1. Purpose

To detail the method for conducting excavation works for the installation SAN Earth Conductive Concrete.

2. Responsibilities

2.1 The **Gang Foreman** shall ensure staff involved in excavation on OPENREACH works adhere to this method and are licensed under the OPENREACH scheme for the disciplines they are to conduct.

2.2 The **Site Supervisor** shall periodically monitor the compliance to this method statement.

2.3 The **SHEQ team** will ensure that the process is monitored periodically.

2.4 If this method cannot be adhered to, contact your supervisor for advice before proceeding.

3. References

- OPENREACH Specification LN 550- Underground Duct Laying and Associated Works
- OPENREACH CN Drawings.
- New Roads and Street Works Act 1991
- HAUC – Specification for the Reinstatement of Openings in Highways
- Safety at Street Works and Road Works – A Code of Practice
- NJUG – Codes of Practice
- HS (G) 47 Avoiding Danger from underground services
- Cubis San Earth Conductive Concrete Installation Method Statement

4. Safety considerations

4.1 Hazards

To identify Plant & Equipment to be required on site, enter a in the relevant box or add additional							
Plant & Equipment		**PPE & Welfare & First Aid**		**Qualifications**		**COSHH**	
Transit Van	√	Overalls (Flame Retardant)	√	NRSWA (Supervisor)		Diesel	√
Cable Avoidance Tool	√	Hi Visibility Vest	√	NRSWA (Operatives)	√	Petrol	√
GENNY	√	Safety Boots	√	Mini Excavator (below 5T)	√	Two Stroke Oil	√
Excavating Hand Tools	√	Hard Hat		Abrasive Wheel	√	SAN EARTH M5C-DQ	√
Chapter 8	√	Ear Defenders	√	Manual Handling	√		
		FFP3 approved dust respirator	√	First Aid	√		
		Chemical goggles EN 166B	√				
		Rubber gloves BS EN 388	√				

		Disposable over sleeves, disposable over shoes & disposable all over suit all in compliance with (PPE Directive 89/686/EEC).	√				
		Wellington Boots	√				
		Wet Weather Gear	√				
		First Aid Kit	√				
		Eye Wash 2 x 500ml	√				
		Hand Wipes / Cleaner	√				

4.2 Precautions

- **ASSESS THE RISK** - Ensure that prior to starting work a **SITE SPECIFIC RISK ASSESSMENT** is conducted and recorded on to identify specific risks that may be present, if in douOpenreach contact your site supervisor.
- **ROAD WORKS GUARDING**
  - To be in accordance with Chapter 8.
  - Maintain a safe route for pedestrians to by pass by the works.
  - Guard pedestrians from vehicles when directed into carriageway.
  - Where required lights to be attached to signing and guarding.
- **PLANT, VEHICLES & WORK TOOLS**
  - To be kept inside the work area.
  - To be in good working order and properly maintained.
  - To have mufflers and silencers fitted where practicable.
  - Vehicles to be fitted with, and use amber rotating beacon/s.
  - Plant operators to be trained and competent in the use of the plant they are using.
  - Switch plant off when not in use.
  - Ensure that all guards are properly secured and unauthorised persons do not use the plant/vehicle.
  - Rotate operators to reduce individual exposure.
  - Keep plant & vehicles away from the edge of the excavation.
  - Air hoses to be maintained in good order with joints correctly coupled.
  - Hose check arrestors to be fitted and used on all compressed air lines.
  - Dust suppression is to be used when saw cutting or using equipment that can cause airborne dust, i.e. water.
  - Fuel oil to be stored and handled safely to prevent spillage or contact with skin or clothing.
  - Ensure the correct PPE is used for the type of equipment.
  - Ensure fumes do not enter confined space.

