

Fibre Ready "Pit and Pipe" Guidelines for Multi Unit Real Estate Developments including Retirement Villages

This summary document should be read in conjunction with G645:2011 - Communications Alliance Ltd - Fibre Ready Pit and Pipe Specification for Real Estate Development Projects.

In multi unit developments each unit has a separate underground conduit feed from suitably located pits to a wall box or Premises Connection Device (PCD) at each unit (see Figures 1 & 2).

Figure 1 - Typical Gated community

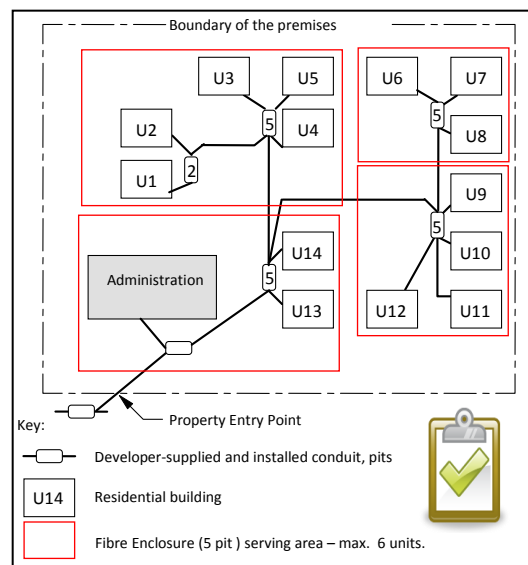
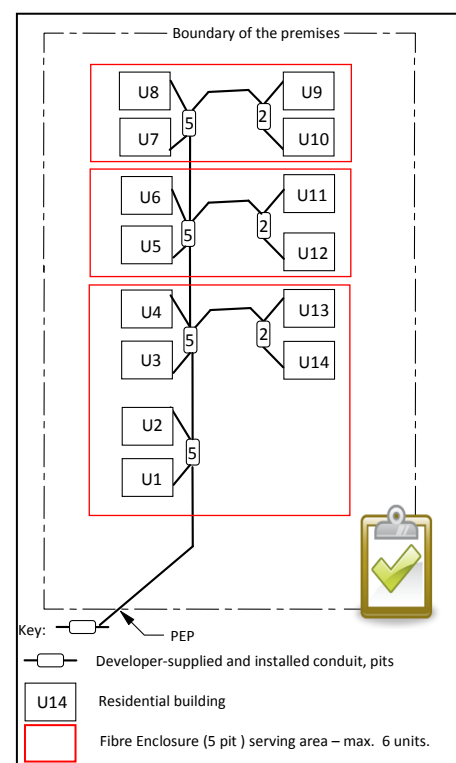


Figure 2 - Typical unit development



This individual underground feed is also the preferred method in blocks of adjoining units (see Figure 3 below).

However, this option is not viable where:

- There is no suitable place to install a wall box or PCD on the outside wall of the unit; or
- Where suitable measures cannot be taken to prevent the entry of water or termites into the building via the building entry conduit; or
- The pits cannot be installed in a suitable location on common property (pits must not be located in roadways or driveways); or
- There is no suitable access to the electrical earthing system for connection of customer lightning protection (CLP). Customer lightning protection is necessary where copper cable (normally Telstra) will be installed prior to the deployment of fibre cable.

In these cases alternative solutions should be agreed with the network operator (carrier).

Figure 3 - Typical multiple adjoining units

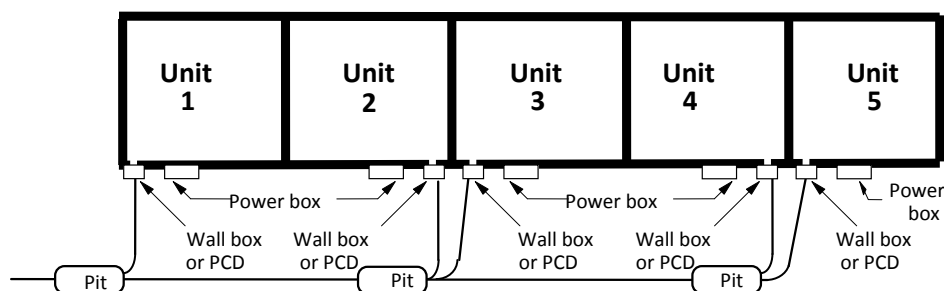
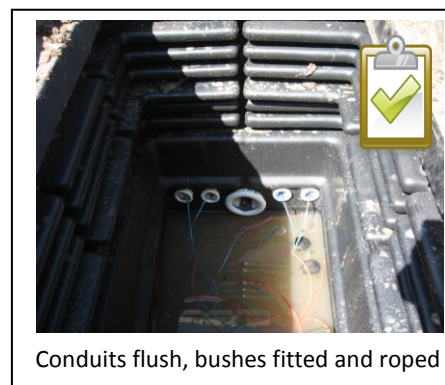
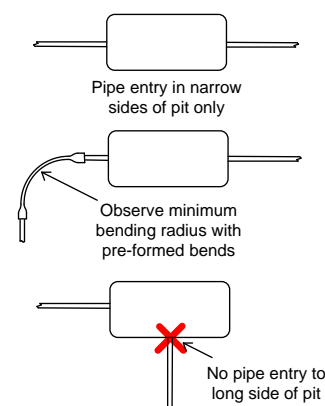


