



GTC Technical Guidelines - Electricity

GTC Technical Guidelines and Safety information for House builders and Developers



Disclaimer

Although the greatest of care has been taken in the compilation and preparation of this document, GTC respectfully accepts no responsibility for any errors, omissions or alterations or for any consequences arising from the use, or reliance upon the information in this document.



CONTENTS

1	INTRODUCTION.....	5
2	COMMUNICATIONS	5
3	SAFETY	6
	Safe Place of Work	6
	Recommended Positioning of Utility Apparatus.....	6
4	DEFINITIONS	9
5	DEVELOPER RESPONSIBILITIES.....	10
	General Requirements	10
	Mains Cables.....	10
	Service Cables.....	11
	Easements.....	11
	Materials Delivery and Handling.....	12
	Ground Workers.....	12
6	SERVICE TERMINATION & METER LOCATIONS.....	13
	General Requirements	13
	Single Domestic Properties.....	13
	Multi Occupancy Dwellings.....	13
7	METER HOUSINGS	14
	External Meter Boxes – Domestic Single Phase Connections.....	14
	General Requirements	14
	Exceptions.....	15
	Cavity Hockey Sticks – External Meter Boxes Single Phase Connections.....	15
	Internally Situated Meter Positions – Single Phase Connections	15
	Multi Occupancy Dwellings.....	18
	Non-Domestic Properties – Meter Positions.....	18
8	INSTALLING ELECTRICITY MAINS (LV/HV).....	18
	Offsite Connections	18
	Excavations	18
	Road Crossing Ducts.....	19
	Backfill Materials	19



9 INSTALLING ELECTRICITY SERVICES20

 Below Ground21

 Multi Occupancy Dwellings21

 Materials Provision22

 Typical Space required for Group Metering Positions using Multi-Service
 Distribution Boards (MSDB).....22

10 UTILITY DRAWINGS.....24

11 SUBSTATIONS24

12 INSTALLING METERS AND MPAN ISSUE.....26

 MPAN Registration.....26

 Plot to Postal Address.....26

 MPAN Allocation.....26

 Installation and Crossed Meters.....27

 Tagging the Meter Board27

 Unmetered Supplies27

13 CDM REGULATIONS28

 Construction28



1 INTRODUCTION

This brochure will provide you with information and guidance on the installation of electricity mains, services and meters to new developments. At the end of the brochure you will find details relevant to the safety file required under the CDM Regulations.

Our Sales Team will assist you with any enquiries you may have and will deal with technical enquiries through our Engineering Planning and Operations departments at our Head Office at Woolpit Business Park in Suffolk.

Should you wish to contact us, the telephone number is 01359 240363.

2 COMMUNICATIONS

Our opening hours are from 8.00am to 5.00 pm every weekday. In order to book in work on your development, please contact our construction team on:

Tel: 0845 602 2498

Fax: 0845 602 2499

Email: gtcworks@gtc-uk.co.uk

Every effort will be made to meet the developer's requirements but we would ask for a minimum of:

15 working days notice to lay onsite electricity main cables

10 working days notice to lay onsite electricity service cable

Please note:

- *the above timescales are a guide only and lead times may be longer during busy periods.*
- *longer lead times are needed for offsite works due to the need to co-ordinate the DNO connections.*



3 SAFETY

Safe Place of Work

GTC requires a safe place of work to be provided for all its staff and contractors. Initial enquiries shall be made seeking confirmation that the construction site is a safe place to work.

Upon arrival to site, staff and contractors shall report to the site manager/representative to discuss intended works. Prior to undertaking this work, a site specific risk assessment will be undertaken. If, following this assessment, the works cannot be undertaken in a safe manner, the site manager/representative will be informed. Until a safe working environment is achieved, no activities shall be undertaken.

Site Traffic Rules

All site traffic information should be made available to the team/operative when arriving on site, via a site induction or/and during the booking in on-site stage.

Equipment and Materials

The Site Manager/Representative shall ensure their equipment and materials are operated and stored in such a manner that they do not become a hazard within the working area of the team/operative.

Scaffold

Ensure all scaffold where the team/operatives are to work is removed prior to their arrival on site.

Welfare Facilities

In the majority of cases, welfare facilities are to be made available on site from the Principle Contractor.

Competence

Any staff and/or appointed contractor working on behalf of GTC who attend site shall have the appropriate training, technical knowledge and experience to reduce the risk of injury to themselves or any other person that may be affected by the activities undertaken.

