent street furniture such as poles, bins, fixed seating and plants; or
- the pillar is within a residential area classed as Medium or High density and a reduced impact on public safety can be achieved within the main pedestrian thoroughfare.

5.3 Commercial pillars may be installed in either a wall recess or in an open-air environment and shall have the access doors facing outwards.

5.4 Wall recess installation

5.4.1 The cabinet and base unit combination can be installed in a recess in a wall. To ensure adequate ventilation and sufficient space for installation, the minimum external site clearances of Table 1 (sides, rear, top) shall be maintained around the cabinet and the above ground section of the base unit.

5.4.2 The front of the pillar (cabinet door handle) shall be flush with the opening of the recess, and the installation shall have an easement which is the same size as the wall recess opening and provided in accordance with Clause 3.3.

5.4.3 Setting the pillar further back in the recess is not permitted, except where the wall recess opening and easement around the cabinet are both increased to satisfy the easement clearances shown in Table 1.

5.5 Open-air installation

Where site conditions allow, commercial pillars in an open-air environment shall be installed with a minimum rear clearance to the property boundary, in accordance with Table 1, to reduce pedestrian impacts.

6 Accessibility and public safety

6.1 General

6.1.1 The requirements for visually impaired persons in this Section[1] shall apply to residential, commercial and industrial locations.

6.1.2 The requirements can also be used to improve public safety where potential trip hazards are identified, reducing the risk of collision, trips and falls for pedestrians, bicycles, vehicles and other users.

6.2 Location of Pillars

6.2.1 Designers shall assess the impact to visually impaired persons and public safety when determining the location of pillars. Where site conditions allow, pillars shall be installed outside of the main pedestrian thoroughfares.

6.2.2 The location of pillars shall reduce the potential for trip hazards. Measures including alignment with permanent street furniture, strong luminance contrast and the installation of reflective tape shall be used to mitigate the risk of collision, especially during low-light conditions. Refer to Clauses 3.4.4 and 6.4.

[1] Originally developed in consultation with Vision Australia.

6.3 Short Turret Pillars

Turret pillars with short turrets (365mm total installed height out of ground including the base) may create a trip hazard for visually impaired persons and shall not be used in pedestrian thoroughfares.

6.4 Contrast against Surrounding Surfaces

6.4.1 The cabinet / turret and base combination shall provide a strong luminance contrast against the existing (or proposed) surrounding surfaces (minimum 30%).

6.4.2 During the design phase the colour selection of the cabinet / turret and base combination shall be evaluated to ensure the minimum luminance contrast requirement is satisfied.

6.4.3 The use of Artwork design for the cabinet / turret and base combination shall be subject to the written approval of Ausgrid.

6.4.4 For turret pillars identified as a potential trip hazard for visually impaired persons, a white reflective tape 50mm wide (Stockcode 56564) shall be installed 100mm from the top of the turret. The reflective tape shall cover the entire circumference of the turret and shall be cut into four individual lengths to ensure it sits flat on the four turret surfaces.

6.4.5 For commercial pillars where the Clause 6.4.1 requirements cannot be satisfied, the end of the cabinet (depth) shall provide a strong luminance contrast against surrounding surfaces. This can be achieved by using a different end-colour coating (approved by the manufacturer), or through provision of a white reflective tape 75mm wide, installed on the cabinet end faces at a height of 900-1000mm from floor level.

6.4.6 Surface preparation for affixing the reflective tape shall be as described in NS148 for attaching asset numbers to HDPE plastic pillars, to ensure adequate adhesion to the pillar surface.

6.5 Determining Luminance Contrast

6.5.1 Refer to AS1428.1 Appendix B for details regarding the measurement of luminance contrast. Appendix E within AS1428.4.1 provides a precise, but complicated, method of measuring luminance contrast.

6.5.2 Alternatively, luminance contrast can be measured by one of the less accurate methods below:

- using a lux meter / light meter; or
- using a specialised camera-based application approved by Ausgrid; or
- matching the colours in question with the colours in the “Dulux Colour Atlas” and comparing their Light Reflectance Value (LRV). Ausgrid’s standard turret pillars have a LRV of approximately 11, and the commercial pillars have a LRV of approximately 57.

6.5.3 Where Clause 6.5.2 is used to determine luminance contrast, a higher 40% luminance contrast shall be targeted due to the loss of precision.

