Guidelines for Customers' when laying Ducting (Hydrodare) for Telecom Networks on their private property.

Version 1.8

This document contains general guidelines for customer's installing Telecoms infrastructure (ducting) for both Copper and Fibre lines on their property.

Acronyms and Descriptions:

ETU	External Termination Unit	Telecoms connection box installed in the external wall of the premises generally when the premises is initially being constructed. *(IP66 rated external junction box of dimension W 150mm x H 230mm x D 150mm.)*
FTTH	Fibre to the home.	Fibre broadband service which is delivered into the premises via a Fibre optic cable.
	Modem	The equipment in the customer's premises which relays the Broadband signal to the customer via WIFI or Ethernet cable.
	Access Box	An access box (sometimes called a small access chamber) is a plastic or concrete structure set below ground with a lid flush to the surrounding surface to facilitate the installation and maintenance of the Telecoms duct and fibre cable.
	Cable / Duct Marker Warning Tape.	A length of plastic tape laid above the duct along its entire length indicating the presence of the duct below the tape.
	Draw Wire	(Sometimes called the Draw Rope.) A rope (usually 6 mm nylon) inserted in a duct for the purpose of pulling a cable through the duct during service installation or maintenance.
	Network Touch Point	(Sometimes called the Distribution Point.) The point on the open eir network from where service will be delivered. It can be a telephone pole or an underground box or chamber.
	Slow Bend	A preformed bend of up to 1 metre in radius, used to connect two lengths of duct at a bend and reduces the stress on the cable when it is being pulled into the duct.
	Cat and Genny	A hand held electronic device used to identify underground cables.

Foreword:

For installations where the premises is less than 50 m from the Network Touch Point the line will be installed overhead. Where a Fibre installation is taking place and a copper line already exists then the fibre line will be installed using the copper infrastructure if it is fit for purpose.

Underground Installations

If there is a pre-existing telecoms duct present, the customer must ensure that it is not obstructed and that there is a free moving Draw Wire installed end to end.

Maintenance of the duct is the responsibility of the property owner.

If there is no pre-existing duct present and the customer prefers to have a telecoms line installed underground it is the responsibility of the property owner to install a duct.

NOTE: Telecoms duct must be used exclusively for Telecoms infrastructure (cables).

Ducting must always be installed by a competent person / contractor.

Duct Overview

A telecoms duct will facilitate ease of installation and maintenance of telecoms infrastructure in the premises.
The duct must be installed in a location and manner which minimises the possibility of accidental damaged irrespective of cause.
Selecting the optimum duct size and location for the duct route, away from the drive way etc. will reduce the visual impact of the access boxes and also reduce the need for, and cost of maintenance, should it be required in the future.

The duct must have a Draw Wire inserted at all times.

Duct installation guidelines.

Conditions may vary from site to site but the following guidelines must be followed:

- The Duct will extend from the desired cable entry point at the premises to the Network Touch Point nearest the property boundary. If it is not possible to reach the Network Touch Point then sufficient duct to reach the Network Touch Point must be left safely coiled outside the property boundary.
- A Draw Wire must be inserted continuous end to end and a minimum of 1 metre of the rope should be safely secured at either end.
- Sharing of the duct with other services is not allowed.
- The duct route must not be located within 300 mm of any existing services.
- The Duct will be laid in a straight line where possible. If a sharp bend is necessary then a suitable Access Box must be installed at the bend to facilitate ease of cable installation.
- For long distances Access Boxes must be installed every 50 to 200 m approx.
  (duct size dependent)

Duct Size	Access box intervals
< 50 mm	50 m
50 mm	100 m
100 mm	200 m

- The route for the duct must be selected to:
  - Avoid traffic passing over it to reduce the potential for future crushing damage.
  - Minimise the possibility of damage to the duct due to future excavations.
  - Reduce the cost of repairing or replacing the duct should it be required.
  - Reduce the potential visual impact due to the Access box lids.
- When digging a trench care must be taken not to damage any existing underground services located adjacent to the proposed duct route.
  (The digger operator must identify the location of any existing cables close to the proposed duct route.)
- Duct size will increase with distance, ie. the greater the distance from the Network Touch Point to the premises the larger the duct diameter must be.