- **SAFE DIGGING**
  - Utility safe dig prints to be available on site at all times.
  - Visual & CAT (and Genny, where required) surveys to take place.
  - All identified services to be marked on the surface.
  - Pilot Holes will be excavated by hand to confirm positions of services.
  - Ensure where necessary that correct trench wall supports are available and are used.
  - Excavated material shall be stored a safe distance away from the excavation to stop possible collapse into the excavation, but kept within the guarded area.
  - Mechanical excavation equipment shall not be used in the vicinity of other utility services.
  - Adequate access/ingress to be maintained at all times.
- **SAFE LIFTING TECHNIQUES**
  - When lifting materials and tools from/to the excavation or onto/off the truck ensure that items are not too heavy. Either reduce them into lighter pieces or/and seek assistance to spread the load or use suitable lift equipment. If in douOpenreach seek advice.
  - When lifting manhole or box covers ensure that the proper lifting keys are used and that safe lifting techniques are employed. For carriageway covers lifting aids shall be used for lifting the covers wherever practicable, i.e. a suitable manhole lifter.

5. Method

5.1 Prior to commencing work

- Survey the works to be done, picking the best position/route to excavate, taking note the required size of your excavation, the vicinity of previous excavations and the position of the other utility services.
- Read the service prints and conduct a survey with the CAT and as far as practicable mark all services in the vicinity of the excavation.
- Mark the surface to be excavated.
- Erect road works guarding and signs.
- Conduct trail holes to locate existing services and to see what effect they might have on the works.
- Gas test any Jointing Chambers directly prior to entering and periodically during the works.

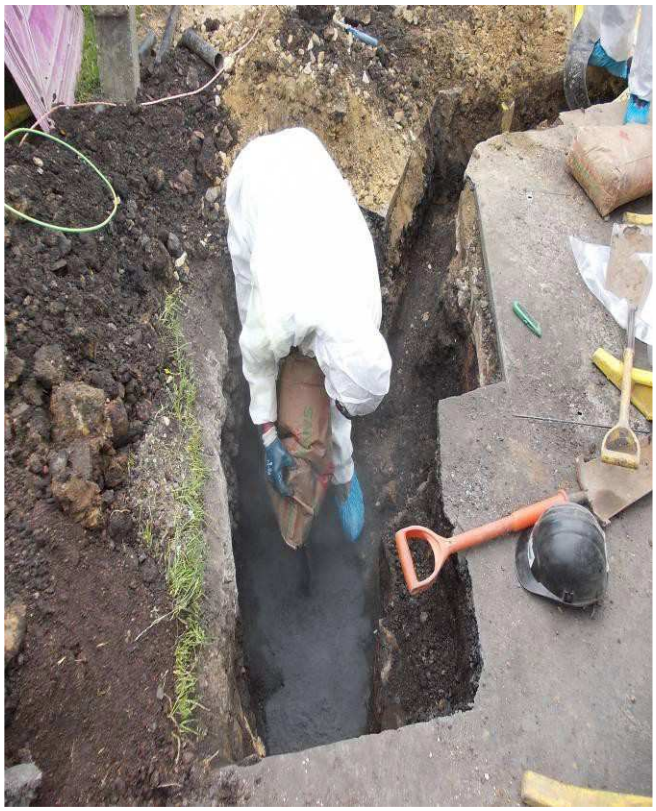
5.4 Breaking the Surface & Excavating

- Identify the area marked for excavation.
- Where practicable, for large excavations in blacktop the surface shall be cut with a suitable road saw, however for small excavations a Style saw can be used.
- All excavation equipment used should be suitable for the work undertaken. Mechanical excavating equipment should not be used near other services.
- Any service damages caused by your or a previous contractor should be reported to your site supervisor immediately.
- Excavated materials must be strictly controlled during all stages of the works, ensuring that it is stored at a practical and safe distance from the excavation, within the road works guarding.
- Material being collected by a grab wagon should be done in such a way to ensure that minimum disruption is caused to pedestrians, road traffic or any other 3rd parties.
- Materials for re-use e.g. topsoil and granular materials, etc. should be kept free from contamination and where necessary protected from weather conditions.