Figure 4.- Pipe entry to pits



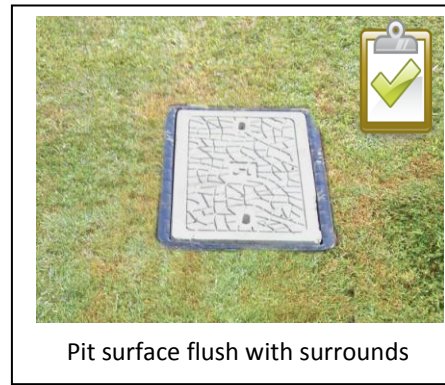
Conduits flush, bushes fitted and roped



Pit installed in vehicular driveway



Conduits enter side (not end) of pit



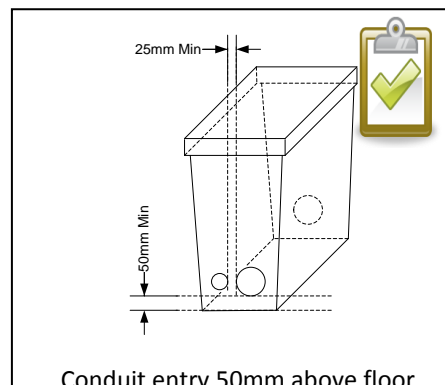
Pit surface flush with surrounds



Pit surface below surrounds



Conduits protrude too far into pit



Conduit entry 50mm above floor



Conduit flush and bush fitted



Conduit flush but no bush fitted

Backbone Distribution pipe

- Pipe diameter for 2 – 24 Units: P50 minimum.
- Pipe diameter for 25 units and above: P100.
- Depth of cover: for P23 P50 and P100 conduit min cover is 300mm except under private roadways where 450mm cover is required. Trench depths must allow for bedding material, pipe diameter and required depth of cover.
- Minimum bending radius underground: P23 = 300mm; P50/P100 ($\leq 500\text{mm}$ from access point) = 800mm; P100 (where $> 500\text{mm}$ from access point) = 5.0m.
- Bends between pits: Maximum of 2.
- Bring conduit within 1 metre of network operator's pit. Do not connect conduit to Network Operator's pits. This will be done by the Network Operator prior to cable installation.

Pit Size	Conduit combinations at one end of a pit; including pit with collar		
	100mm	50mm	23mm
2	0	1	4
5	1	2	0
	1	1	2
	1	0	4
	0	3	0
	0	2	2
	0	1	4
0	0	6	

Table 1

Pit Size and Placement (See figure 1 and figure 2)