7 Landscaping for off-street locations

7.1 Vegetation within the pillar easement:

- shall be maintained lawn or ground cover that grows to a maximum 150 mm height;
- shall not interfere with access to the pillar for both personnel and equipment; and
- shall not screen visibility of the pillar from the street.

7.2 Trees, shrubs or plants, other than lawn grass, shall not encroach within the pillar easement and shall not screen visibility of the pillar from the street.

7.3 The site owner/customer shall be responsible for providing and maintaining all landscaping, to the satisfaction of Ausgrid, as specified in the easement document.

7.4 Watering systems shall not be installed within the pillar easement or designated personnel access routes.

8 Access requirements

8.1 Pillar sites shall provide unrestricted, 24/7 access directly from a public street for Ausgrid personnel and equipment.

8.2 For off-street sites, the site owner/customer shall be responsible for providing and maintaining access routes and surface finishes, to the satisfaction of Ausgrid, as specified in the easement document.

8.3 For off-street sites, access from the street to the pillar site shall not be fenced or enclosed, except with the written approval of Ausgrid. The required easement and any right-of-way for the pillar site shall be in accordance with Clause 3.3.

Annexure A: Typical minimum clearance diagrams

A1 General

This Annexure contains schematic diagrams showing the typical minimum clearance requirements for both turret and commercial type pillars.

A2 Turret pillars

The typical minimum clearance requirements are indicated in the following site plans and elevations. Refer to Table 1 for details and to the requirements of Clauses A4 and A5.

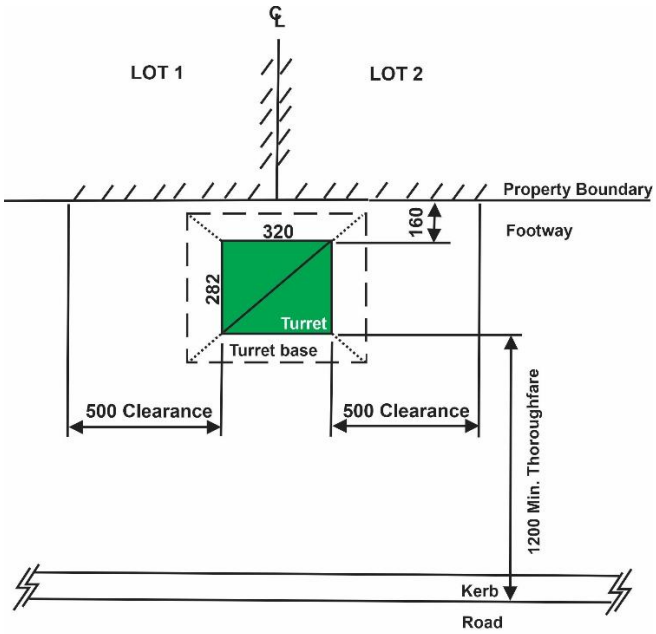

Figure A1 – Turret pillar plan – footway site.

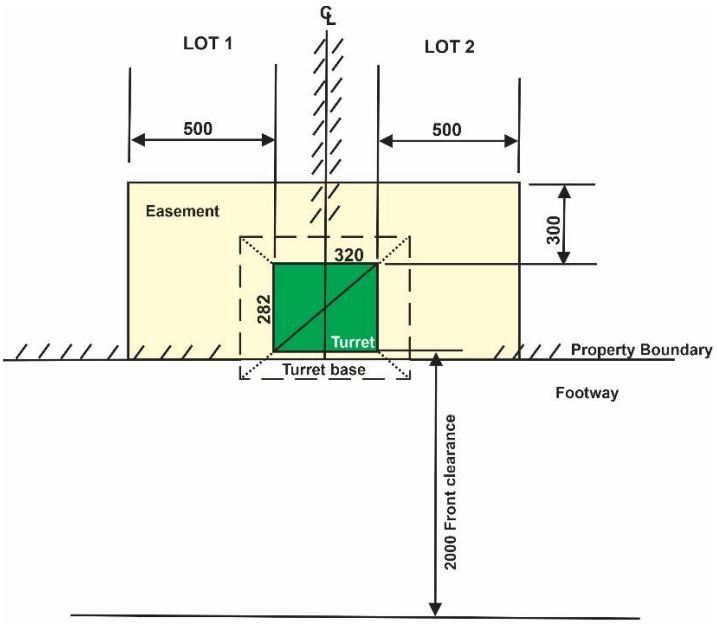

Figure A2 – Turret pillar plan – off-street location.

