

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	1	of	13

HAS/042/001 – Code of Practice for Work on Street Lighting and Street Furniture Including Installation, Repairs and Maintenance

1. Purpose

The purpose of this document is to specify Northern Powergrid's Code of Practice in relation to the operational aspects associated with **Engineering Recommendation G39** "Model Code of Practice covering Electrical Safety in the Planning, Installation, Commissioning and Maintenance of Public Lighting and other Street Furniture".

This document supersedes the following document, all copies of which should be destroyed.

Document Reference	Document Title	Version	Published Date
HAS/042/001	Code of Practice for Work on Street Lighting and Street Furniture Installation, Repairs and Maintenance	2.0	March 2017

2. Scope

This policy specifies, the extent to which competent and authorised personnel acting on behalf of a Local Authority or its Agent may be permitted to work on the terminations of street lighting and street furniture services connected to the Northern Powergrid low voltage underground and overhead distribution systems.

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	2	of	13

3. Process

3.1. Responsibilities

- 3.1.1.** Northern Powergrid is responsible for the authorisation of personnel to operate on its network. However, under certain circumstances where a nationally accredited training and competency scheme is in place and the Local Authorities' personnel or agents are certified to such a scheme, the Local Authority may enter into an agreement with Northern Powergrid to authorise their own competent persons to carry out work which requires operation of Northern Powergrid's unmetered service cut-out fuse.
- 3.1.2.** In either case, it is the responsibility of the relevant Local Authority to ensure that any of its officers, employees, agents, consultants, contractors or sub-contractors working on Northern Powergrid's electricity distribution systems are competent and authorised to work on such systems.
- 3.1.3.** It is the responsibility of the Local Authority to ensure that other documented procedures, as may be required to assist in compliance with this Code of Practice, shall be written. Such procedures shall clearly identify relevant subordinate duty holders and clearly detail how the Local Authority will meet the requirements of G39 and this code of practice.
- 3.1.4.** All Company Managers/Engineers/Supervisors/Copyholders must ensure in all cases that staff and Contractors under their control or direction are informed of this Code of Practice and are compliant with this Code of Practice where applicable to their business.
- 3.1.5.** All Local Authority authorised employees and authorised contractors have a duty to comply with this Code of Practice and any associated approved procedures.

3.2. Work on the System

- 3.2.1.** ENA Engineering Recommendation G39 specifies that personnel carrying out work on Authority equipment that contains an electrical supply or is in proximity to overhead lines should be Competent Persons with written authority as appropriate to:
 - a. Supervise the erection of lighting columns and fittings in the vicinity of overhead electric power lines;
 - b. Carry out all electrical duties including testing , wiring and maintaining the installation and, subject to the DNO's discretion, the initial insertion, removal and replacement of the DNO's cut-out fuses (on unmetered services only);
 - c. Work in the vicinity, i.e.at a distance of not less than 1 m for LV lines and 3m for HV lines, of the DNO's overhead lines for lamp replacement, lantern cleaning and for the painting of structures.
- 3.2.2.** Specifically in relation to the energisation and isolation of the installation, operation of the Northern Powergrid service cut-out fuse supplying unmetered street furniture shall only be permitted by trained and competent personnel who are authorised in writing to perform such operations.
- 3.2.3.** Authorisation of competent persons may be given by Northern Powergrid or where a Local Authority or its agent operates to a recognised nationally accredited training and competency scheme such as the Highways Engineers Registration Scheme (HERS), subject to agreement, the Local Authority or its agent may authorise their own personnel to carry out these duties.

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	3	of	13

- 3.2.4.** Where Northern Powergrid is requested to authorise personnel for such duties, this will normally require attendance of the operative at a Northern Powergrid Training Centre to receive a safety induction briefing and complete and pass a short safety assessment test prior to the issue of an authorisation certificate by Northern Powergrid.
- 3.2.5.** Where agreement is in place for the Local Authority or its agent to authorise its own competent personnel, the delivery of the safety induction briefing and any associated safety assessment test shall be performed by the Local Authority or its agent prior to the issue of an authorisation certificate by them.
- 3.2.6.** In accordance with the Competitions Code of Practice (Part C – section 5.2.2) Northern Powergrid will accept evidence of operatives having been authorised for G39 duties in other DNOs as proof of competency and shall be issued with a Northern Powergrid authorisation certificate for work on street furniture connected to the distribution system.