Recommended Positioning of Utility Apparatus

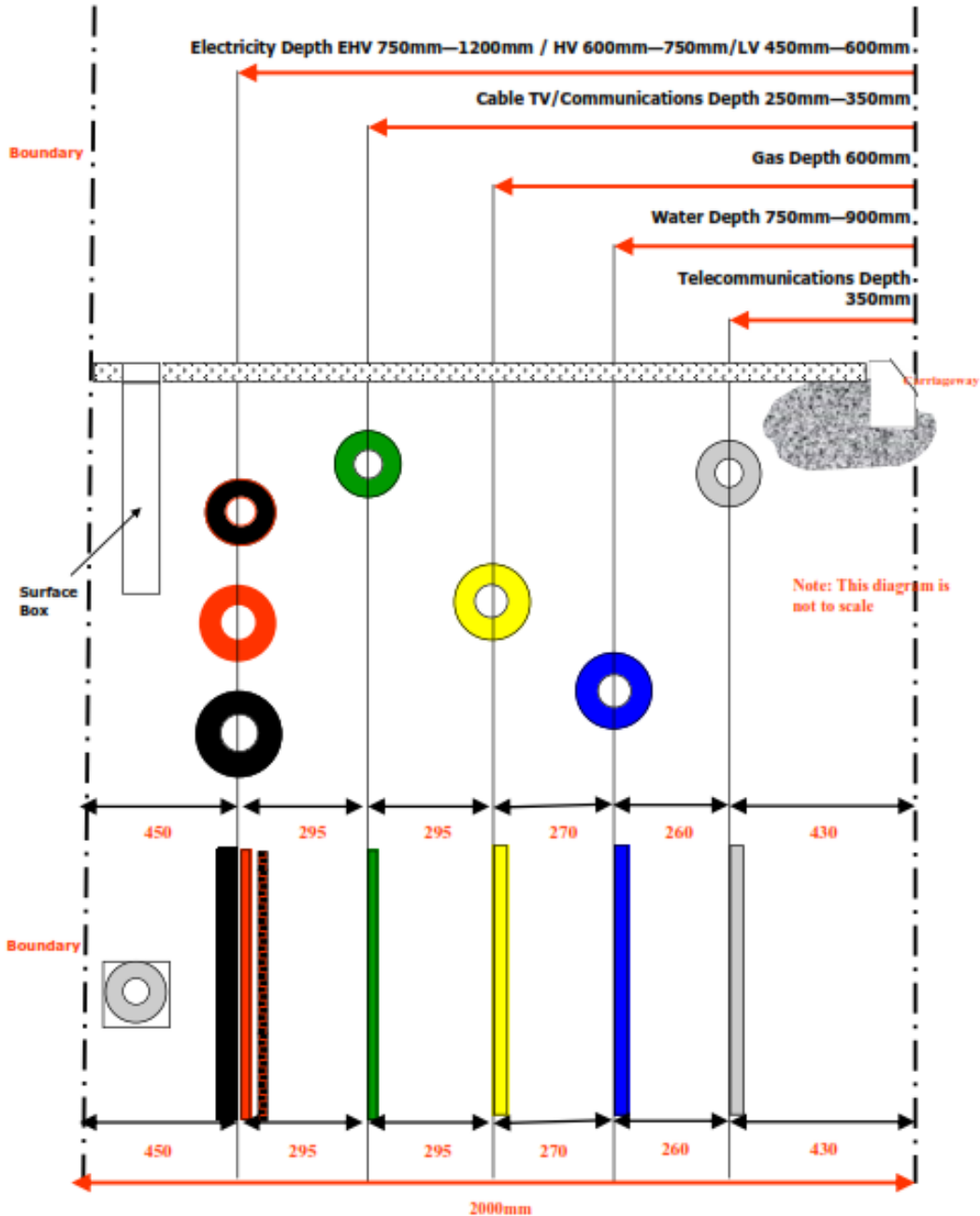
In accordance with GTC's and the Health and Safety Executive expectations, electricity mains and services must be laid at the depths specified in section 8 of this brochure.

The typical position of the electricity main and other utilities apparatus in a footway is shown in the diagram below, this complies with N.J.U.G recommendations. Minimum depths of cover in mm are also shown:



**RECOMMENDED POSITIONING OF UTILITY APPARATUS IN A 2 METRE FOOTWAY
(from NJUG Guidelines on the Positioning of Underground Apparatus for New Development Sites)**

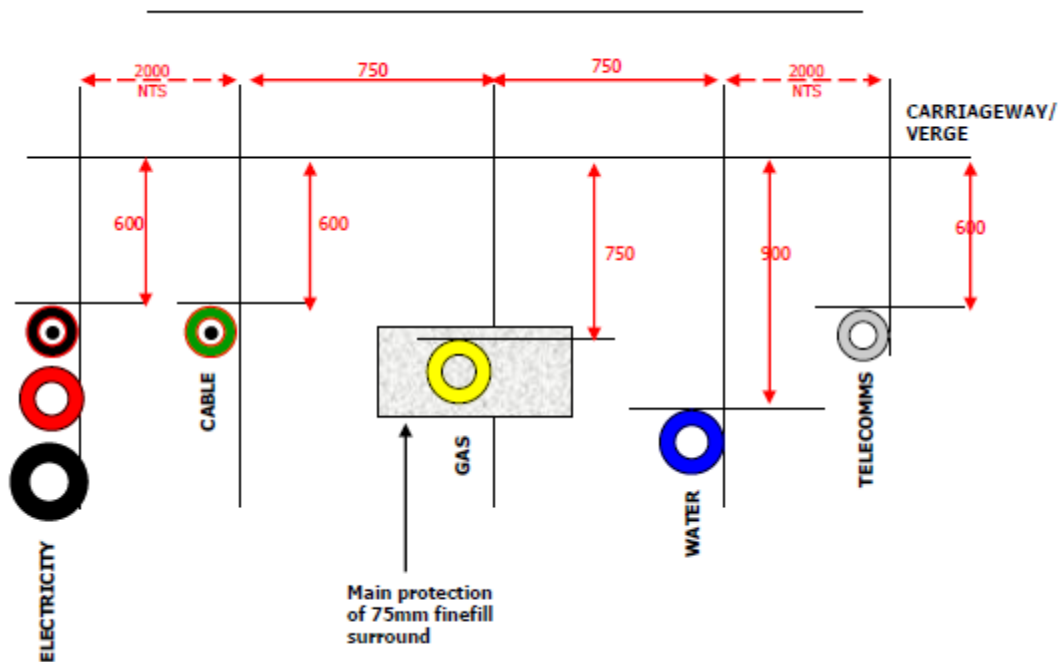
This diagram is NOT to scale and indicates the typical depth of cover required



TYPICAL ROAD/VERGE* SECTION TO SHOW RELATIVE POSITIONS OF UTILITY APPARATUS

THIS DIAGRAM IS NOT TO SCALE

(*) The depth of Electricity cables laid in the verge should be as shown in the previous diagram



It is imperative that the electricity cables are not damaged following installation and it is the responsibility of the developer to ensure that ALL contractors working on-site are informed of the location of the electricity cables.

The mains and services drawing should be on site at all times and updated to clearly show the installation progress. GTC will ensure that updates to the drawings are provided for your records.

Please note that other DNOs may have electricity cables in the vicinity of the site. They should be contacted by the developer at an early stage in order to establish the location of any non GTC mains that may be affected.

Damage to GTC's electricity cables must be reported immediately to the **GTC Electricity Emergency number 0800 0326 990** who will arrange for the Emergency Service Provider to attend site and undertake any repairs.

