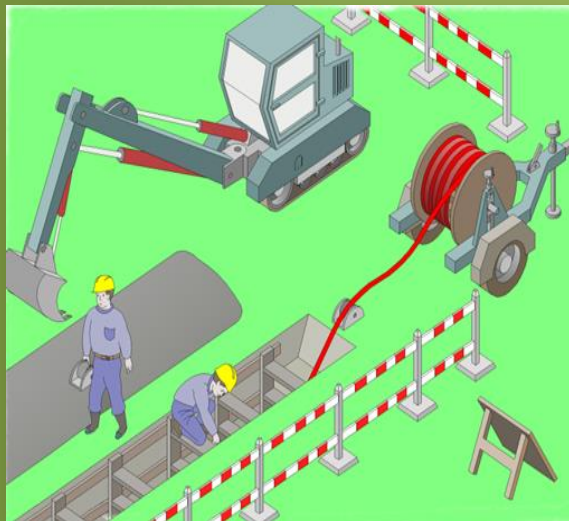
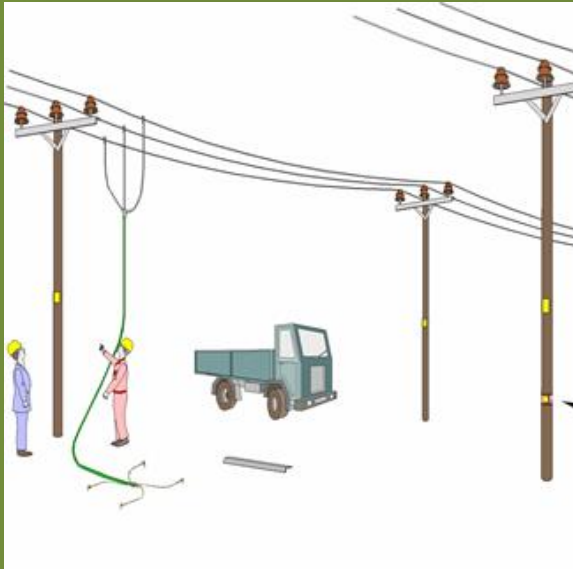




# SP ENERGY NETWORKS



## Safety Requirements for Work On or Adjacent to the Distribution & Transmission Network

HSE-12-011  
Nov 2016

## Foreword

**This booklet demonstrates SP Energy Networks commitment to protect your health and safety at work.**

The **Health and Safety at Work Act 1974**, indicates 'It shall be the duty of every employer to ensure, as far as is practicable, the health, safety and welfare at work of all their employees'.

Within the UK there are a number of regulations that support the **Health and Safety at Work Act 1974**, these are compulsory and apply in all situations to which the original Act applies. The two key regulations in this case are **The Electricity at Work Regulations 1989** and the **Electricity Safety Quality and Continuity Regulations 2002**.

**Please Note** :- This booklet is not a substitute for any Regulations, Codes of Practice, or Health and Safety Policies.

### **You play an important role**

When it comes to establishing and maintaining a safe working environment.

### **By law, working safely is one of your responsibilities.**

The **Health and Safety at Work Act 1974**, indicates 'It shall be the duty of every employee while at work to take reasonable care of the health and safety of themselves and other persons who may be affected by their acts or omissions at work'

### **SP Energy Networks, its contractors and your co-workers are counting on you to:**

- Follow all safety rules that relate to your duties and responsibilities.
- Work within the limits of the Authorisation`s issued
- Minimise the risk of injury to yourself and others.
- Minimise the risk of damage to property.
- Use protective clothing and safety equipment.
- Co-operate with your employer and any other person to ensure health and safety obligations are met.

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[For "Further Testing Procedures" Refer to Metered & Unmetered Supplies Booklet HSE-12-005](#)

## General Information

### What is Insulation?

Insulation can be formed from a range of materials such as:

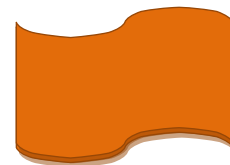
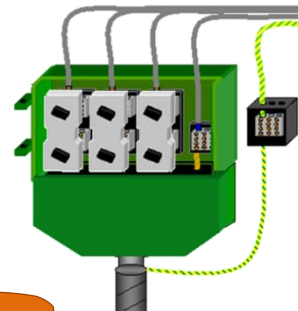
Paper, plastic, rubber, neoprene shrouding, porcelain, glass, insulating Oil or SF<sub>6</sub> gas (sulphur hexafluoride) and vacuum. These

materials and substances form a barrier

between the live conductors and earthed metalwork to ensure separation is maintained. They

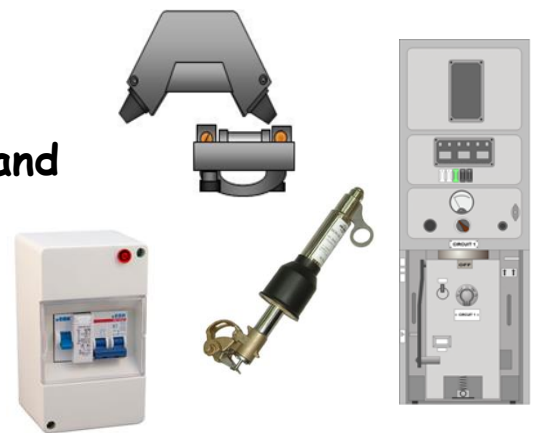
can also protect operatives from making contact with live

components which could result in electric shock fire or explosion.