- Where excavations are deeper than 1.2 metres or in unsound ground, appropriate trench supports shall be used.
- Ensure that all OPENREACH apparatus is protected from damage prior to and during the works.
- All excavated services shall be adequately supported to prevent damage occurring to them.

6.1 Method of Installation

- Excavate an area to match the job pack DSLAM build dimension to accommodate the copper earth electrode as shown in the drawings. The depth should be 700mm if casting a cabinet base in-situ or 750mm if using a precast base. Remove any undulations to ensure the bottom of the excavation is as level and flat as possible.
- Place the bag(s) in base of excavation before opening to avoid waste of product and reduced dust levels. Take a sharp knife and carefully slice open the conductive concrete bag on one side across its width just below the filler spout. This is approximately 75mm up from the bottom of the bag.
- Lay the top, open side of the bag on the earth at the bottom of the excavation and slowly lift the bottom of the bag up allowing the conductive concrete powder to flow from the bag freely. Spread the contents of two bags of conductive concrete across the bottom of the excavation. Spread one bag along the Telco trench for approximately 2m, holding the bag close to the ground to avoid excessive dust and one bag in the plinth. Spread the powder evenly around covering the entire footprint of the excavation.



After confirming the orientation of the cabinet and which side the earth connection will enter, install the supplied 16mm2 copper electrode, taking care to ensure that the copper is kept away from the edges of the excavation. Ensure that the insulated copper tail is in the correct position. Avoid the copper earth electrode being pushed through the conductive concrete and touching the earth at the bottom of the excavation.

- Ensure the copper electrode is run for the full length of the duct trench (ideally for 2m). If this is not possible the copper conductor must be coiled back from the furthest point and run back along trench towards the DSLAM plinth hole, ensuring the coiled back section does not touch the surrounding earth and is covered by conductive concrete material.
- Please note: if the Telco duct trench length is less than 1mtr then the power trench must also be used using the alternative pre-attached copper tail, ensuring the conductive concrete material is also deployed into the power trench opening. Each site may differ due to location - please consult with your MUS Supervisor & Openreach Project team if there are any individual site issues.
- For the long term performance and longevity of the electrode system it is imperative that the copper electrode does not touch the earth and that it is fully encapsulated in the powder.

- Allow the insulated earth cable to protrude up through the conductive concrete in the desired location. Use the DSLAM plinth template or Polylid to determine the exact location of the insulated copper electrode. This is typically the back left hand corner, or to a specific location marked on the plan drawing.

- If the spare tail is unused, coil it into a piece of black duct 36 (200mm length minimum) for future use and cap with a plug. Ensure that the plugged end is free from the material to allow future access.