For further information refer to HSE publication HSG47 'Avoiding danger from underground services' which gives detailed guidance on avoiding damage to electricity mains and services, including information on detecting underground services and safe digging practices.

Free information is available from the **HSE Infoline on 0845 345 0055** or the **HSE website www.hse.gov.uk**



4 DEFINITIONS

CDM	Construction, Design and Management Regulations 2015.
Distribution Network Operator (DNO)	A company licensed by Ofgem to operate and operate an electricity network within the UK.
Electricity Mains	Underground electricity network for distributing electricity throughout the property development.
Electricity Service	Underground cable for conveying electricity to premises from the electricity main.
Independent Distribution Network Operator (IDNO)	A company licensed by Ofgem to operate and operate an electricity network within the UK.
High Voltage (HV)	Electricity operating at a voltage in excess of 1,000 volts (between 1,000 volts to 20,000 volts).
Low Voltage (LV)	Electricity operating at a voltage below 1,000 volts (normally 400/230 volts).
Line and Level	Where no kerb line exists on a development site and only in exceptional circumstances, the developer to provide line and level details for the proposed kerb lines – a letter of indemnity will be required from the developer.
LS0H	Low Smoke zero Halogen.
Substation	A substation will house electrical equipment used to transform the voltage. This is normally within a purpose built building constructed by the developer.
Multiway Termination	A LV mains termination cabinet allowing service cables to be installed into multi occupancy locations.



MPAN	Meter Point Administration Number.
Meter Box	A purpose build glass reinforced polyester moulding to house the service termination equipment and domestic meters.
Meter Compartment	A room or cupboard specifically designed to house the service termination equipment and meter installation for apartments or multi dwelling buildings.
N.J.U.G	National Joint Utilities Group.

5 DEVELOPER RESPONSIBILITIES

The developer is responsible for the on-site requirements detailed below:

General Requirements

- Carry out all necessary excavation and backfilling work for the installation of electricity mains cables, service ducts and associated equipment.
- Maintain an obstacle free route to allow installation work to be carried out in one visit wherever possible.
- Ensure no work is carried out beneath scaffolding.

Mains Cables

- Ensure kerb braces have been installed prior to requesting work.
- **IN EXCEPTIONAL CIRCUMSTANCES ONLY** where the above is not practical or reasonable and with the express written permission of the Electricity Networks Director or Electricity Network Asset Manager, GTC may accept a site specific indemnity letter signed by the Developer accepting a "line and level" approach. In such circumstances the Developer will be indemnifying GTC against any and all costs relating to future relocation of cables and/or damage repairs.
- To provide and install cable sand to BS EN 13139 into the cable trench and to blind the cable with the same, once it has been laid.
- Ducting, supplied by the developer, can only be used for perpendicular road crossings and service cables and shall be compliant with ENA TS-12/24.
- To lay 'cable' marker tape supplied by GTC, on top of the cable sand at a depth of 240mm below finished ground level and above the electricity main before further backfilling the trench.



Service Cables

- Install meter cabinet (supplied by GTC, subject to contract) and ensure cabinet doors are securely fitted.
- Install white Hockey sticks (supplied by GTC, subject to contract) between the end of the 38mm service duct and the meter cabinet.
- All Electricity service cables must be ducted from the meter position to the connection point on the mains cable in the footway using 38mm ducting supplied by the developer. Ensuring that it is installed at a minimum depth of 450mm. It is important to install the duct on a route exactly as shown in the design. The line of the duct must be a minimum of 250mm away from the gas service pipe or duct.
- Lay 'Electricity' marker tape, supplied by GTC, 210mm above the ducts before backfilling the trench.
- Provide a suitable safe access platform for installation of all cable riser works, where required.
- Ensure that the electricity riser entry points into the building and through floors on flatted properties, have been suitably drilled and sleeved without the need for off-setting the cable work, where required.
- Ensure that the riser and sleeve which pass through each floor on flatted properties are fire stopped in accordance with building regulations, where required.

Easements

GTC requires legal rights over all of its equipment (i.e. substations and cable) to secure future ownership and maintenance abilities which are imperative to the continued supply of electricity. Where this equipment is to remain within private land, GTC will need to obtain its rights from the developer (or landowner if different). To ensure these consents are completed efficiently and at the earliest opportunity, the developer (or landowner if different) should assist with the following:

- Ensure their legal representative is instructed to act upon acceptance of the project.
- Ensure their legal representative responds to all correspondence received from GTC's legal representative without delay.
- Ensure their legal representative responds to all correspondence received from the Distribution Network Operator's legal representative where applicable, without delay.
- Immediately advise GTC of any changes that may affect the legal acquisitions (i.e. change in current ownership).

The timescale of consent acquisitions for a project are of great importance as they may affect required energisation dates if not completed in good time.



Materials Delivery and Handling

- Cable, meter boxes and associated equipment will be delivered directly to site and must be visually inspected on delivery and any damage immediately reported to GTC.
- Materials must be carefully stored in a safe and secure area on dry, firm and level ground.
- Any loss or damage occurring after delivery will be chargeable to the developer.

Ground Workers

All electrical apparatus **MUST** be treated as live.

- Any injury, damage to plant, however slight, must be notified to the Asset Owner and Site Manager immediately.
- Underground services, particularly electricity and gas can be extremely dangerous.
- Damage to electricity cables can cause a dangerous flash, leading to severe burns or even death. Gas leaks can cause fire and explosion.
- Damage can result from excavation or penetration of the ground (e.g. by a road pin).
- Underground services may be commonly found in roads, footpaths and on sites or across open land.
- Make sure you have plans of the underground services in the area and make use of them. This may not always be possible for emergency or unforeseen works. Remember that service connection cables from the main to a building or a street lamp may not be shown.
- Use approved equipment to confirm the position of electricity cables, metal pipes and any other detectable plant within and around the area of proposed excavation.
- Look for signs of service connection cables or pipes, e.g. gas, electricity or water meter boxes, valve covers or a service connection entry into a house or street lamp.
- Hand dig trial holes (as many as necessary), to confirm the exact position of services in close proximity to the area of your work. This is particularly important if there are plastic pipes which cannot always be found by electro magnetic location techniques

It is possible that cables or pipes may be embedded in concrete. - Electricity cables embedded in concrete **MUST** either be made 'dead' before the concrete is broken out or another safe way of working agreed with the asset owner.