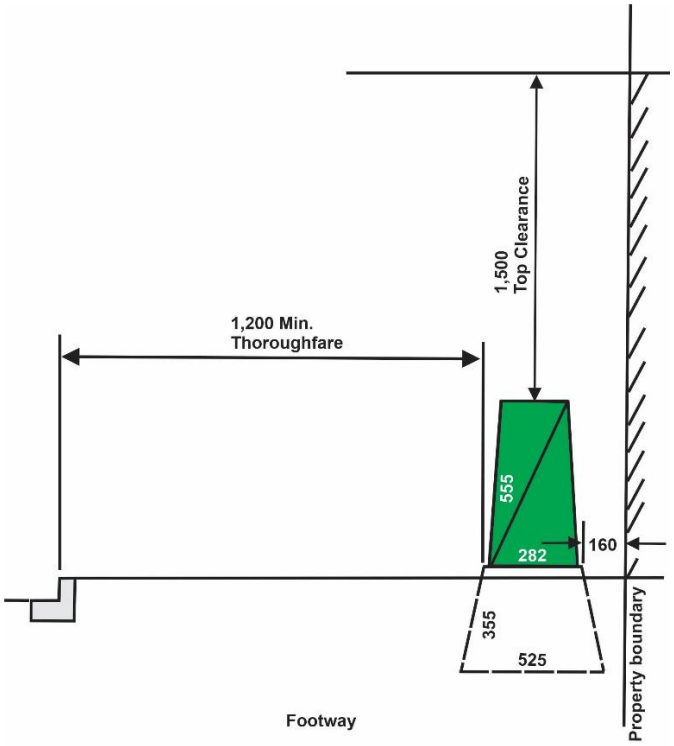

Figure A3 – Turret pillar elevation – footway site

A3 Commercial pillars

The typical minimum clearance requirements are indicated in the following site plans and elevations. Refer to Table 1 for details and to the requirements of Clauses A4 and A5.

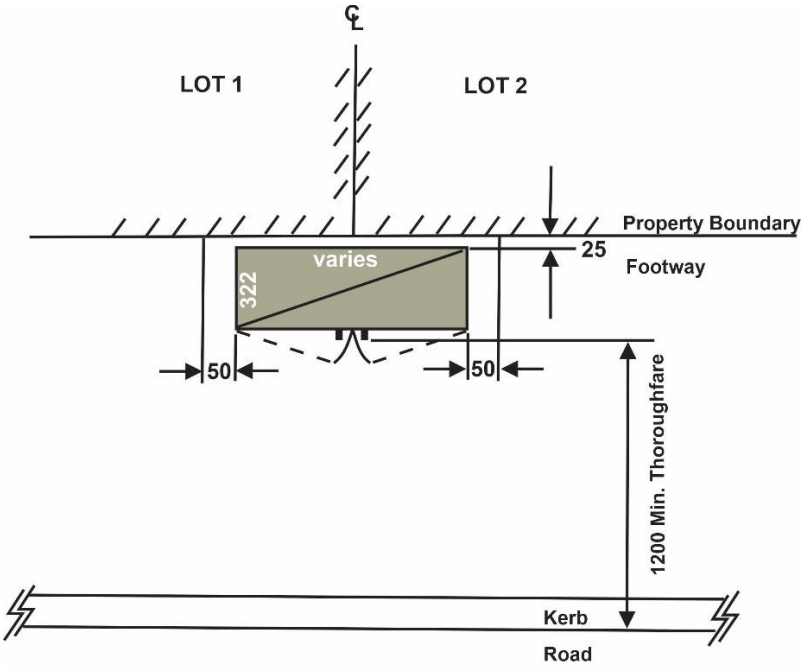

Figure A4 – Commercial pillar plan – footway site.