3.3. Work on Low Voltage Underground Service Terminations

Northern Powergrid's distribution network responsibilities extend up to and include the outgoing terminals of the cut-out supplying individual or groups of lighting units, such as columns, bollards and road signs, or other street furniture.

- 3.3.1.** Local Authorities may be given permission for their qualified site personnel who have technical knowledge and experience to avoid danger, to do limited work on Northern Powergrid's cut-outs in street lighting equipment and street furniture. This work includes:
- Removal and replacement of fuses in cut-outs; and
 - Connection and disconnection of wiring to the outgoing side of the cut-out.
- 3.3.2.** That permission may also include the initial insertion of the cut-out fuse. However, this is subject to individual agreement between Northern Powergrid and the Local Authority involved.
- 3.3.3.** Local Authorities shall ensure that all their operatives who have been authorised to work on the Northern Powergrid distribution system are suitably equipped with appropriate PPE to offer protection against the electrical hazards, potential arc flash and any other relevant dangers associated with work on our electricity distribution equipment.
- 3.3.4.** To assist Local Authorities in their assessment of protective clothing requirements for their operatives, Northern Powergrid will make available, on request, the relevant network energy levels and recommended arc flash protection values for work on low voltage single phase service terminations.
- 3.3.5.** Prior to commencing works operatives should be made aware of any potential hazards associated with operating on Northern Powergrid equipment including but not exclusively:
- Shrink back associated with the incoming cable termination on the Northern Powergrid cable connection within the cut-out.
 - See Appendix 3 Northern Powergrid Safety Briefs
- 3.3.6.** Shrink back – Northern Powergrid is aware that insulation shrink back has occurred in the past and as such, precautions must be taken when accessing the area of the cable crutch in order not to disturb the phase and neutral conductors. Shrink back of the core insulation occurs when the temperature is raised in metal street lighting columns exposed to the sun where, it is possible for shrinkage to occur on the phase conductor back in to the crotch area. If shrink back has occurred, then it is possible for the phase and neutral conductor to be separated only by the thickness of the phase insulation. Disturbance has the potential to cause a short circuit in the crutch position of the cable. The cable and conductors affected are generally covered by the cut-out cover and as such where ever possible these

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	4	of	13

should not be removed. Suspect or faulty equipment should not be worked on and Northern Powergrid should be informed. (See Appendix 3).

- 3.3.7.** Care **MUST** be taken when removing the cut-out fuse from Northern Powergrid equipment so as not to cause any undue stress on either the cut-out itself or the incoming cable.
- 3.3.8.** When a cut-out fuse has been removed to facilitate connection of public lighting tails to the outgoing side of the cut-out, the live exposed phase terminal on the incoming side shall at all times be shrouded with an approved insulating material until the cut-out cover is replaced.
- 3.3.9.** The Northern Powergrid authorisation does not include operation of control fuses within the confines of Northern Powergrid substations unless prior agreement has been made and the appropriate authorisations issued.
- 3.3.10.** This Northern Powergrid authorisation does not permit:
- Local Authority personnel or their appointed contractors to interfere with the incoming supply cable terminals of the cut-out. I.e. Local Authority authorisations do not allow for the cut-out to be disconnected from the supply cable at any time.
 - The cut-out should not be detached from the mounting board of the lighting unit or unit of street furniture.
- 3.3.11.** The removal of the service cut-out fuse to facilitate the demounting of the cut-out unit for the purpose of replacing a lighting column or other street furniture is strictly prohibited.