Services are sometimes protected by concrete, polythene or earthenware tiles or a marker tape laid above the service - this is a useful indication of the presence of the service; you should avoid disturbing any tile or tape to expose the service if possible.

Do not use existing buried plant as a step to enter or exit any excavation.



6 SERVICE TERMINATION & METER LOCATIONS

General Requirements

All meters where possible should be located in meter boxes and be easily accessible to allow them to be read, maintained and isolated when necessary.

Meters must not be exposed to extreme temperatures, excessive humidity, vibration, corrosive substances or accidental damage.

It is the developer's responsibility to identify and show the required meter positions on the site plans.

Single Domestic Properties

Ideally, service termination equipment and the meter should be located in an approved built-in meter box, on the wall closest to the electricity main.

Service termination equipment and the meter can be installed in garages or inside the building. If this is a requirement for your development then GTC needs to be consulted at the earliest possible time.

Multi Occupancy Dwellings

Early consultation with GTC should take place as there are a number of different approaches which can be employed. GTC will assume all multi occupancy dwellings will have a mains cable terminated in a multiway cabinet and meters terminated in or around the main entrance at ground floor level unless otherwise stated by the developer.



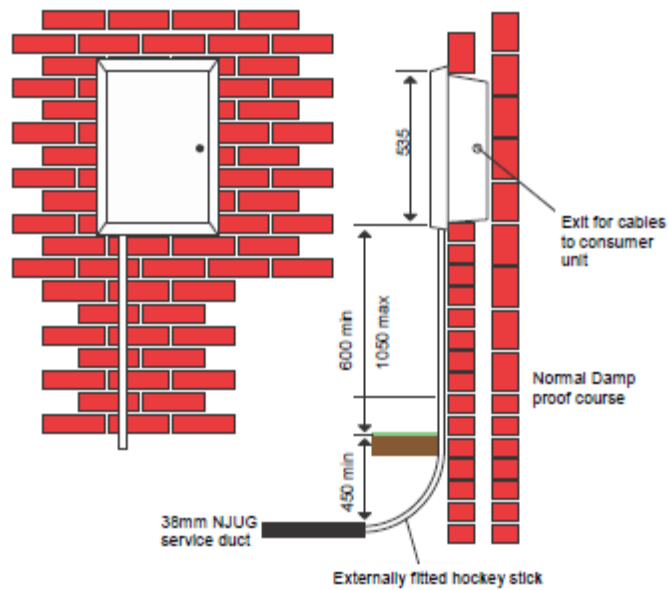
7 METER HOUSINGS

External Meter Boxes – Domestic Single Phase Connections

General Requirements

The fitting of meter boxes and the installation of externally fitted hockey sticks is the responsibility of the developer and must comply with the manufacturer’s specifications and comply with GTC’s requirements.

A typical example is shown below:



Box Dimensions		Brickwork Opening	
Width	409mm	Width	365mm
Depth	210mm	Depth	150mm
Height	595mm	Height	535mm

Exceptions

Cavity Hockey Sticks – External Meter Boxes Single Phase Connections

Where it is not possible to install the hockey stick externally due to the outer finish of the property, then subject to meeting the following conditions, a cavity installation may be approved.

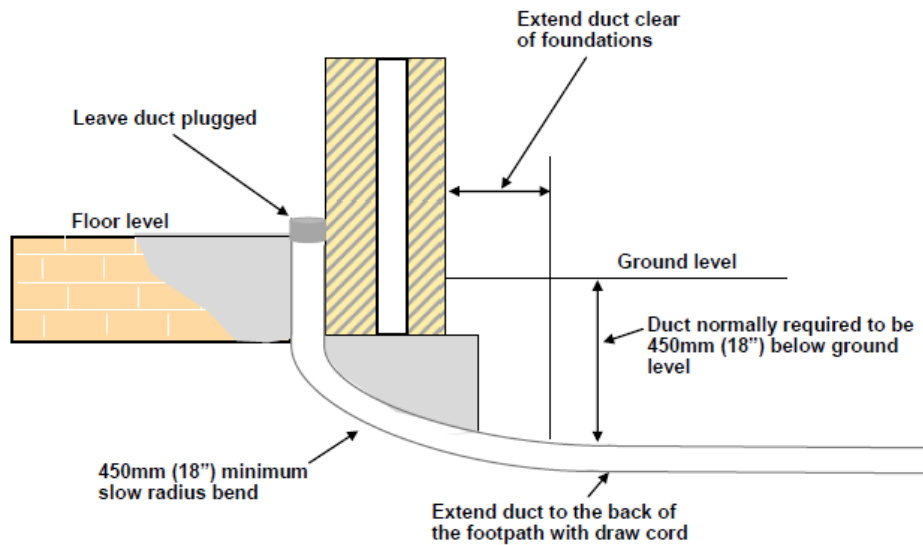
- The meter box is installed in a location where access to the wall immediately behind the meter box and hockey stick is not possible.
- Where access to the wall behind the meter box and hockey stick is possible, the developer shall pre-install a steel sheet of at least 1mm thickness to the wall behind the meter box to a minimum height of 1m from floor level and the full width of the meter box. This is to prevent any possibility of drilling into the hockey stick from within the property. This steel sheet shall be earth bonded as per current edition of BS7671 Requirements for Electrical Installations.
- These requirements shall be met prior to the connection and energisation of the service to the property.

Internally Situated Meter Positions – Single Phase Connections

In premises where it is not possible to install external meter boxes i.e. listed buildings, properties situated in conservation areas, where the Local planning Authority will not allow an external meter box to be installed and other agreed installations. Then, subject to satisfying all of the following conditions and at no cost to GTC, an internal meter installation will be permitted:

- The service cable shall be installed in continuous black polypipe ducting of 38mm OD minimum 32mm ID, conforming to ENA TS 12/24 which terminates at the level at which it enters the building. It shall be routed inside the building by the shortest and most direct route possible to allow installation and/or future removal of service cable as may be required. The internal end of the duct shall be sealed immediately after the service cable has been installed.