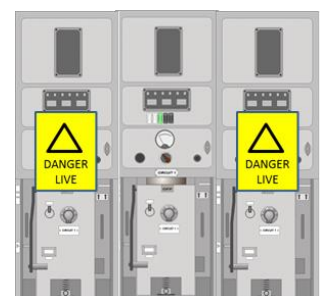
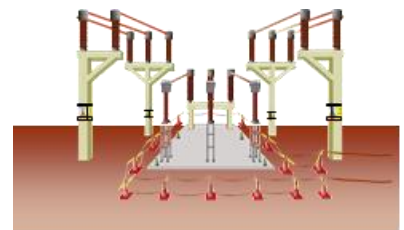
### What are Protection Devices?

Protection Devices can be - Circuit Breakers, Auto-reclosers, Smart Links and Fuses both LV and HV. When any of these devices are tripped or operated they create a sufficient gap between the **Live** source and the part of the system being protected.



### What is Restriction of Access?

Demarcation within Scottish Power Substation (PSSI 6) is one method of restricting access and controlling the safe work area (see page 6 and 7). Defining the limits of a work area with Danger Live apparatus notices is another method of restricting access.



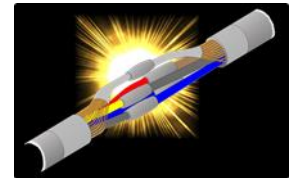
Establishing a physical barrier between live components and the safe area of work will ensure safe performance of the work. Clear and unambiguous communication is crucial to establishing the above.

Access can also be restricted by use of road barriers around excavations, securing or locking off cabinets or specific switches, use of castell key → arrangements, anti vandal and anti climbing devices.



### What is an Electrical Short Circuit?

An Electrical Short Circuit can be caused by two electrical **Live** conductors making contact with each other, or a Live conductor making contact with earthed metalwork resulting in a release of fault energy, flash over or explosion.



### What is a Competent Person?

A Competent Person is a person with the relevant training, knowledge & experience to carry out their duties safely who are then issued with the appropriate Authorisation levels required by the company policies and procedures. Competency is maintained by attending and successfully completing refresher training and the subsequent re-issue of the appropriate Authorisations.



When Scottish Power deems an individual to be Competent they will issue a specific level of Authorisation with the appropriate limitations or exclusion applied at the required voltage levels.



## AUTHORISATION CATEGORIES

Listed here is a brief description of some of the authorisation categories required for the more common and routine types of operational activity undertaken on and around the SP Network.

Authorisation categories may be applied to one, or more, of five voltage levels (LV; 11kV; 33kV; 132kV; 275/400kV) and may also be adapted for operational purposes by applying Limitations or Exclusions to the particular category at the particular voltage level.

[Refer to MSP 5.1 \(OPSAF-13-001\) for further information on Authorisation Procedures including all available Authorisation Categories, Limitations and Exclusions.](#)

<b>Working on or adjacent to the System</b>	
WI-1	Allows the holder to work on Isolated Plant and Apparatus including work adjacent to Live Apparatus
WI-2	Allows the holder to do Non-electrical work adjacent to Live Apparatus
WI-3	Allows the holder to work on Isolated Protection/Telecoms/Metering equipment
WI-PS	Allows the holder to work under Personal Supervision only to the limit of accompanying Persons "WI" authorisation (primarily for the purpose of training)
WL-1	Allows the holder to work on, or near to, Live Apparatus as specified on the accompanying Live Work Certificate
WL-2	Allows the holder to work as the Accompanying Person for work on, or near to, Live Apparatus
WL-PS	Allows the holder to work under Personal Supervision only to the limit of accompanying Persons "WL" authorisation for training purposes
<b>Substation Access</b>	
AME-SS or EN-1/2	Allows the holder independent entry to Substations with exposed Live Bus Bars and is the equivalent to EN-1 and WI-2
<b>Standby</b>	
SB-1	Allows the holder to Standby Personnel & Work/Access Equipment in accordance with PSSI-6 & 8
SB-2	Allows the holder to Standby Personnel & Work at ground level excluding long objects
<b>Drain Earth Application</b>	
DE-1	Allows the holder to apply and remove Drain Earth following testing
DE-PS	Allows the holder under Personal Supervision to apply Drain Earth (Training Purposes)
<b>Switching</b>	
OP-1	Switching (Without Limitation or Exclusion within Voltage Level)
OP-2	Switching (With Limitations)
OP-3	Insert & Remove LV Cut-out fuses
<b>Safety Documents Issue &amp; Receive</b>	
SI-1	Allows the holder, a Senior Authorised Person (SAP), to prepare, issue, receive, clear and cancel all Safety Documents, without Limitation or Exclusion within Voltage Level
SI-2	Allows the holder, a Senior Authorised Person (SAP), to prepare, issue and cancel, PFW, SFT, LWC
SI-3	Allows the holder, a Senior Authorised Person (SAP), to prepare, issue and cancel PFW, LWC
SR-3	Allows the holder receive and clear PFW, LWC
SR-4	Allows the holder to receive and clear LWC

**PFW = Permit for Work - LWC = Limited Work Certificate - SFT = Sanction for Test**



## Demarcation

### Open Bus Bar Substations

Equipment used to designate a safe work area and access route within a Substation.