If for any reason some of these guidelines cannot be fully complied with, then alternative measures must be employed to ensure the duct is not liable to damage from any source and existing infrastructure is not damaged in the process.

The Draw Wire must always run freely within the duct.

Duct Specification guidelines:

- Suitable duct for most installations will be a Hydrodare type pipe of minimum internal diameter of 32 mm.
  (50 or 100 mm pipe will be required for long distance runs.)
- It is always preferable to lay duct in a continuous length but for long distances where more than one length of duct is necessary, "access boxes" must be installed between each length of duct.
  (An Access box must be installed at any location where there is a sharp bend.)
- If the duct is being joined without the provision of an access box at that location, a proper joining sleeve must be used to avoid leaving any sharp edges which could snag the cable during installation.
- The duct must be laid in a trench minimum 400 mm below ground level.
  (If for any reason the duct cannot be laid at the required depth it must be laid in a location where it will not be crushed and adequate measures must be deployed to prevent crushing.)
- A number of small holes must be drilled in the underside of the duct at the lowest point along the trench to allow water drain from the duct. A sump of sand or gravel under the holes will assist drainage.
- Ducting will be covered with sand (or equivalent substrate) before back filling the trench to avoid damage by back fill aggregate material.
- When backfilling the trench ensure no large or sharp stones make contact with the duct as these will damage the duct and cause a blockage over time.
- A "Cable / Duct Marker Warning Tape" along the length of the duct at half depth before completing the back fill will help avoid future damage in the event of further excavation in the vicinity of the duct..
- Where the duct must be laid under a driveway it is important that the duct is either laid deep enough or suitably protected to ensure it does not suffer crushing damage over time due to the weight of the vehicles traversing over it.

Duct installation at the Premises:

- The duct must extend into the ETU (Fig 3 page 10)
- For premises without an ETU the property owner should select the location on the external wall where the duct will terminate.
  (If this location is not the preferred cable entry point the cable can be run externally on the wall to the selected cable entry point.)
- Locate the duct on a convenient external wall to a height of 600 mm above ground level if an ETU cannot be provided. (Fig 1)
- If the duct size used is greater than 50 mm an access box should be located close to the premises and a 32 mm duct extended to the premises.
- The duct must have a removable end cap fitted to prevent ingress of debris in advance of cable installation. (Fig 2)

NOTE: For a Fibre to the Home installation the cable must enter the premises at a location where it is convenient for the customer to access or use the Service / Modem.
A twin electrical socket is required adjacent to the cable entry point.