- The incoming service cable must not be hidden by panelling of any type, or be routed behind any fixture or fitting.
- GTC's service equipment should be installed on a brick or block-work wall and where possible, this should be an external wall.
- In timber-framed buildings and/or where a suitable brick or block-work wall is not available, then the developer shall pre-install a steel sheet of at least 1mm thickness to the wall behind the service cable, service termination and meter and this should be connected to the main earth terminal by the electrical contractor. This is to protect persons from electric shock, if they should drill through the wall behind the electric service equipment.
- The following space is required: 1250mm high x 550mm wide x 300mm deep.
- The position must be a maximum height of 900mm from ground floor level to the bottom of the meter board and a minimum height of 600mm.
- There is 750mm clear access to the front of the enclosure surrounding the service termination and metering equipment.

Where it is proposed to install the service termination either under stairs or within the primary access/egress route within the property, the following requirements shall also be met as an absolute minimum. Failure to meet these requirements will result in the service to the property not being installed:

- As currently required by the "Building Regulations Fire Safety Approved Document B Volume 1 Dwelling houses, Section 2 Means of Escape" where it is proposed to install the electrical service termination under stairs or within an area regarded as primary access/egress route, then this shall be regarded as a "Protected Area" and as such, **shall** be constructed in such a way as to provide a minimum of 30 minutes fire protection.
- The door(s) providing access to the under stairs location and or cupboard housing the service termination equipment **shall** be a rated "Fire Door" as determined in the regulations in "Appendix B Fire Doors" and **shall** comply with the requirements of BS 476-22:1987, be a minimum of 44mm in thickness and of a certified FD30 type, therefore providing a minimum fire resistance of 30 minutes. Although not an absolute requirement, a fire door which prevents the spread of "Cold Smoke" and "Fire" by use of suitable seals and one which is compliant with BS EN 1634-1 or BS 476 Part 22, is preferred.
- Immediately adjacent to the means of access to the under stairs location and or cupboard housing the service termination equipment and in line with the regulations in "Section 1 Fire Detection and Fire Alarm Systems" a linked fire detector **shall** be installed which as a minimum is to BS 5839-6:2004 with Grade D Category LD3 Standard or better. Although not an absolute requirement, a mains-powered combined heat and smoke detector compliant to BS EN 14604:2005, is preferred.

NB – Standard fibre-glass outdoor meter boxes are not suitable for use indoors as they do not comply with the appropriate British Standards for Fire Resistance and Fume Emissions. It is the developer's responsibility to ensure that any internal enclosures comply fully with fire regulations and any local planning requirements.

Service termination equipment and meters cannot be installed:

- On partition walls made of plasterboard, drywall or other similar material (unless compliant with the requirements as listed above).
- Immediately adjacent to other utility apparatus, a minimum of 300mm separation is required.
- Adjacent to any localised heating source, such as an immersion tank, heating boiler, radiator etc.
- Above internal or external doorways.
- Inside a bin, coal or refuse store.
- Basement or cellar.
- Toilet, kitchen or bathroom.
- In any location in breach of the current edition of BS7671 Requirements for Electrical Installations.



Multi Occupancy Dwellings

The developer is to provide suitable secure and fire proof enclosure for service termination and distribution board (if required) in suitable common access location on the ground floor, minimising route length to the exterior and which provides a suitable ducted cable route.

Non-Domestic Properties – Meter Positions

We recognise that space is always at a premium and will work with you to develop the most appropriate position that can be achieved with the least amount of space used.

Early discussions will be required to ensure that the best solution is incorporated into your building design.

8 INSTALLING ELECTRICITY MAINS (LV/HV)

It is essential that the developer agrees a programme of construction which will enable GTC to co-ordinate mains cable laying activities, within our set timescales.

A site visit will be arranged at the start of your development with GTC staff nominated to construct the network for your development.

GTC will co-ordinate all on-site works and will be the main point of contact for site operations.

GTC Field Engineers will also attend site to ensure that the work is being constructed to an acceptable standard and to meet your requirements.

The developer is responsible for all excavations; the supply of ducts, duct laying and backfill work on site, unless otherwise requested at the quotation stage.

On request, GTC will normally arrange for the on-site mains to be laid within 15 working days, in trenches and/or ducts provided by the developer.

If there are any alterations or deviations to the agreed site layout, which may affect the route of the electricity cables, then GTC must be advised immediately.

Offsite Connections

GTC will complete the offsite connection; this will include all necessary liaisons with the DNO and highway authorities.

Excavations

The depth of cover for LV mains should be 450mm in footways / verges and 600mm in roadways from the finished ground level.

The depth of cover for HV mains should be 600mm in footways / verges and 750mm in roadways from the finished ground level.



The bottom of the trench should be trimmed to enable the cables to be bedded evenly and consistently throughout the trench, at the correct cover. Sharp stones must be excluded from the base of the trench. Where the base of the trench is unsuitable e.g. rocks and stones, the trench should be excavated a further 75mm in depth. The trench bottom should then have a 75mm bed of proprietary cable sand installed to BS EN 13139 - Aggregate size of 0/2mm to CAT 4 i.e. stone free sand of a composition suitable for cable laying which will resist migration, or other suitable and approved fine fill material, this layer to be compacted.

No other utility should be installed over, below, or within 250mm to the side of the electricity cable.

Road Crossing Ducts

Any cable installed across the road will be in black 150mm rigid plastic ducting compliant with the ENA TS 12-24.

The ducting is available at most builders' merchants. GTC can offer advice on the procurement of this material, if required.