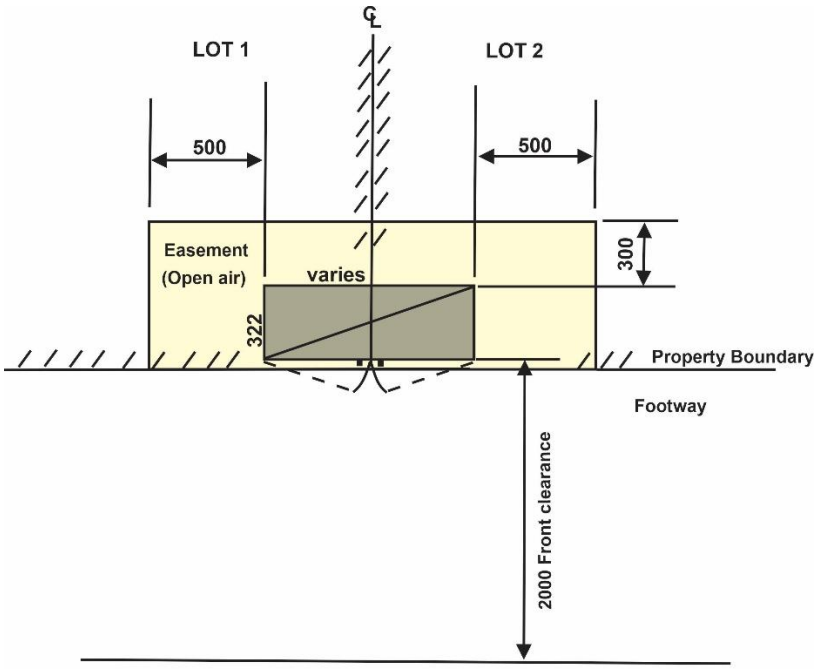

Figure A5 – Commercial pillar plan – off-street location.

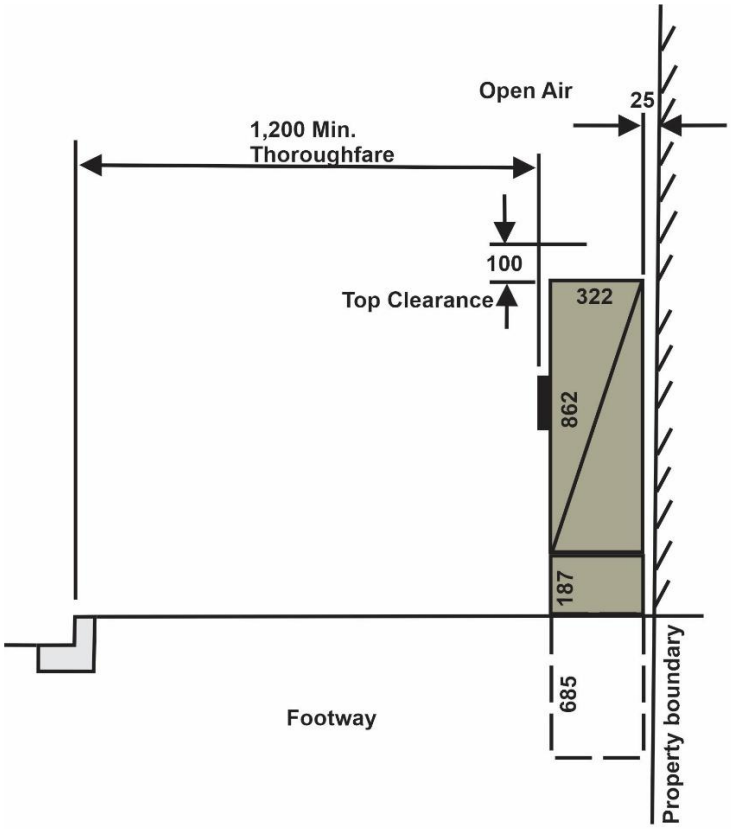

Figure A6 – Commercial pillar elevation – footway site.