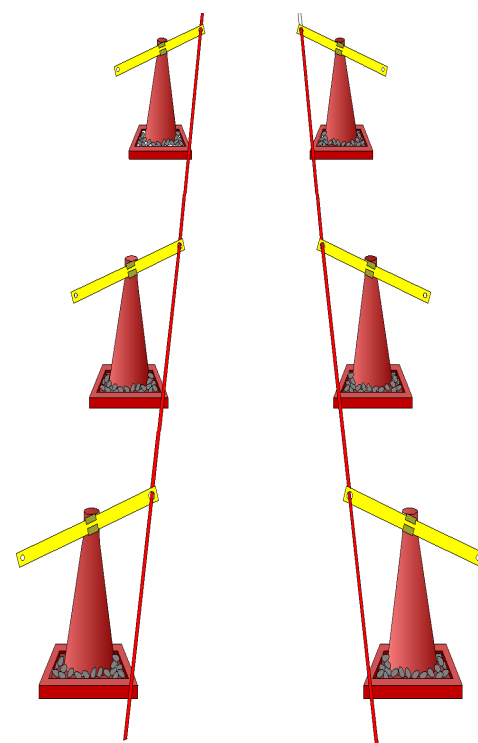
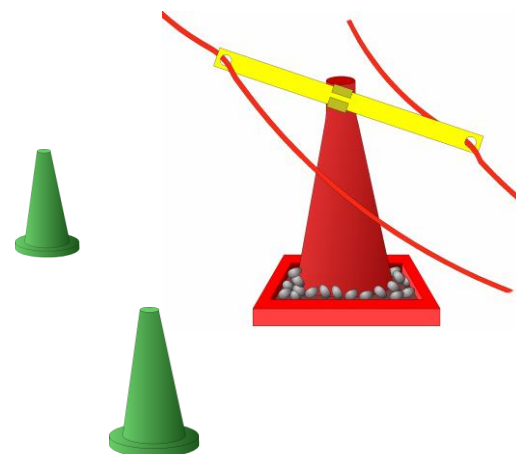
Safe Working Area - **Red Cones** (up to 7m apart), two orange ropes (10mm) used on each side of the yellow angled cross arm and **Green Cones** (up to 6m apart), define the safe working area within the roped perimeter. Only Authorised work may be conducted in these areas, with the approval of the safety document holder.

Access Route to Safe Working Area - **Red Cones** (up to 10m apart), used to define the access route, only one orange rope (10mm) on the high side of the yellow cross arm. .

The higher side of the cross arm defines the safe side.

Cones should be weighted with loose gravel for stability where appropriate.

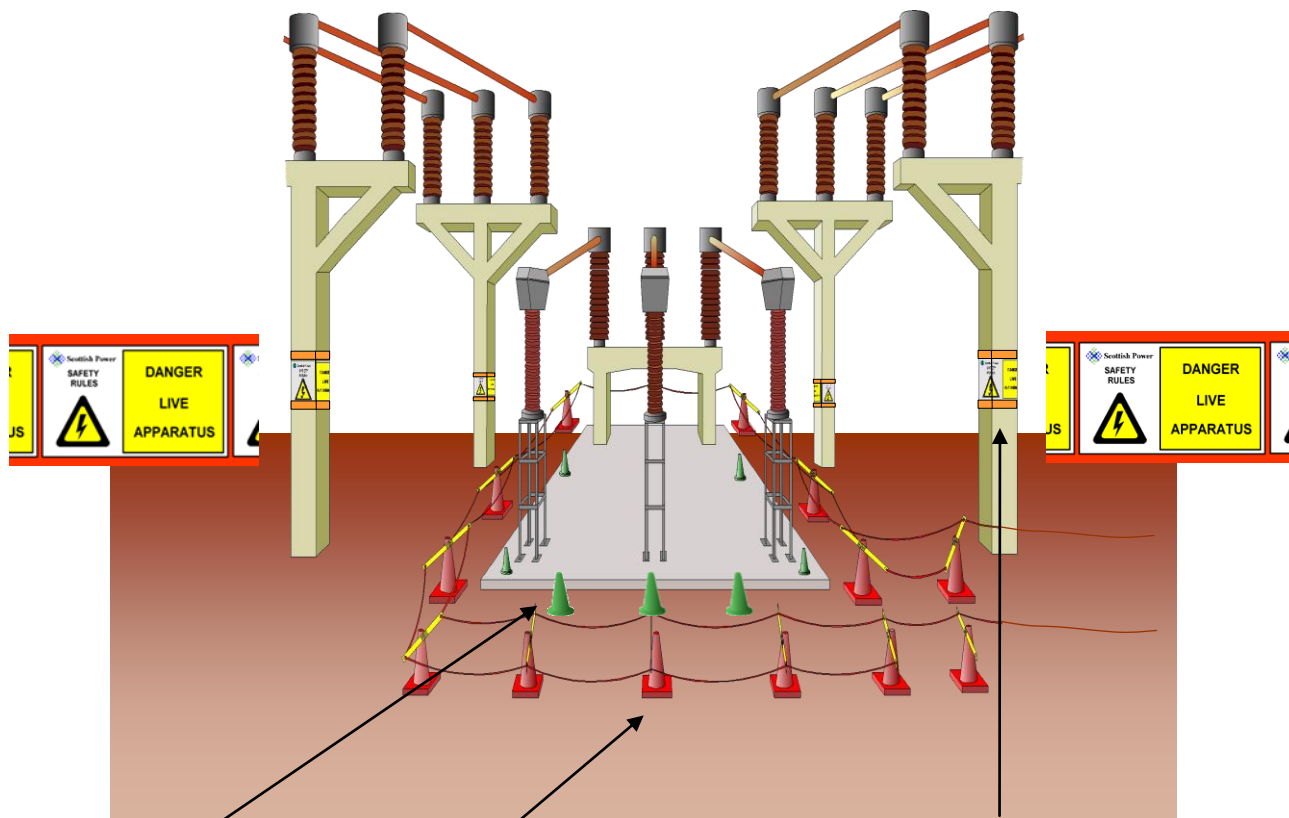
Further procedures/information are contained in the **ScottishPower Safety Rule**, PSSSI 6



Access Route

## Defined Safe Work Area

Various markers and signs define which areas are safe to work in and which are not. Here are some items to look for:



### Green cones

These are placed within the safe work area. They indicate that the demarcated area is safe.