Backfill Materials

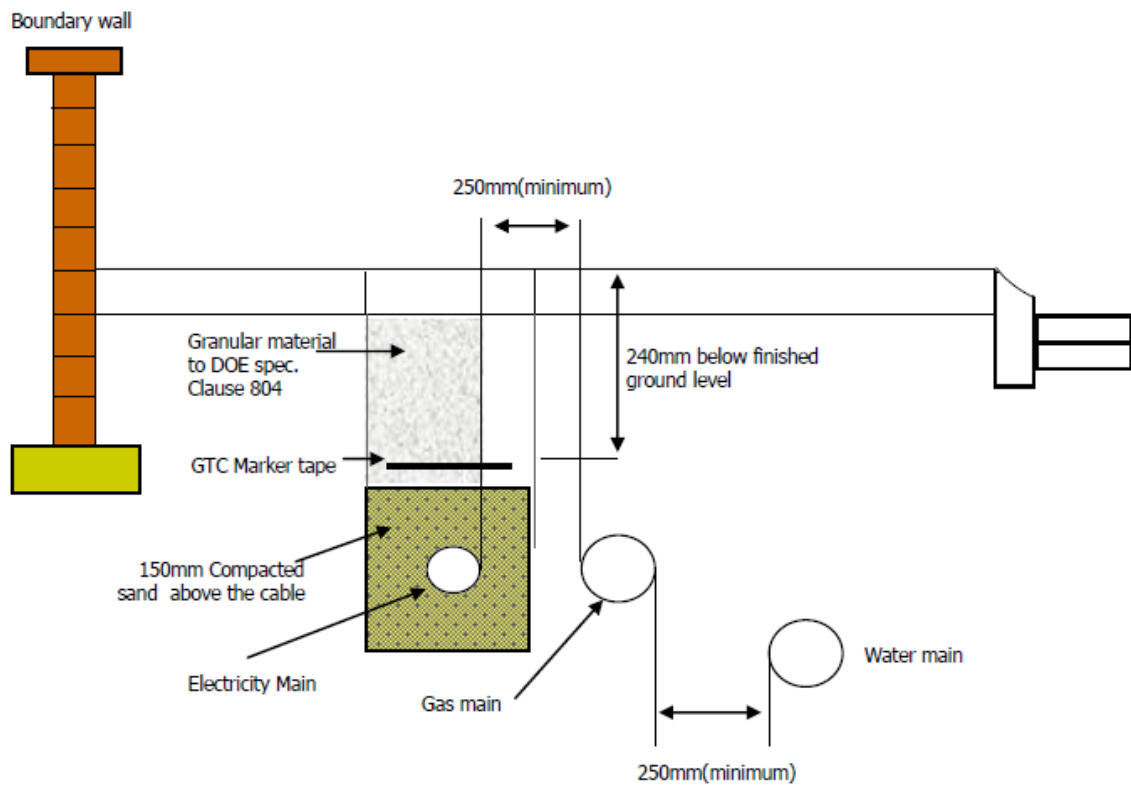
The developer must ensure that the electricity mains cable is surrounded by proprietary cable sand, to BS EN 13139 - Aggregate size of 0/2mm CAT 4 i.e. stone free sand of a composition suitable for cable laying which will resist migration, or other suitable and approved fine fill material. This will be built up to 150mm above the mains cable and laid immediately after installation so as to avoid damage to the cable.

All backfill and sub-base materials must be free from any organic, perishable or hazardous material.

An 'electricity' marker tape or tile, supplied as free issue from GTC must be incorporated within the backfill for all mains and road crossing ducts and be positioned 240mm beneath the finished surface.

GTC will work with the developer to ensure that the cable sand surround and marker taping is installed to our specifications as shown below:





9 INSTALLING ELECTRICITY SERVICES

It is essential that the developer agrees a programme of construction which will enable GTC to co-ordinate service laying activities, within our set timescales.

A site visit will be arranged at the start of your development with GTC staff nominated to install the services for your development.

GTC will co-ordinate all service installations and will be the main point of contact for site operations.

GTC Field Engineers will also attend site to ensure that the work is being constructed to an acceptable standard and to meet your requirements.

On request, GTC will normally arrange for the on-site services to be laid within 10 working days.

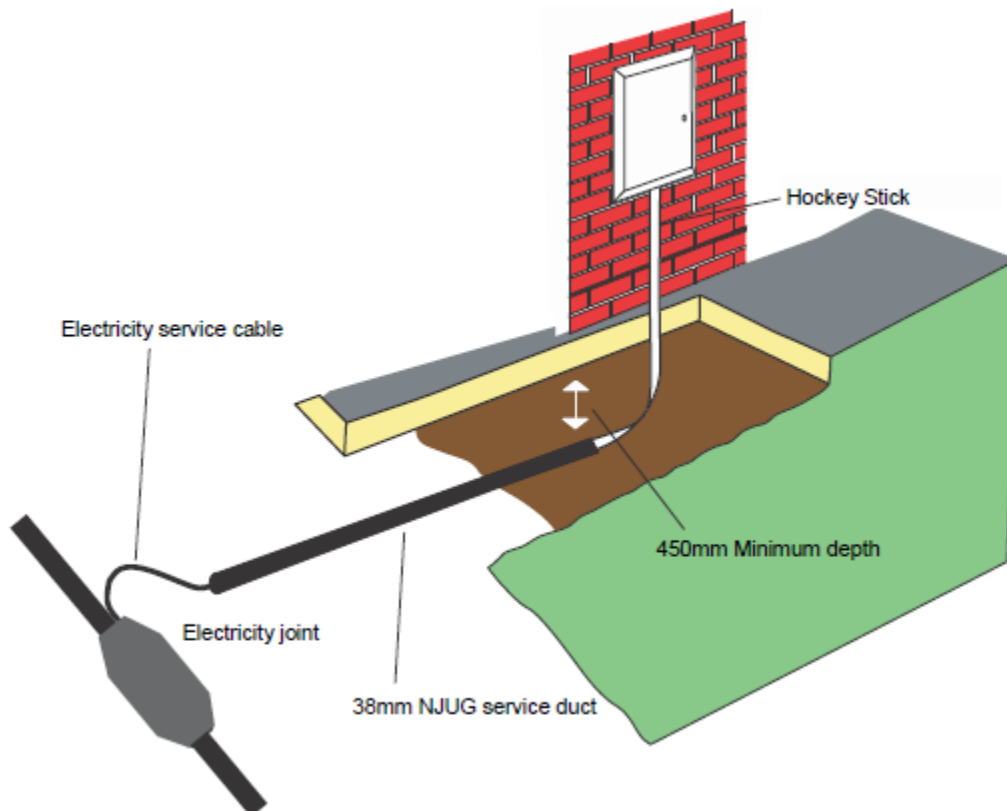
If there are any alterations to the agreed site layout, which may affect the route of any electricity service, then GTC must be advised immediately.