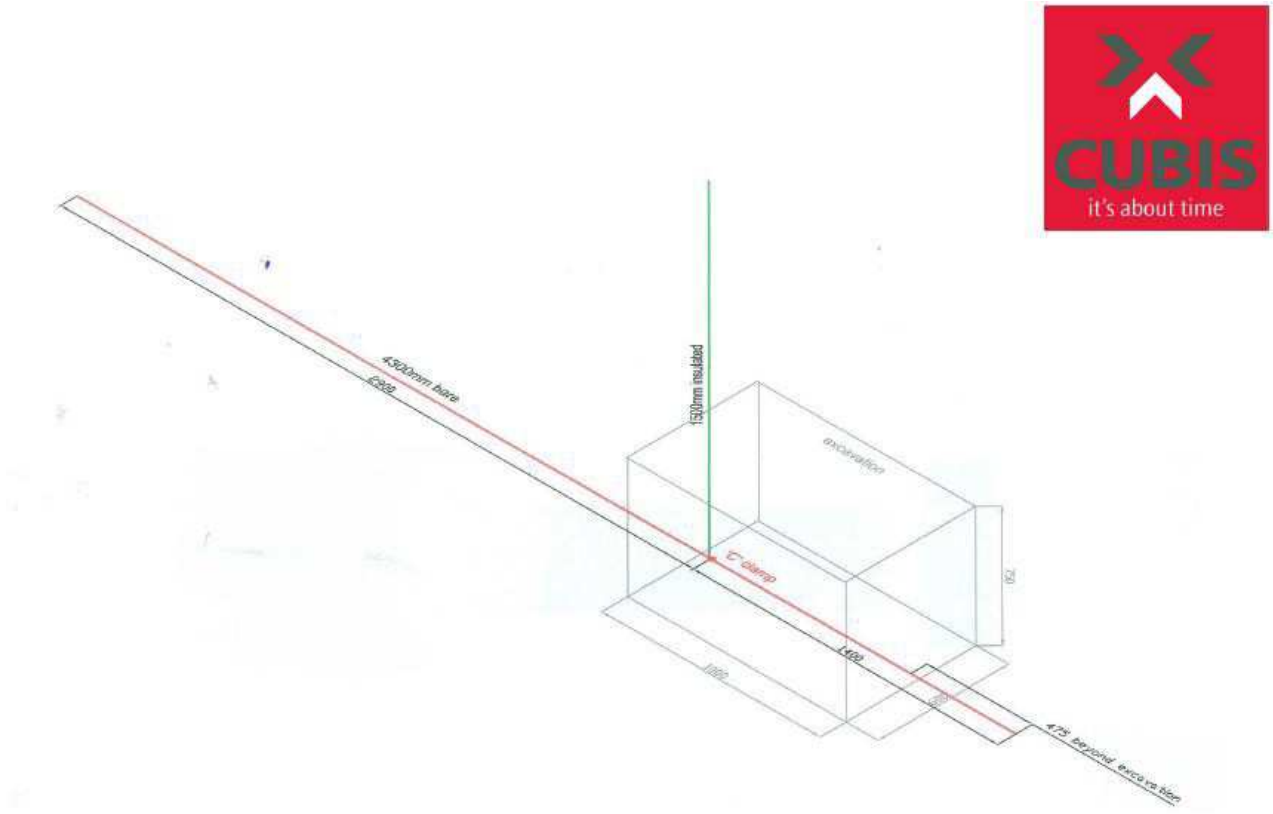
- Spread the contents of the two remaining bags of conductive concrete across the bottom of the excavation taking care to ensure that the copper electrode is surrounded by the material. This can be done with a soft broom to avoid disturbing the electrode.

- Place the insulated earth cable into a vertical duct, cut to the pre-determined length. Ensure the DSLAM plinth template or Polylid is used to determine the exact location of the insulated copper electrode – using the same practice as with an Earth Rod.

- With a hand shovel, slowly and carefully place a layer approximately 100mm deep of the topsoil from the excavation on top of the electrode covering the base of the excavation, taking care not to disturb the electrode and duct. Lightly compact the backfill. Subsequent layers of backfill can then be placed onto this layer to the specified depth and compacted using a hand tamp.

- Please note: If topsoil from the excavation is of poor quality or not available due to the particular local ground conditions (e.g hard rock or type 1 only material) then Contractor MUST consult with local Openreach project team regards sourcing suitable alternative soft soil (e.g via local purchase) – this initial layer of soil must be hand tampered before subsequent layers of backfill material are applied.
- Type 1 material can now be placed to the required depth and compacted to receive the concrete plinth base. Remove the empty bags after use as per regulations for bags of ordinary cement.

- Ensure that the A55 earthing electrode document (Earth Certificate) is completed, showing the location, length and direction of the copper tail and whether both tails have been used. Ensure the location of black duct 36 is noted. Please also ensure label provided is placed on the insulated earth cable.



7.0 Housekeeping

- The roadwork's guarding and signs should be regularly checked to ensure they always meet the requirements of Chapter 8.
- All spoil, materials, vehicles and plant should be properly guarded in accordance with Chapter 8.
- The site should be kept as clean and tidy practicable during the works.
- All disposable PPE must be bagged and disposed off in the appropriate waste container in the contractor's yard.