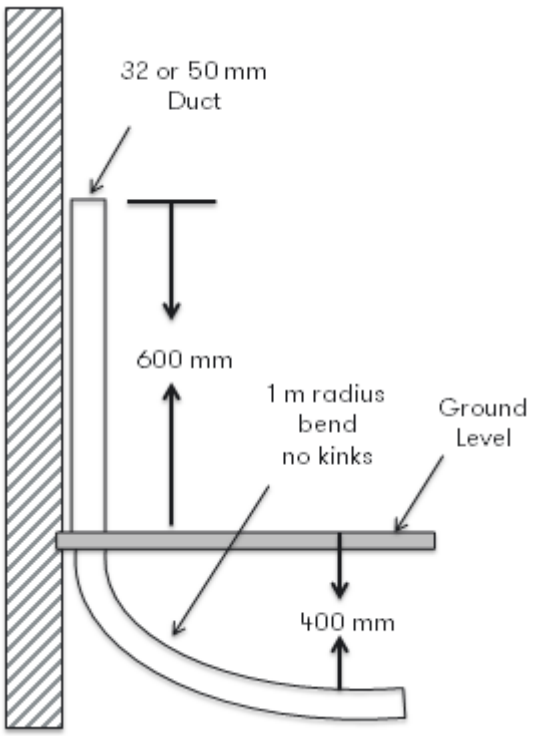

Fig 1 External Duct without ETU

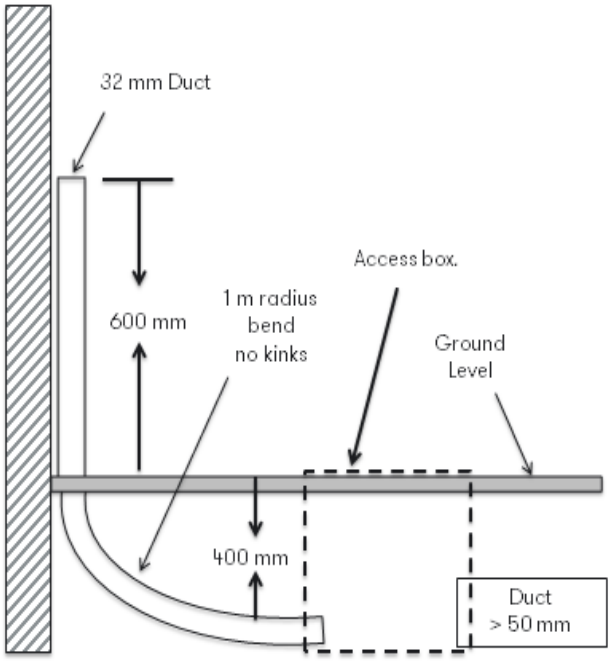

Fig 2 Alternative option for External Duct without ETU

Premises where duct is fitted on external wall with access box.

Duct installation at the Network Touch Point:

- The duct will extend beyond the property boundary.
- If there is a telephone pole located at the property boundary the duct should be long enough to reach up the pole.
- If there is an open eir network access box located at the property boundary the duct must be long enough to reach this box.

NOTE: If no Telephone pole or network access box currently exists at the property boundary it may be necessary for Open eir to install a pole to deliver service. In this circumstance the duct must extend to a location where it is convenient to install the pole.

- The pole must not be erected adjacent to electricity Poles or lines.
- The distance of the Telephone pole from an Electricity Pole or line must exceed one and a half times the height of the Electricity Pole or line.
- The Telephone pole must not be obstructed by trees, overhanging branches or other obstacles.
- The Duct must be left safely coiled outside the property boundary.

Additional Recommendations:

- If a 100 mm duct is used and a bend is required a "slow bend" can be used if an access box cannot be installed at this point.
- It is advisable to record the route of the duct should it be required in the future.
- Another draw wire must be installed with the telecoms cable at the time of cable installation. This will ensure that there is a draw wire present in the duct at all times should it be required in the future.

Summary:

- The Duct must extend from the Network Touch point nearest the property boundary to the customer's premises.
- The duct must be laid avoiding any sharp bends / kinks and in a location and a manner which will eliminate the possibility of future damage.
- A free moving Draw wire **must** be installed end to end.

New build scenario.

Where a New house is being built an ETU must be inserted in the external wall at a convenient location in accordance with the building regulations shown in Fig 3 below.