Below Ground

The ends of the duct must be capped or plugged at all times to prevent ingress of water or debris. The service duct must be continuous between the meter position and the rear edge of the proposed footpath / service verge.

All services must be laid to electricity LV mains depths as specified in section 8.



Multi Occupancy Dwellings

Services shall preferably be installed at group metering positions and the developer shall provide and install lateral wiring to each flat complying with the current edition of BS7671 'Requirements for Electrical Installations'. These laterals shall remain the property of the building landlord or individual flat owners as appropriate.

Where the need for an additional supply to a building is identified, which falls into the category of "firefighting and other standby supplies" as is defined within the Energy Networks Association (ENA) document "G87 – Guidelines for the Provision of Low Voltage Connections to Multiple Occupancy Buildings", the requirement will be dealt with on a site by site basis and in strict accordance with the ENA guidelines.

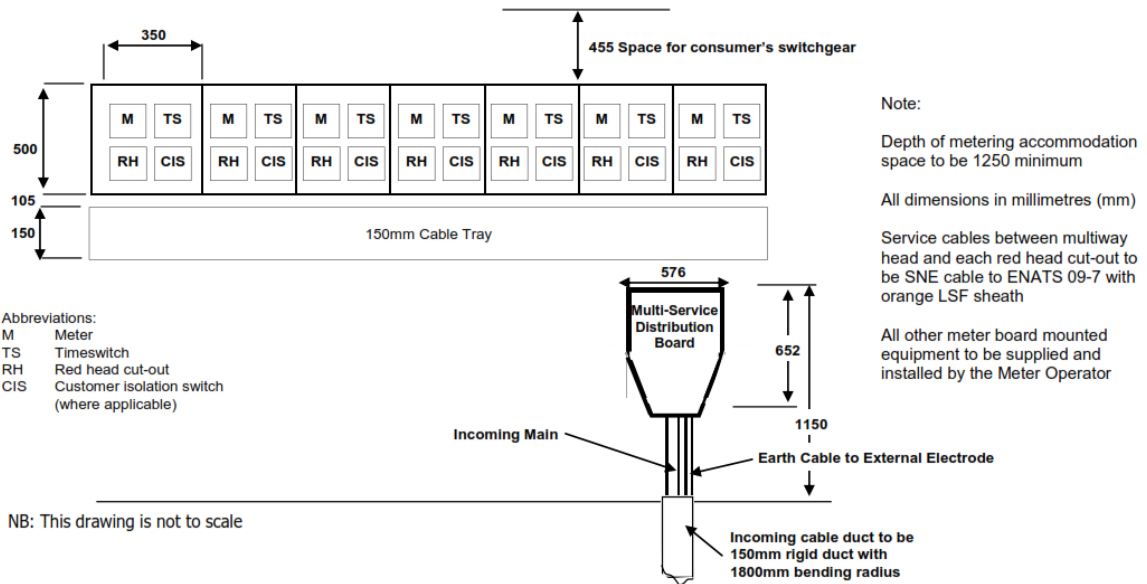


Materials Provision

The position and number of service positions shall depend on the distance from each flat such that the lateral wiring can be installed within the design requirements of the current edition of BS7671 'Requirements for Electrical Installations'.

In order of preference the number/position of services shall be:

1. A single position on the ground floor.
2. A single position on the ground floor plus a sub-fused rising main to some or all floors.
3. Several positions on the ground floor plus a sub-fused rising main to some or all floors.



Typical Space required for Group Metering Positions using Multi-Service Distribution Boards (MSDB)

Although individual installations will vary with each building design, the following table provides guidance on the minimum dimensions required to accommodate GTC's equipment and associated metering.



FLATS	WIDTH	HEIGHT	DEPTH
Up to 6	1100	2100	450
Up to 10	1600	2100	450
Up to 12	2500	2100	450
Up to 16	3000	2100	450
Up to 20	3500	2100	450
Up to 24	4000	2100	450
Up to 28	4500	2100	450
Up to 30	5000	2100	450

In situations where GTC has agreed to adopt riser and/or lateral cables, the developer's electrical contractor will complete the installation in accordance with the following requirements:

1. the electrical contractor will install riser and/or lateral cable forming part of GTC's distribution network in accordance with BS7671 'Requirements for Electrical Installations'.
2. and will be required to submit a completion certificate for any and all riser and/or lateral cables, prior to energisation.

Failure to comply with these requirements may prevent connection of the equipment.

Where the developer is to install adoptable riser and/or lateral cables on behalf of GTC, GTC will provide LSOH cabling free issue as detailed in the accepted quotation.

If the developer wishes GTC to consider other options then early discussions are recommended.

In all situations GTC will require 24 hour access to equipment used to provide supplies within multi occupancy dwellings. This access is for the purposes of inspection, maintenance and repair as may be required and therefore the developer will be expected to provide keys and/or access codes for all common corridors, stairwells and utility cupboards, unless secured by Fire Brigade FB1 or FB2 locks.



10 UTILITY DRAWINGS

Where a site is being constructed either on or adjoining a GTC network the relevant utilities' drawings can be requested. Verification of cable positions must be carried out on-site so that no damage occurs to live equipment. All requests must be made to the GTC office at the address below.

GTC

Energy House

Woolpit Business Park

Woolpit

Bury St Edmunds

Suffolk

IP30 9UP

11 SUBSTATIONS

The developer will carry out all civil work associated with installing substations. Substations will be built to GTC's specifications and drawings and all substation sites will be subject to a lease or land purchase. The developer is required to obtain planning permission and building regulations compliance for these structures.