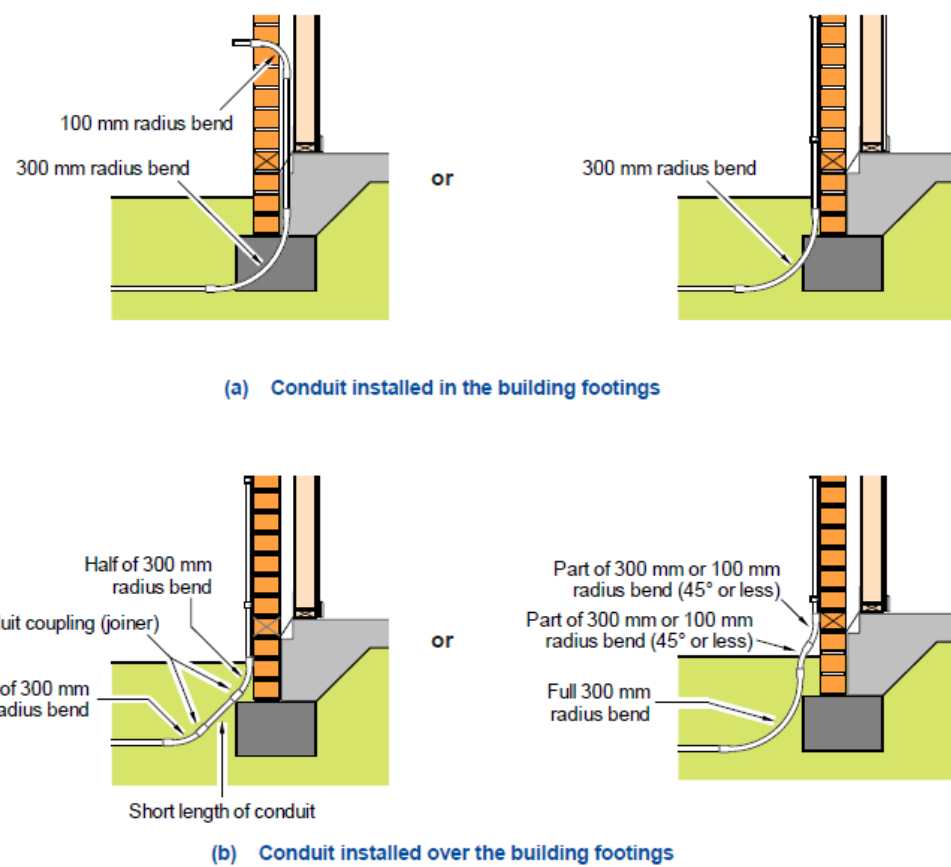
- For every group of 6 units (or part of), a type 5 pit (or larger) is required to accommodate a future fibre enclosure.
- A Size 2 pit may be used to connect typically two and a maximum of four single building units.
- A Size 5 pit shall be used to connect typically four and a maximum of six single building units.
- Pits shall not be placed in a roadway or driveway.
- Avoid placing pits within 15 metres of pad mount or pole mount electricity transformers. Refer to AS/NZS 3835.1.
- For additional detail on pit placements, bends and lengths between pits etc., refer to G645.

Lead-in conduit for each individual unit

- Residential: minimum internal diameter (ID) of conduit (pipe) is 23 mm.
- Non residential: minimum ID of conduit is 50mm.
- Bends between draw points: Maximum of 3.
- Terminate lead-in pipe in close proximity to the power box to facilitate access to the building earthing system.

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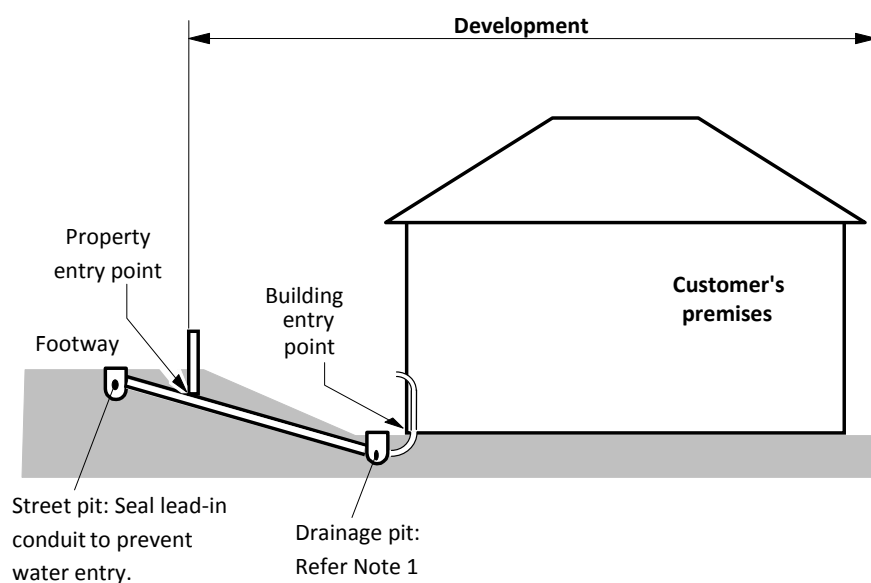
Figure 5 - Building Entry Point – Conduit Placement (P23 only)



Notes:

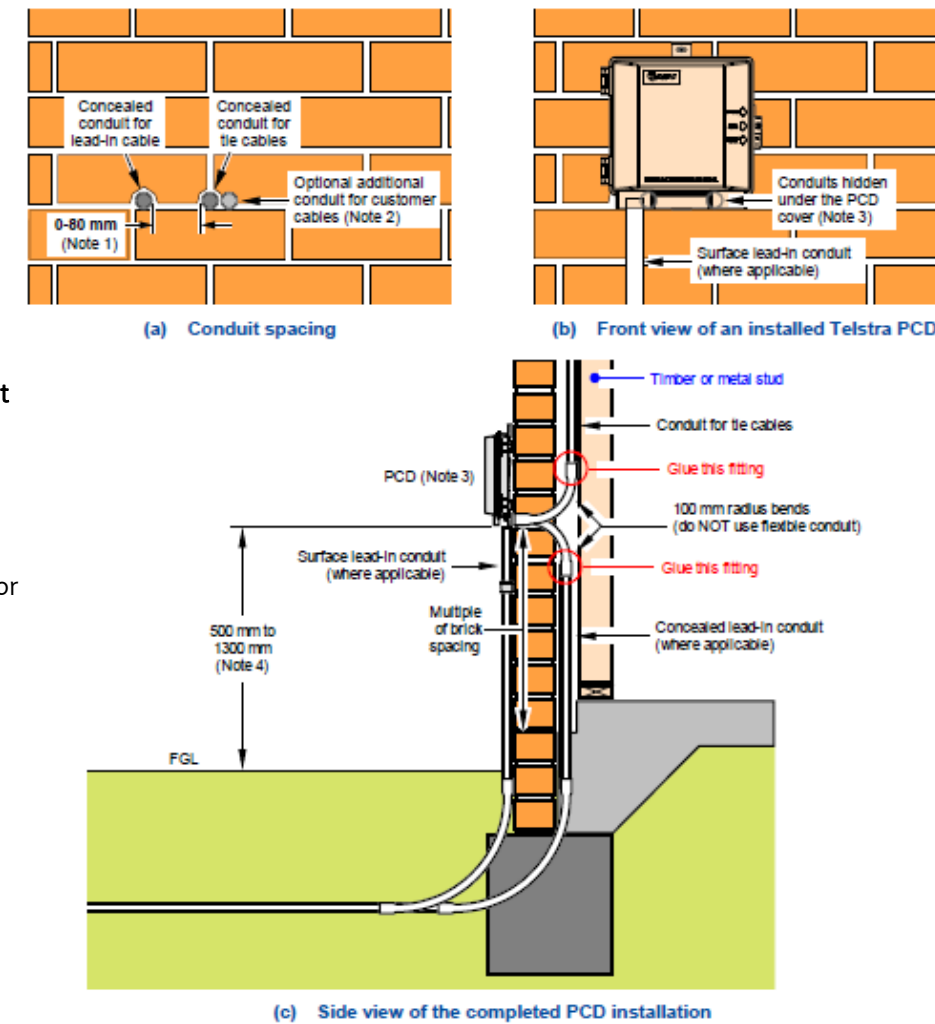
1. No more than the equivalent of two 90° bends, comprising one 300 mm radius bend underground and one 100 mm radius bend aboveground, are permissible at the building. Another 300 mm radius bend may be installed at the street pit, making a total of three bends (the maximum permissible) between cable access points.
2. Only pre-formed bends may be used. Conduit must **not** be bent on site (e.g. by application of heat or using a bending tool).

Figure 6 - Typical drainage pit at Concealed Building Entry Point



Note 1: Where the building entry point is lower than the street conduit network and there is risk of water entering the building through lead-in conduit, a pit may be required at or near the building perimeter for drainage of water.

Figure 7 - Typical Premises Connection Device (PCD) configuration.



Notes:

1. Optimal conduit positioning varies according to the type of PCD to be installed. Spacing the conduits between 0 mm and 80 mm will ensure compatibility with all PCDs.
2. The provision of a second conduit for the tie cabling is required where:
 - the PCD is likely to be an outdoor FTTP NTD
 - a second PCD is to be installed, e.g. HFC isolation box for Cable internet or pay TV
3. Telstra PCDs have a skirt on the cover to:
 - protect the cables from direct exposure to sunlight;
 - hide the ends of the conduits from general view while allowing water and vapour to escape from the lead-in conduit outside the PCD; and
 - enable the lead-in conduit opening to be readily inspected for termite activity by a pest inspector.
4. For pre-wiring in areas that do not have reticulated gas (including homes where bottled gas will be used), locating the PCD below the electricity enclosure will minimise the risk of obstruction by such things as downpipes, fences, gas bottles, etc. In such cases, positioning the conduits between 500 mm and 600 mm above finished ground level (FGL) will ensure there is sufficient clearance from the electricity enclosure while providing reasonable PCD height for access.

References

G645:2011	Communications Alliance Ltd - Fibre Ready Pit and Pipe Specification for Real Estate Development Project
AS/NZS 2430.3	Classification of Hazardous Areas
AS/NZS 3000	Electrical Installations (known as Australian/New Zealand Wiring Rules)
AS/NZS 60079.10	Electrical apparatus for explosive gas atmospheres - Part 10: Classification of hazardous areas (formerly AS 2430.1)
DR AS/CA S009:2012	Installation requirements for customer cabling (Wiring rules)