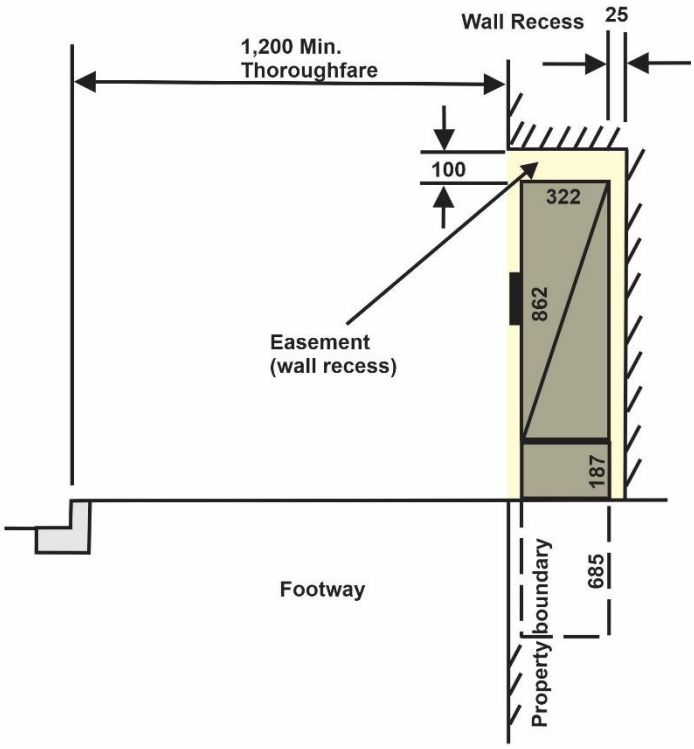

Figure A7 – Commercial pillar elevation – off-street in a wall recess.

A4 The centreline symbol (CL) shown in Figures A1, A2, A4 and A5 indicates a nominal property boundary between lots, for locations where the pillar site is located across adjacent residential lots.

A5 Where the pillar easement site is set back from the street frontage property boundary (i.e. Figure A2 with additional set back), an associated cable easement and a right-of-way for access shall be established. Refer to Clause 3.3.

Annexure B: Examples of pillar placement

B1 Residential zones

The following photographs show good, acceptable and unacceptable installations of pillars in underground residential subdivision areas

Fig B1 - Good - Clearances per Table 1 maintained. A commercial pillar is also suitable for this area.

Fig B2 - Good – Clearances per Table 1 maintained for link pillar.

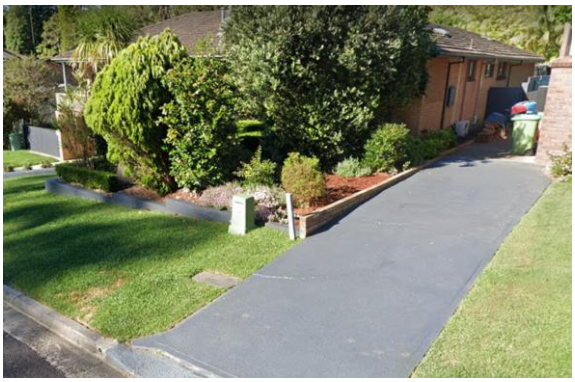

Fig B3 - Good – Clearances per Table 1 maintained.

Fig B4 - Good – Clearances per Table 1 maintained

Fig B5 - Unacceptable – Too close to front gate exit. A commercial pillar is also suitable for this area using clearances per Table 1.

Fig B6 - Unacceptable – Narrow footpath, marginal on adequate width and contrast. A commercial pillar would be suitable for this location.

Fig B7 - Unacceptable – Low pillar is opposite existing pole and further impedes narrow footpath.

Fig B8 - Unacceptable – Middle of the footpath near a crossing. A commercial pillar would be suitable for this location.

B2 Commercial zones

The following photographs show good, acceptable and unacceptable installations of pillars in commercial areas.

Fig B9 - Good – Clearances per Table 1 maintained.

Fig B10 - Good – Clearances per Table 1 maintained.

Fig B11 - Acceptable - in line with other objects, full height, marginal for 1m proximity to other fixed assets.

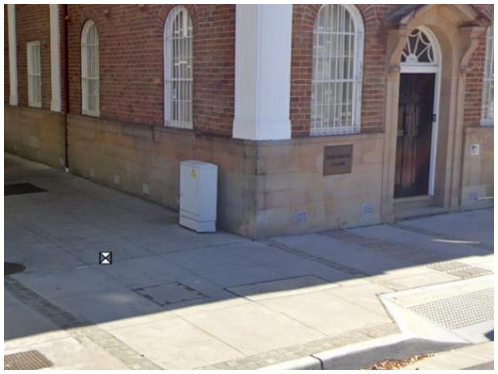

Fig B12 - Good – Clearances per Table 1 maintained.

Fig B13 - Good – Clearances per Table 1 maintained.