3.4. Works on Northern Powergrid Low Voltage Overhead Line Supports

- 3.4.1.** Northern Powergrid is responsible for the condition of the supports for overhead low voltage networks and for work on all conductors connected to them. It is not permitted to climb a Northern Powergrid wood pole or carry out work from a ladder supported against a pole. All work must be undertaken from a Mobile Elevated Work Platform (MEWP) or similar self-supporting access platform.
- 3.4.2.** Where Local Authority's or their agents are to connect equipment to DNO supports, this work must be done observing a minimum safety clearance of 1.00m from any electrical conductor. No person shall bring any part of their body or any working tool or platform within 1.00m of any exposed low voltage overhead conductors. This includes any droppers, down leads or other exposed cable connections.
- 3.4.3.** Earthing of the metalwork of a street lighting fitting must never be assumed to be adequate and must be regarded as live until proved otherwise.
- 3.4.4.** Local Authority staff with sufficient technical knowledge and experience to avoid danger may be authorised to remove and replace fuses in the controlling units.
- 3.4.5.** If the lamps are connected directly to a switch wire they may not be live at the cut-out position but should still be treated as such. The Local Authority or its Agents are not authorised to work on the incoming supply terminals and therefore the conductors must not be disconnected or interfered with.
- 3.4.6.** Permission for work detailed above shall be given only on the understanding that the Local Authority accepts full responsibility for the training and competency of persons authorised to do this work.

3.5. Northern Powergrid Training and Authorisation

- 3.5.1.** Standard authorisation by Northern Powergrid takes the form of a technical assessment of the operative following training if requested. If successful, the operative is issued with a certificate of

Document Reference:-	HAS/042/001	Document Type:-	Code of Practice			
Version:-	3.0	Date of Issue:-	April 2019	Page	5	of 13

authorisation for the level of code being assessed and a copy of Northern Powergrid Low Voltage Safety Rules.

3.5.2. Accompanying the nomination form should be the following documents/evidence:

- Local Authority authorisation certificate
- Candidates CV showing relevant experience
- A valid first aid certificate

3.5.3. Assessment slots will be offered at Northern Powergrid training centres at Durham (Northeast) or Castleford, Swillington or Hull (Yorkshire) as appropriate, a minimum of 3 weeks from the date of the request. When assessment slots become available, nominators/candidates will receive:

- Joining instructions 2 weeks prior to the assessment detailing the location, time and duration.
- Outcomes of assessment and appropriate feedback

3.5.4. A model form of authorisation certificate is shown in Appendix 1.

3.5.5. Authorisation certificates will be valid for 3 years and renewed subject to refresher training when assessed by Northern Powergrid or, upon successful re-assessment of the self-assessing local authority.

3.5.6. Authorisation certificates will be sent electronically to the relevant local authority and it will their responsibility to issue replacement certificates to the street lighting operative.

3.5.7. A copy of Northern Powergrid's LV Distribution Safety Rules for Authorised Competent Persons shall be issued with each authorisation certificate. This authorisation certificate shall be carried by authorised persons at all times when they are required to work on Northern Powergrid's equipment and shown on request to Northern Powergrid's staff.

3.5.8. In circumstances where an individual has not successfully completed an authorisation assessment and a re-assessment is required, then the application shall be submitted in the same manner as the initial request, same timescales apply.

3.6. Self-Assessment and Authorisation

3.6.1. Highways Authorities or their agents who are G39 certified and follow a recognised nationally accredited operative competency scheme such as the Highways Engineers Association's Electrical Registration Scheme (HERS) shall by agreement be afforded a self-assessment and authorisation process.

3.6.2. This process shall consist of the Local Authority or its Agent:

- a. Formally notifying Northern Powergrid of its intent to pursue the self-assessment and self-administration option for the authorisation of its competent personnel.
- b. Shall provide all necessary evidence as requested of the accredited competency scheme in place for its personnel.
- c. Shall participate in a safety information exchange where relevant hazard information such as arc-flash energy levels, recommended PPE requirements, known safety defects, incident information, emergency reporting procedures and information contained within Appendices 2 and 3 of this policy is provided and understood.
- d. Shall ensure all its competent personnel who are to operate on the Northern Powergrid distribution system under G39 receive all necessary safety information provided in the safety induction briefing.