### Two Orange ropes on Yellow angled crossarms, mounted on Red Cones

This along with the Green Cones designates a safe work area and is established by the SAP prior to the issue of the Permit for Work. Authorised work may be conducted in these areas-only with the approval of the Safety Document holder.

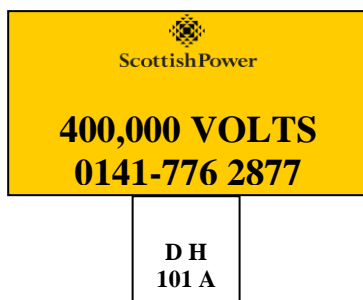
### Danger Notices

These are wrapped around or fixed to adjacent Live structures, which are positioned outside the safe work areas, to warn you it is unsafe.



## Transmission OHL`s

**Tower Identification** is determined by a number plate fitted adjacent to the property plate, which is fitted just above the anti-climb device. This number provides a unique identification of every transmission tower.



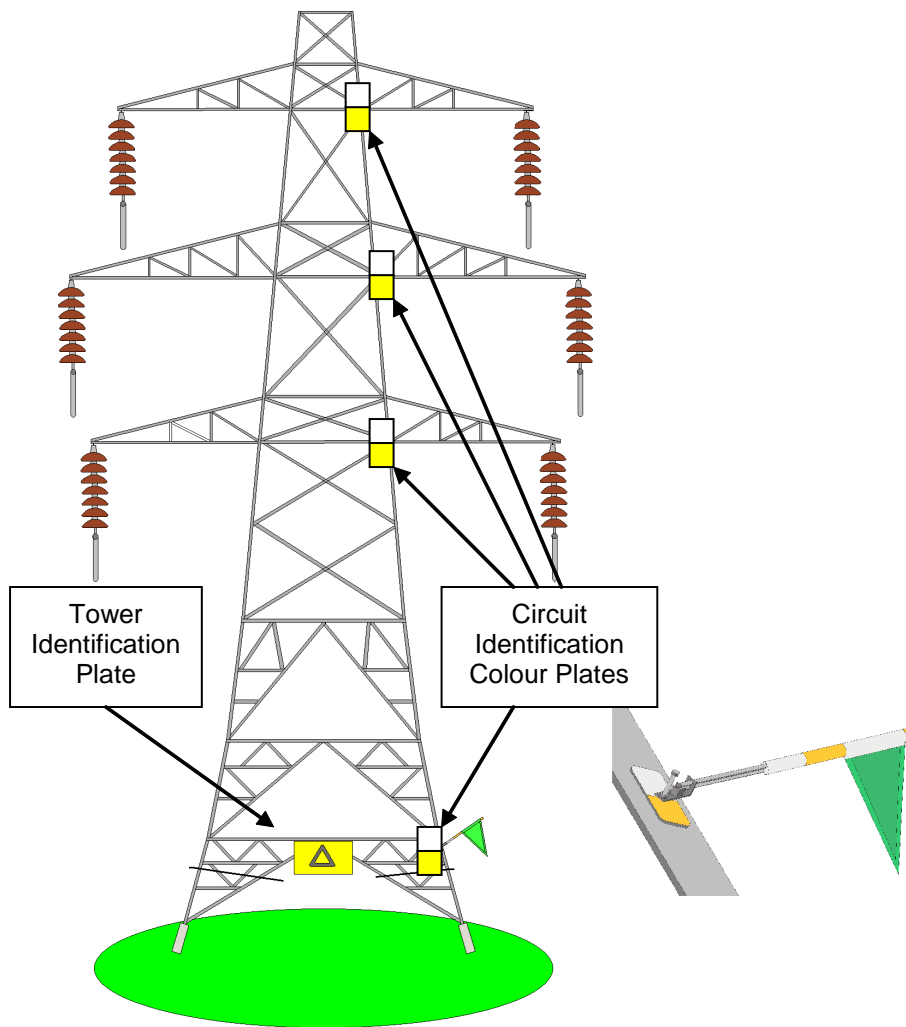
Most towers carry more than one circuit, so each circuit has to be positively identified.

**Circuit Identification Colour Plates** are located on each side of the tower, attached to the climbing leg above the anti-climb device. Each circuit will be identified by a different colour. There may be additional colour plates on the tower at each cross arm.

**Green, Circuit Identification Flags** are used as part of the identification for the circuit being worked on, which has been Isolated and Earthed. The Flag-staff is colour coded to match the colour plates on the tower, the Flag-staff is also keyed to fit into a unique shaped bracket, mounted on the climbing leg of the tower, this matches the shape of the flag fitting.