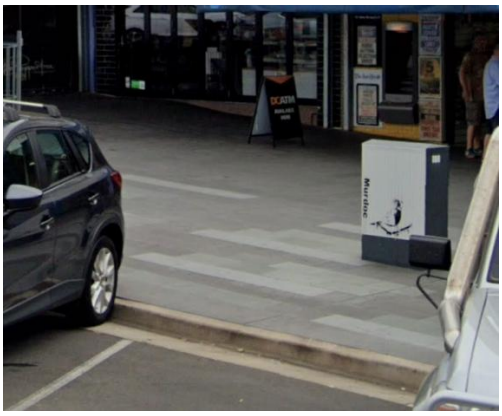

Fig B14 - Good - Building is set back from the property boundary, leaving a wide footpath. The commercial pillar is aligned with other street furniture and tall enough not to be a trip hazard.

Fig B15 - Acceptable – Low pillar, but in line with other fixed assets and within 1m.

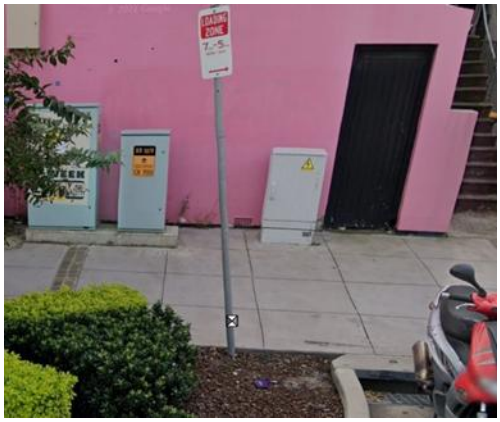

Fig B16 - Acceptable – In line with other assets, but close to adjacent doorway

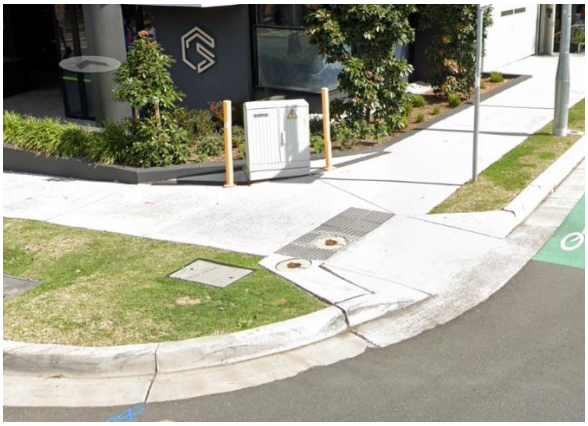

Fig B17 - Acceptable – Corner location, but protected and setback from crossing and footpaths.

Fig B18 – Unacceptable – Low pillar in line with other assets, but on a narrow footpath. A commercial pillar would be suitable for this location.

Fig B19 -- Unacceptable – Low pillar in a commercial footpath and more than 1m from other fixed assets. A commercial pillar would be suitable for this location.

Fig B20 - Unacceptable – Near a doorway and middle of footpath with building line setback.

Fig B21 - Unacceptable – the pillars are adjacent to the property boundary, but the building line setback means they are in the middle of the footpath.

Fig B22 - Unacceptable – Low pillar in a commercial footpath, located in front of a glass panel. A commercial pillar would be suitable using clearances per Table 1.

Fig B23 - Unacceptable – Low distribution pillar too close to building corner. A commercial pillar would be suitable using clearances per Table 1.

Fig B24 - Unacceptable – Low distribution pillar too close to building corner. A commercial pillar would be suitable using clearances per Table 1.

Fig B25 - Unacceptable – adjacent to property boundary, but redevelopment and new paving leaves pillar on main pedestrian thoroughfare.

B3 Industrial zones

The following photographs show good, acceptable and unacceptable installations of pillars in industrial areas.

Fig B26 - Good – Clearances per Table 1 maintained, no potential trip hazard and a low impact on public safety.

Fig B27 - Good – Clearances per Table 1 maintained.

Fig B28 - Good – inside the property line and does not impede pedestrian access (future risk of garden overgrowth).

Fig B29 - Unacceptable – Requires additional setback from industrial driveway (LHS) and/or bollards to reduce the risk of large vehicle impacts.

Fig B30 - Unacceptable – Low pillar with inadequate setback from commercial driveway and significant risk of vehicle impacts.


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