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	6	of	13

- e. Shall issue its competent personnel with an authorisation certificate clearly stating the extent and limits of operation in accordance with the model form of authorisation shown in Appendix 1.
- f. Shall issue the authorised competent person with a copy of the Northern Powergrid LV Safety Rules
- g. Shall provide a list of all self-authorised personnel to Northern Powergrid for its records. h. Shall maintain an accurate and up to date list of authorised persons.
- i. Shall be responsible for necessary refresher training of authorised persons.
- j. Shall notify Northern Powergrid where any authorisation is withdrawn or lapses for any reason.
- k. Shall co-operate immediately following any electrical incident on Northern Powergrid equipment connected to the distribution system with the temporary suspension of authorisation of individuals involved whilst a full safety investigation is carried out and any necessary actions for the re-instatement of authorisation are agreed with Northern Powergrid.

3.6.3. Authorisation certificates shall be carried by authorised persons at all times when they are required to work on Northern Powergrid's equipment and shown if requested by Northern Powergrid staff.

3.7. Monitoring

3.7.1. Northern Powergrid reserves the right to request a copy of any daily whereabouts of Local Authority operatives or their contractors working on our network for auditing purposes.

3.7.2. The Local Authority or its Agent shall be responsible for monitoring the need for refresher training for each authorised person. It shall also be responsible for arranging and recording appropriate refresher training as necessary. This could include attendance at a Northern Powergrid training centre for evaluation of the training provisions at the discretion of Northern Powergrid. Other accredited training providers may also provide this service.

3.7.3. The Local Authority shall be responsible for monitoring the competence level of its authorised staff by undertaking appropriate auditing of site activities when their staff or contractors are involved with work on or affecting Northern Powergrid's apparatus. This auditing does not preclude Northern Powergrid from undertaking site audits to confirm that safe and correct standards of work conforming to the letter and spirit of this document are being maintained.

3.8. Authorisation Withdrawal

3.8.1. Northern Powergrid reserves the right to withdraw the permission of a Local Authority, their Contractors or staff of other companies or individual members of their staff to work on Northern Powergrid's apparatus if it is found that work is not being done in accordance with this code of practice.

3.8.2. It will be the responsibility of the Local Authority to ensure that any Northern Powergrid authorisation is withdrawn when a person ceases to undertake the duties requiring the authorisation and returned to Northern Powergrid so the operative can be removed from Northern Powergrid's database.

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	7	of	13

4. References

4.1. External Documentation

Reference	Title
G39	Engineering Recommendation G39 Model Code of Practice covering Electrical Safety in the Planning, Installation, Commissioning and Maintenance of Public Lighting and other Street Furniture.

4.2. Internal Documentation

Reference	Title
None	

4.3. Amendments from Previous Version

Reference	Description
	Full document review

5. Definitions

Term	Definition
Company	Any contractor that has been granted permission by Northern Powergrid to authorise personnel for such work as indicated in this document.
Low Voltage	A voltage not exceeding 1000 volts.
Cut-Out	Northern Powergrid's combined supply cable termination and fuse unit.

Document Reference:-	HAS/042/001	Document Type:-	Code of Practice
Version:-	3.0	Date of Issue:-	April 2019
		Page	8 of 13

6. Authority for issue

6.1. CDS Assurance

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

		Date
Andy Leggett	CDS Administrator	16/04/2019

6.2. Author

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

Review Period - This document should be reviewed within the following time period.

Standard CDS review of 3 years?	Non Standard Review Period & Reason	
Yes	Period: n/a	Reason: n/a
Should this document be displayed on the Northern Powergrid external website?		Yes
		Date
Peter Sanderson	Training and Quality Assurance Manager	23/04/2019

6.3. Technical Assurance

I sign to confirm that I am satisfied with all aspects of the content and preparation of this document and submit it for approval and authorisation.

		Date
Mick Emsley	Technical Audit Manager	25/04/2019
Kevin Liddle	Operations Assurance Manager	29/04/2019

6.4. Authorisation

Authorisation is granted for publication of this document.