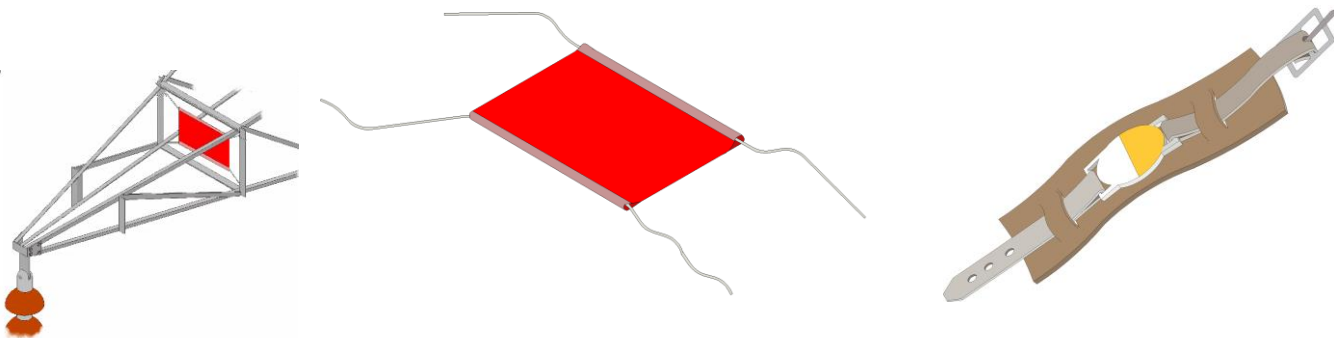
Note:- where no bracket is fitted or the flag does not fit, access to the tower shall cease.



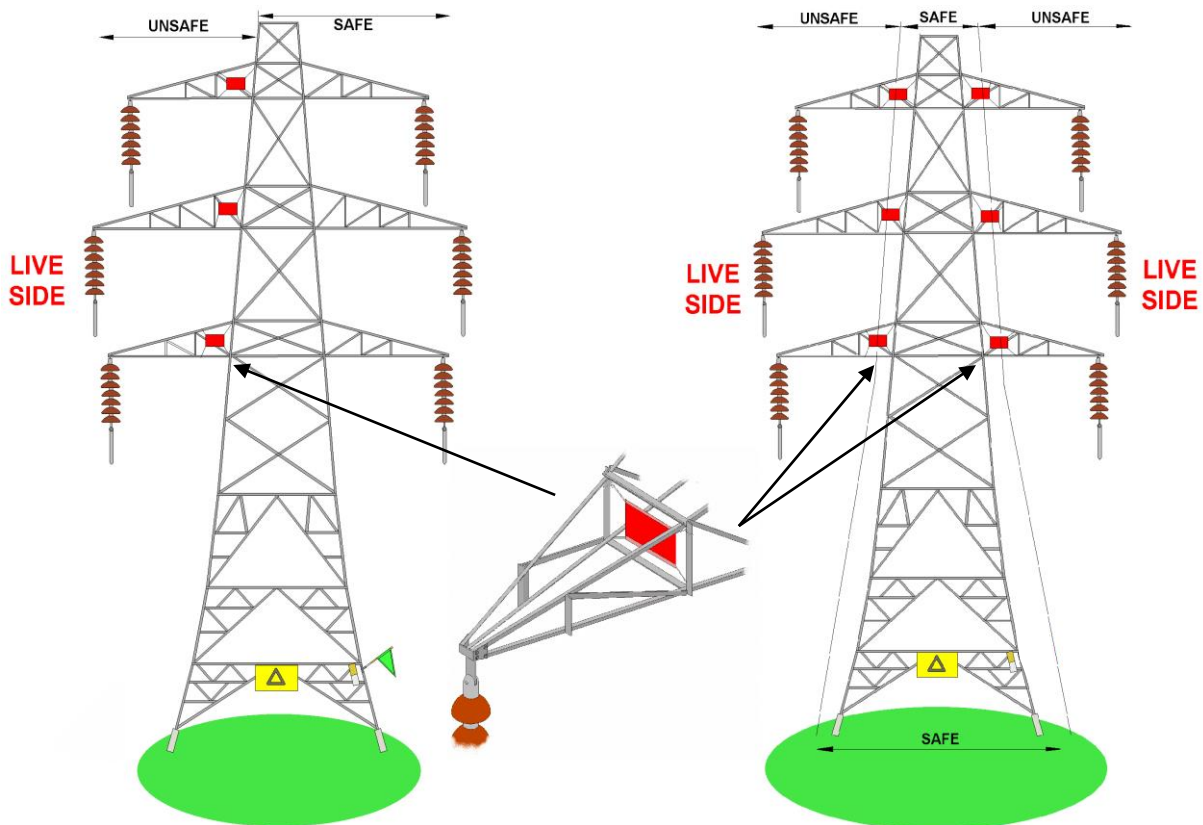


**Wristlets** are coloured to match the circuit identification flag-staff and the circuit identification plate on the leg of the tower. These wristlets are worn by all personnel working on the tower.

**Red pennants** are positioned to identify the limit of your safe work area - you must not pass them.



**The Red Pennants** are installed within the tower on the Live circuit(s) at the junction of the cross-arm and body of the tower (example of a double circuit tower)



Within **PSSI 4** there is instruction on the demarcation arrangement and controls to be established prior to work commencing, it also provides a range of earthing schemes (contained in Attachment "A" Section 5) associated with certain types of work for example:

**Example :- Scheme 1B Painting and Inspection of Towers**

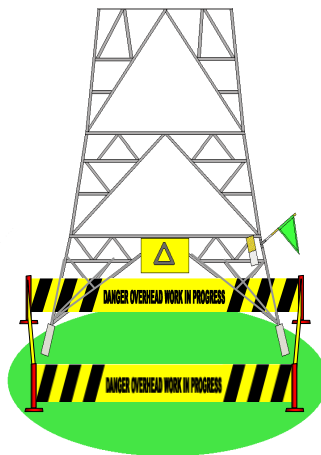
This describes the requirements for application of Drain Earths to carry out this type of work.