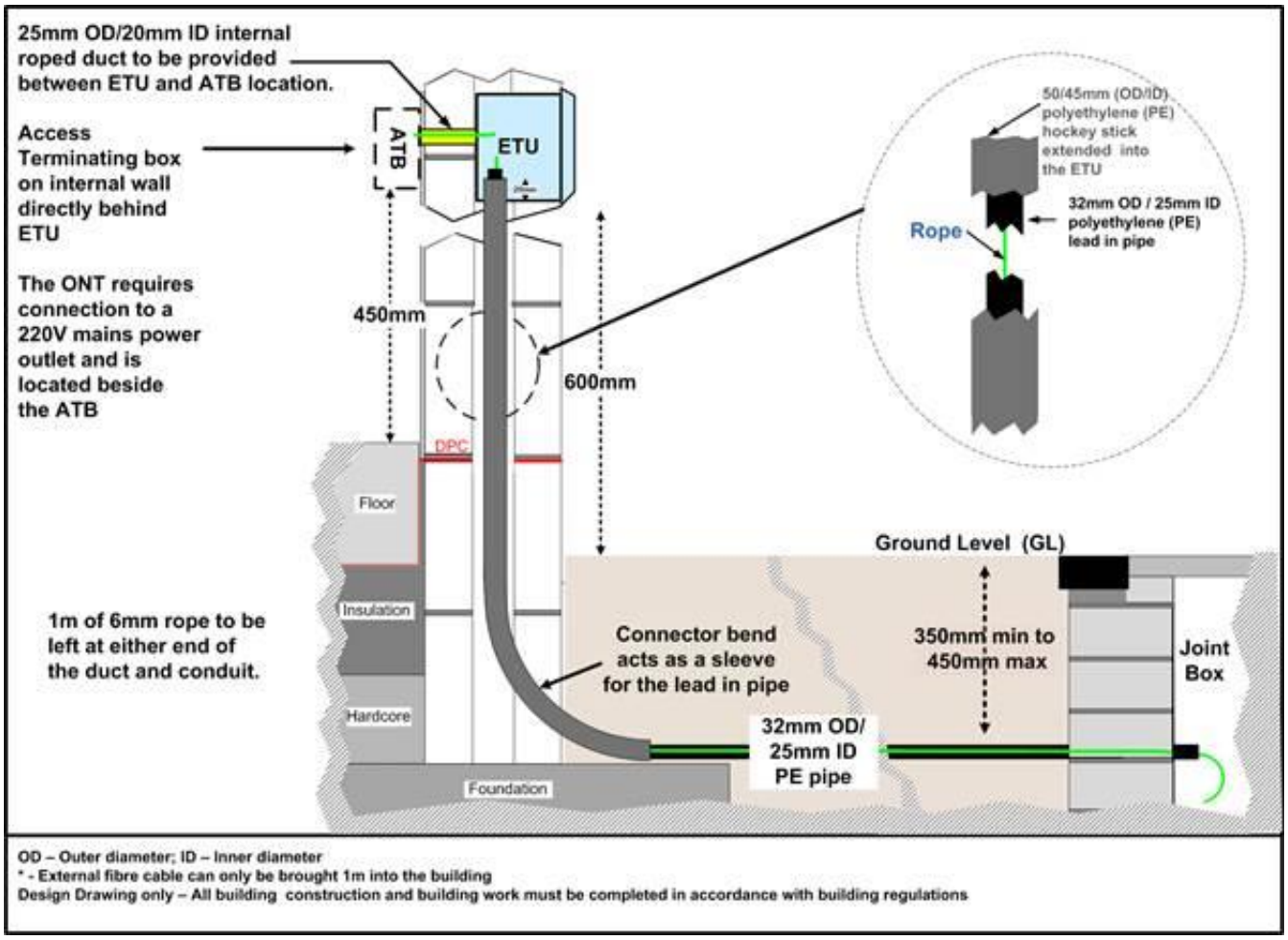

Fig 3 Technical specification for ETU installation.

Additional options

Mole Plough

In certain locations eg. agricultural, where space is not restricted it may be possible to Plough in a duct. This is a convenient and time saving option however it will restrict the duct size and will therefore necessitate the installation of additional access boxes.

Grundomat

If for any reason the property owner cannot or prefers not to dig a trench for the duct then a Grundomat mole option could be considered.
The Grundomat mole option involves digging a hole at either end of the proposed Duct route and a mole will install the duct end to end without disturbing the ground at the surface.