		Date
Geoff Earl	Director of Safety, Health and Environment	29/04/2019

Document Reference:-	HAS/042/001	Document Type:-	Code of Practice			
Version:-	3.0	Date of Issue:-	April 2019	Page	9	of 13

Appendix 1 – Model Form of Authorisation

Appointment of persons <u>authorised</u> to work on street lighting and street furniture services connected to the Northern Powergrid Low Voltage distribution system	SERIAL NUMBER
1 Name and Address of Local Authority or Company 	
2 Name of Employee 	
3 <u>Authorisation</u> <p>Having been trained for the purpose, the above named employee is hereby <u>authorised</u> to undertake the following categories of work in accordance with Engineering Recommendation G39 and the Northern Powergrid Code of Practice SDC/WRK/W/002</p> <p>A WORK ON THE NORTHERN POWERGRID LOW VOLTAGE UNDERGROUND SERVICE TERMINATIONS (Delete items not applicable)</p> <p>A1 Connection of Local Authority or Company wiring and initial insertion of the Northern Powergrid cut-out fuse.</p> <p>A2 Removal and replacement of the Northern Powergrid cut-out fuse.</p> <p>A3 Disconnection and reconnection of Local Authority or Company wiring from outgoing side of the Northern <u>Powergrid cut-out.</u></p> <p>B WORK ASSOCIATED WITH NORTHERN POWERGRID LOW VOLTAGE OVERHEAD LINES (Delete items not applicable)</p> <p><u>B1 Removal and replacement of the Northern Powergrid cut-out fuses.</u></p> <p><u>B2 Disconnection and reconnection of Local Authority or Company wiring from outgoing side of the Northern Powergrid cut-out.</u></p>	

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	10	of	13

4 Issued by (Local Authority or Company Authorising Officer)

Name..... Signature

Position..... Date.....

5 Received by (Competent Person) Name.....

Signature Position.....

Date.....

6 Expiry date

This certificate is valid until:

Date.....

Document Reference:-		HAS/042/001	Document Type:-		Code of Practice			
Version:-	3.0	Date of Issue:-		April 2019	Page	11	of	13

Appendix 2

Rules for Authorised Competent Persons for Work on or in the Vicinity of Northern Powergrid equipment:

CUT-OUTS

- When a cut-out fuse has been removed for the purpose of work or testing on the outgoing side of a Northern Powergrid owned cut-out, the live exposed phase terminal on the incoming side shall be shrouded with Northern Powergrid approved insulation until the cut-out cover is replaced.
- Under no circumstances must a cut-out be disconnected from the Northern Powergrid supply cable.
- Northern Powergrid cut-outs shall not be left unattended when columns or street furniture housings have been removed, unless they have been protected against unauthorised interference by a substantial temporary housing suitably marked to warn of live apparatus.
- Only HRC fuse links approved by Northern Powergrid shall be used in Northern Powergrid cut-outs fuse carriers.
- Northern Powergrid must be notified without delay of any danger, repair requirements or suspected defect in their equipment. No attempt should be made to interfere with Northern Powergrid equipment which is damaged or suspected to be faulty.

LAMPS ON OVERHEAD LINE SUPPORTS

- Northern Powergrid must be notified without delay of any danger, repair requirements or suspected defect in their equipment. No attempt should be made to interfere with Northern Powergrid equipment which is damaged or suspected to be faulty.
- Adequate earthing of the metalwork of a street lighting fitting is not to be assumed and is to be regarded as live until proved otherwise.
- Access to fittings on Northern Powergrid poles or supports should only be by means of an independently supported working platform.
- No ladder of any material shall be used on Northern Powergrid poles or supports.
- Nothing must be done which conceals or obliterates a D symbol on a pole.
- Work must be conducted in such a manner that no part of the body, working tool or any part of the working platform is within a distance of 1.0m of any exposed overhead conductor operating at up to 1,000 volts. Northern Powergrid will undertake any work necessary on such installations where the 1.0m clearance cannot be observed, or where the bracket is level with, or above, the overhead line.
- When working on columns in the vicinity of overhead lines operating above 1,000 volts, a minimum safe working clearance of 3.0m between any part of the body or any tool or equipment and the overhead line must be maintained at all times. No part of working platforms used in the vicinity of overhead lines operating above 1,000 volts must be raised to a height greater than 1.0m below the top of the column. The platform must be kept as close to the column as practicable. Where hinged columns are installed in the vicinity of overhead lines, operatives must not ascend to the top of any column which is in the raised position unless, on account of special circumstances, authority in writing is first obtained.