*"Drain earths shall be applied not more than 10 span apart and will be positioned each side of the point of work. Access will be within the safety distance but no closer than 1 metre."*

## Exclusion, Danger or Hazard Zone

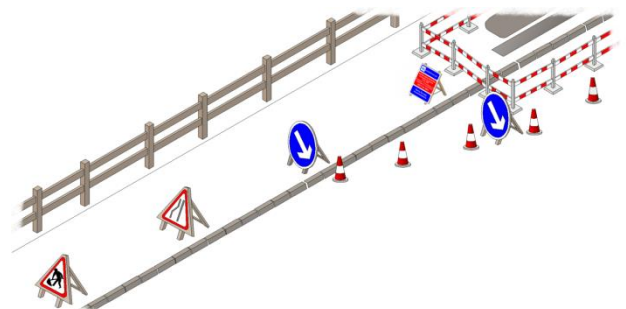
Establishing and controlling an exclusion zone around the base of any structure being worked on, will prevent staff or third parties from injury due to falling objects, this is also considered demarcation. The demarcated area shall be physically controlled (minimum of continuous rope, chain or tape).

All items being moved to and from the work position on the structure above the exclusion zone including lifting equipment shall be securely attached prior to movement. No entry to be permitted into the demarcated area without permission and verbal confirmation from the nominated person that all works and movement above have stopped



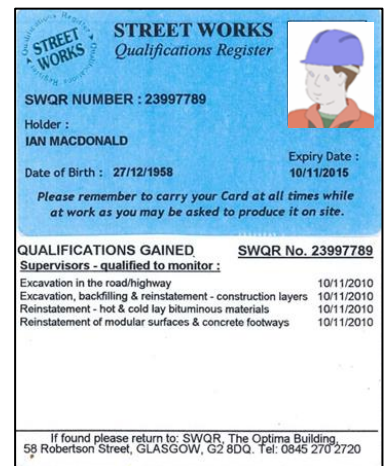
## Road Works

Installation and maintenance of the road and street works barrier including signage are a crucial part of the demarcation arrangements to protect yourself



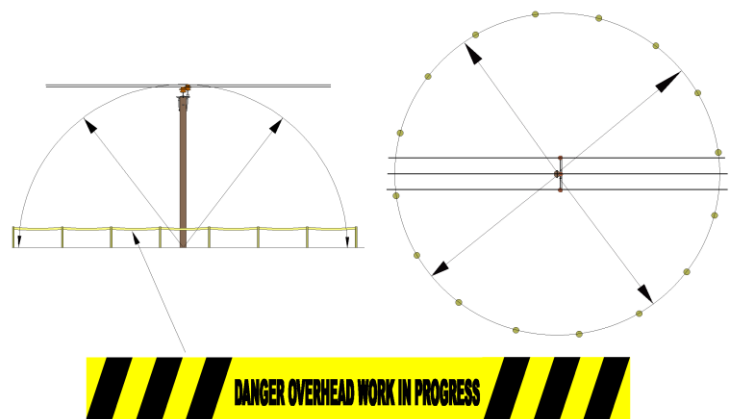
and members of the public while working on the public footpath.

The person responsible for establishing and maintaining Roads and Street Works barriers including signage must be New Roads & Street Works Act (NRSWA) accredited and hold a current Yellow or Blue card with the relevant listed categories on the rear of the card.



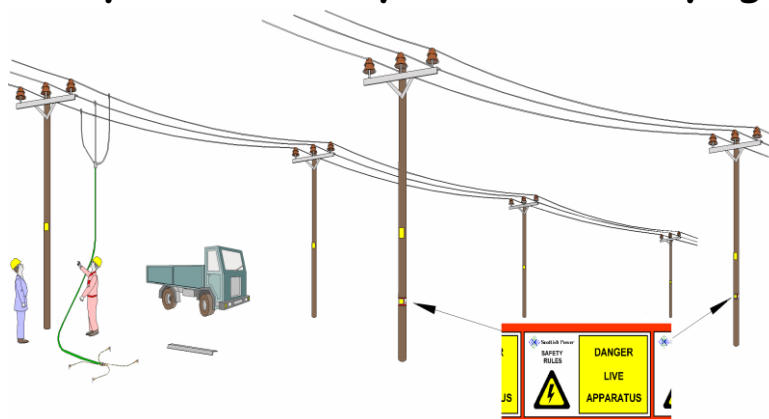
## Wood Poles

Establishing and controlling an exclusion zone around the base of any pole being worked on will prevent staff or third parties from injury due to falling objects. When felling or removing poles, the height of the pole & its potential falling distance should also be considered.



(see [SMS-17-017](#) document for more detail)

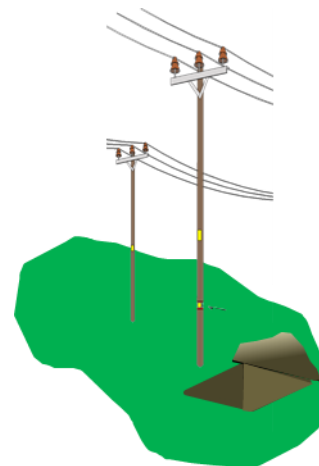
Establishing and identifying the safe working area is critical to ensuring Safety from the System. Identifying and marking adjacent Live circuits ensures all members of the working party are clear on the limits of the work area.



## Accessing poles, which have a potential to be affected by excavations.

Considered in the following order of preference:

- Where reasonably practicable, do not access any pole with an open excavation within 1.5m from the base of the structure if that excavation depth is one third or more of the planting depth.
- Where reasonably practicable, plan work to enable all pole access to be completed prior to creating any excavations in close proximity to the base of the pole.
- Where reasonably practicable, complete excavations, reinstate and compact before pole is climbed. Further information can be found in current version of [OHL-17-003](#).