For most sites, a choice of GRP building or brick built substations with GRP or steel doors is offered. However, where proximity to buildings is an issue, or where the need for higher levels of security is identified, GTC reserves the right to specify the type of substation and doors to be used.

Typically, a brick built substation can be constructed with approximately 3m clearance from the nearest property. However, a GRP enclosure provides less noise attenuation and therefore requires a greater clearance from the nearest property. These clearances vary depending on location and size of transformer to be installed within the housing and will vary from 7m to 19m.





The red lines represent the extent of GTC’s required access for either a brick substation or GRP enclosure, which is typically up to 1m greater than the area subject to land transfer. This requirement covers both sides and rear of the substation. The requirement for the front of the substation will be dependent upon its specific location. However where the substation opens onto a footpath, a minimum of 1.5m from the back edge of the footpath is required, this is to enable the substation doors to open without impinging into the footpath.”

Bespoke solutions offered by the developer may be considered but final approval remains with GTC.

In order to maintain our substations, GTC requires suitable and unrestricted 24 hour access for HIAB crane vehicles to all sites, to enable installation and/or recovery of electrical plant.

In order to establish a substation GTC will, in most instances, look to acquire an area of land 6m x 5m.



12 INSTALLING METERS and MPAN ISSUE

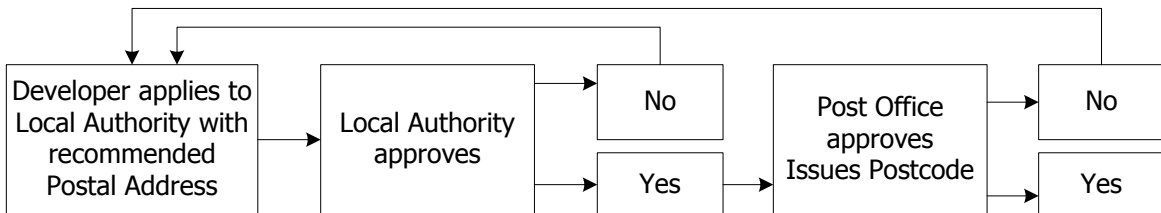
The developer must liaise with his chosen electricity supplier to install meters.

MPAN Registration

GTC recognises the industry issues surrounding new connections and has developed the following guidance to make the new connections process as clear as possible.

Plot to Postal Address

Plot to postal address issues has long been identified in causing confusion within the new connections arena.



As shown above, the confirmation of address data has several approval points. There are no defined timescales for approval by the local authorities. Royal Mail also retains the right to veto address applications until it issues post code. For these reasons developers are advised to begin the address application process as soon as possible following planning approval to allow sufficient time for processing.

The guideline from local authorities and Royal Mail is approximately 12 weeks and work is going on to standardise the process. However, in the interim; communication and liaison will have to be closely managed.

MPAN Allocation

It is GTC's preference to issue MPANs upon confirmation of the postal address and post code from the developer. This is recognised standard practice in several DNO areas and is effective in minimising the data issues in changing from plot to postal address.

GTC recognises that in all cases this is not always possible and will work flexibly to help developers. On large developments, MPANs shall be allocated in a phased manner to enable better data quality as plans come to fruition.



Installation and Crossed Meters

The potential for crossed meters (meter information allocated to the wrong postal address) is a particular problem in the industry, especially for high density developments (flats). To minimise the potential for errors the following system is recommended.

Contractors and M&E fitters should implement a tagging system when fitting out the flats. By tagging the tails to each flat with the Plot/Postal address PRIOR to pulling them through to the meter board. This will clearly identify which flat the tails are linked to.

Tagging the Meter Board

Meter boards may be in communal positions held in basements or on each floor. Clearly labelling the meter boards with the Plot/Address/MPAN where the meter is fitted will assist the Meter Operator (MOP) in completing their job. Having the boards and tails clearly tagged will minimise the room for error during meter fit.

- The issuing of post code and postal address can take up to 12 weeks.
- Ensuring that meter information is not 'crossed' will help to reduce the safety risk to customers, customer dissatisfaction, incorrect billing and the subsequent problems for suppliers and customers.
- Good communication with GTC will help provide better customer service.

Unmetered Supplies

In addition to your accepted GTC quotation GTC also requires an Unmetered Supplies Agreement where there are unmetered connections (e.g. Street lighting, traffic signals) onto our electrical network.

In the majority of cases the connections will be on adoptable land where the local authority will ultimately take ownership of these connections when it adopts the highway. During the build stage the developer will be responsible for the payment of the energy consumption for these columns. Where the columns are on private land, GTC will require an Unmetered Supply Agreement between the Management Company and GTC.

To ensure GTC can carry out these connections we require the following documentation to be in place:

- Developer to issue a council approved drawing, which enables GTC to do the following:
 - Design.
 - Quote.
 - Calculate the annual consumption of the connections in accordance with the Elexon procedure BSCP520.
- Developer's acceptance and payment of the quotation.
- Signed copies of the Unmetered Supplies Agreement and the Letter of Intent Authorisation received.



13 CDM REGULATIONS

Ofgem licences GTC's electricity distribution businesses.

Construction

GTC will manage the construction phase of any electricity installation project and ensure that the appropriate information is provided in respect of the electricity infrastructure and submitted to the Principal Contractor for inclusion in the site Health and Safety plan.

In relation to the project GTC will:

1. Design the electricity distribution network.
2. Co-operate with the Principal Contractor so far as is necessary to enable compliance with the duties under the relevant statutory provisions.
3. So far as is reasonably practicable, promptly provide the Principal Contractor with any information (including any relevant part of any risk assessment) which might affect the health or safety of any person working on the site.
4. Comply with any directions of the Principal Contractor.
5. Comply with any rules applicable to GTC in the health and safety plan.

Information will be provided to the Principal Contractor to establish GTC is competent to manage and carry out the construction work.

Should you require any further information please contact the Group Health and Safety Department.