Document Reference:-	HAS/042/001	Document Type:-	Code of Practice
Version:-	3.0	Date of Issue:-	April 2019
		Page	12 of 13

Appendix 3 – Newsflash

1. Street Lighting Service Cable Insulation Shrinkage

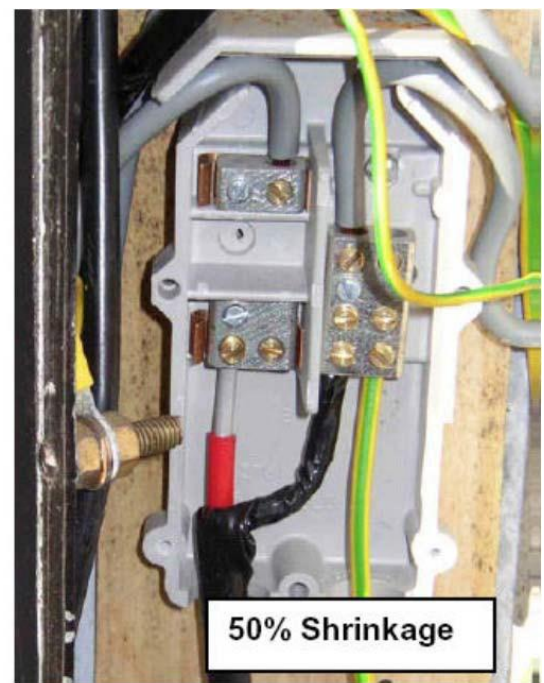
Date: 21st March 2005 No. 2005/04

This Newsflash must be given the widest possible circulation, with personal copies issued by managers to all appropriate staff.

We have been alerted to a problem being experienced by another electricity company.

The issue surrounds shrinkage of conductor insulation in street lighting cut-outs.

In a number of instances they have found the red plastic insulation on the phase conductor has shrunk back towards the crutch of the cable. This is shown in the photographs below. At this moment in time we do not have this problem, so this safety newsflash is for information only



Initial investigations indicate that the insulation shrinkage is confined to a batch of Wessel 16mm solid aluminium concentric cable produced about 5 years ago. It seems this shrinkage of the core insulation occurs when its temperature is raised as is possible when installed in a metal street lighting column exposed to the sun. The risk is that if sufficient shrinkage occurs, i.e. back into the crutch, the phase and neutral conductors would only be separated by an air gap of around 1mm (the thickness of the red core insulation). If the cable or cut-out is then disturbed, there is the potential for the phase to touch the neutral and cause a short circuit at the crutch position beneath the cable crutch cover.

Investigations are underway to resolve the issue.

Information Classification – PUBLIC

CAUTION! - This document may be out of date if printed

Document Reference:-	HAS/042/001	Document Type:-	Code of Practice			
Version:-	3.0	Date of Issue:-	April 2019	Page	13	of 13

2. Flashovers at street lighting service terminations

The photographs below show two street lighting cut-outs after flashovers which occurred whilst replacing blown fuses.



Incident 1

- The flashover occurred whilst a fuse was being replaced.
- The metal tag shorted between the live terminal and the earthing post.
- The operative suffered burns to his hand.
- The operative was not wearing the appropriate live working operational PPE which would have prevented injury to the operative.
- The site was made safe and the operative was taken to hospital

Incident 2

- The flashover occurred whilst a fuse was being replaced.
- The fuse was not installed correctly into the fuse carrier, which resulted in a flashover.
- The operative received burns to his hand
- The operative was not wearing the appropriate live working operational PPE which would have prevented injury to the operative.
- The site was left in an unsafe manner whilst the operative was taken to hospital, placing the general public at risk.



Action to be taken

Local authorities to be reminded of their responsibilities under G39/1, when working on equipment belonging to Northern Powergrid, with regards to competency, training and authorisation of their operatives.

- ❖ A timely reminder to all Northern Powergrid staff authorised to carry out these duties to ensure that:-

- **Correct PPE is worn at all times.**
- **The lighting column / service equipment should be checked for any signs of interference / damage / suspected defect.**
- **Consideration to be given to other 3rd parties / general public in relation to safe movement around the work area and proximity to the work area at all times.**
- **Operatives must remain vigilant whilst carrying out the operation.**