When excavating a pole hole the table below gives a few examples of the depth the pole should be planted, more information can be found in current version of [OHL-15-001](#).

Construction	Pole Length (Metres)	Planting Depth (Metres)
L30/ABC	Up to 10.5 inc	1.5
	11.0 and above	1.8
L10/L15	Up to 10.5 inc	1.8
	11.0 to 14.0 inc	2.1
	15.0 and above	2.4

All wood poles must be tested prior to climbing, excavate 300mm of soil at the base of the pole and test pole below and above ground level at various stages, this will establish if the pole is showing signs of decay, which could result in the pole breaking when additional load is applied.

See the current version of [OHL-17-001](#) "Inspection & Testing Wood Poles" for further information.



## General Safety Signage

Look out for and always obey the safety signs. They are there to protect you and your colleagues. All signs like the ones below comply with the Safety Signs and Signals Regulations.

### Prohibition (red and white)

They mean 'Do not Do'.



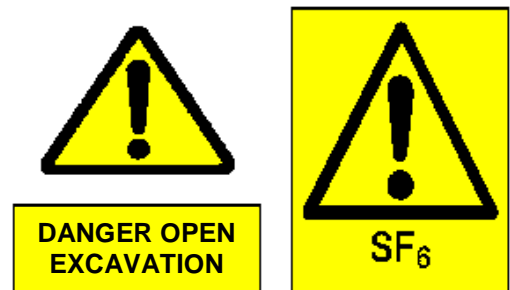
### Safe condition (green and white)

They tell you the safe way to go in the event of an emergency or provide first aid information.



### Hazard / Warning (yellow and black)

They warn you that a danger or hazard exists. The danger tape is used to designate a Safety Exclusion Zone for example, when removing or replacing poles.



### Mandatory (blue and white)

They instruct you to observe the safety precautions shown.



# SP Energy Networks Safety Signs

These are some of the signs that are used, which fall under the Safety Rules.

## Danger Notice

Applied to adjacent Live apparatus.



## Caution Notice

Applied at a Point of Isolation



## Testing

Applied at the Limits of the Test area



## Wrap Round Notices

Drain Earth and Fixed Drain Earth

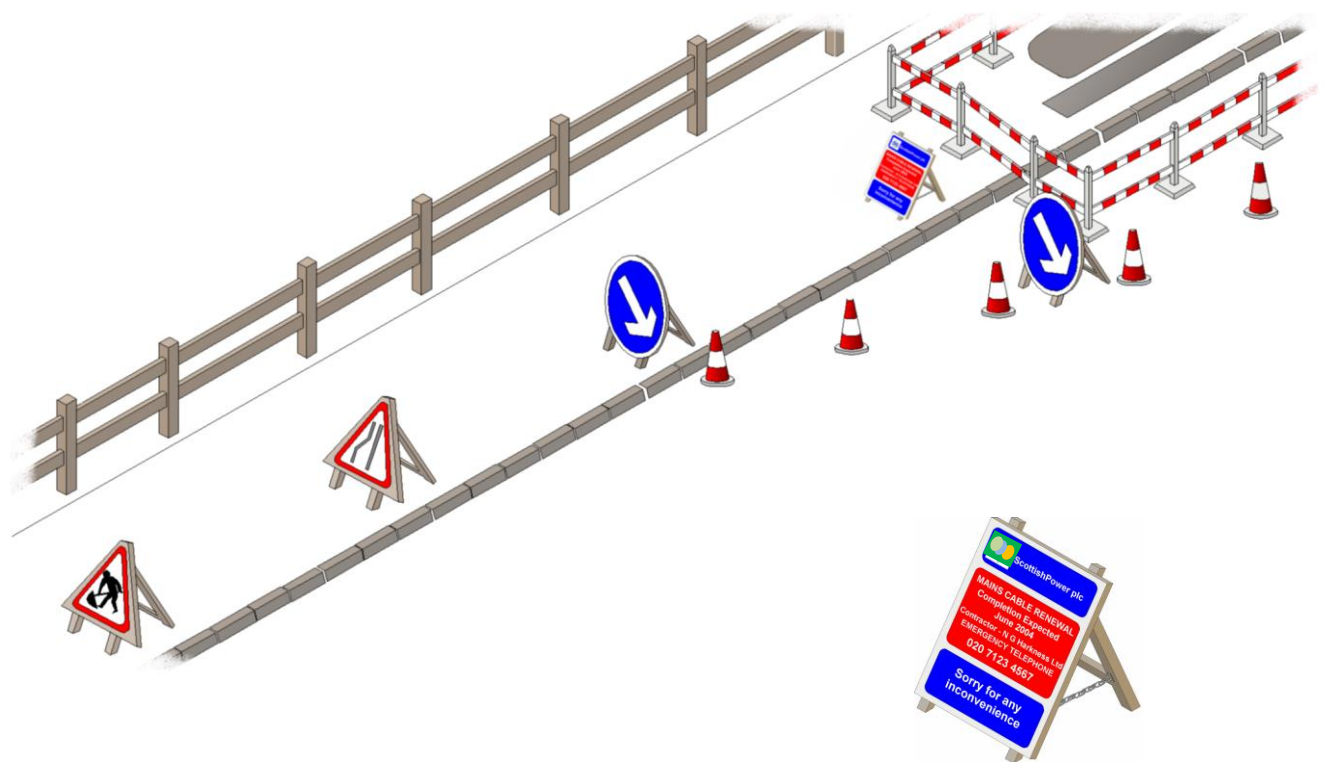


Caution Notice and Danger Live Apparatus



## Roads and Street Works Signage

All excavations on the public highway must comply with the New Roads and Street Works Act (NRSWA).



## Isolation and Earthing

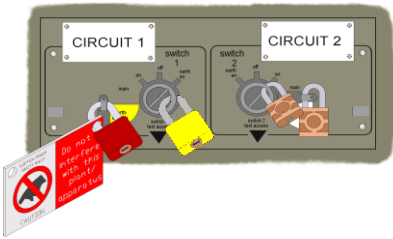
### What is Isolation?

Definition (D-16) in Red Tab "D" within the Safety Rules

*"Disconnected from associated plant or apparatus by means of an isolating device in the isolating position and or adequate physical separation or sufficient gap"*

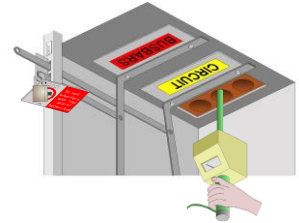
# Work Isolated

Circuit Open & Isolated

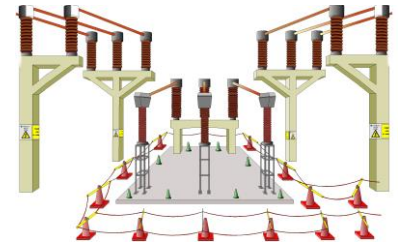


Safety Locks & Caution Notices applied @ Point of Isolation

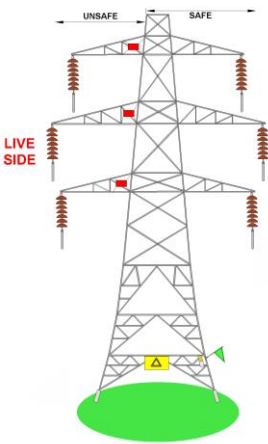
Primary Earths Applied (Prove Not Live where applicable)



Establish or Prepare Demarcation Arrangements



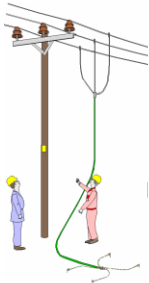
SAP Prepares Safety Document



SAP Communicates and Issues Safety Document to Authorised Person (Demarcation arrangements communicated and Drain Earth arrangements agreed)



Authorised Person communicates requirements of the Safety Document to Working Party including Demarcation and Drain Earth arrangements were applicable



OHL

S/S

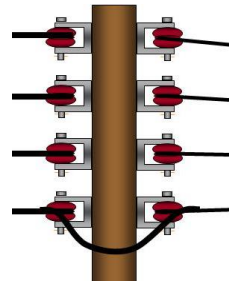
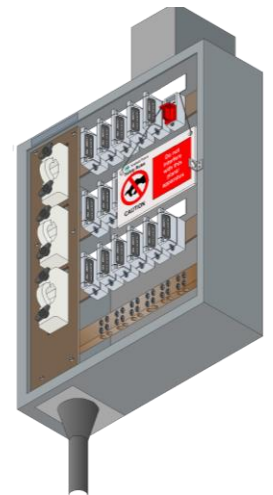
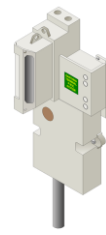
Demarcation and Drain Earth Arrangements are Established and Work Commences

Work Commences Within Demarcated Area.

# Isolation Devices

## Low Voltage

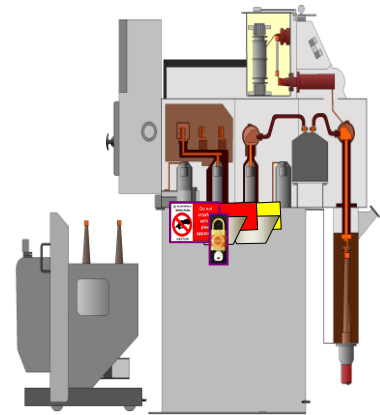
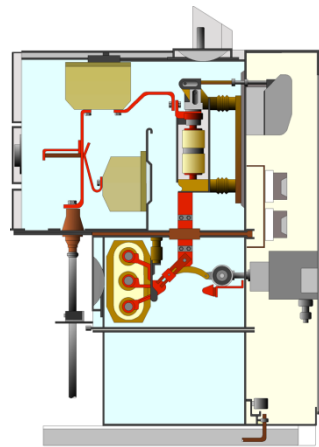
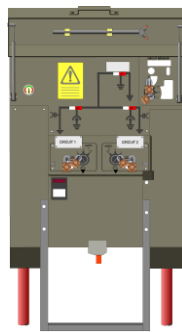
- Cut-out or Cableheads.
- Fuses in a close mouth box or multi-way fuse board.
- LV Circuit Breakers.
- LV Jumper Removal.



## High Voltage

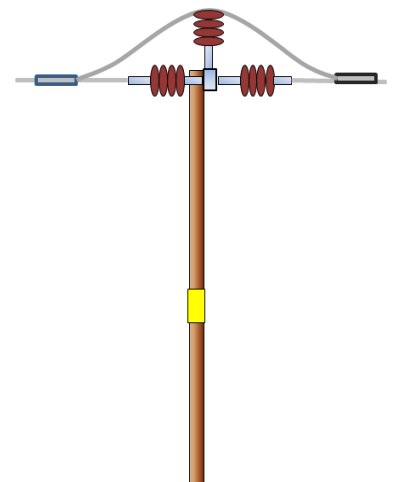
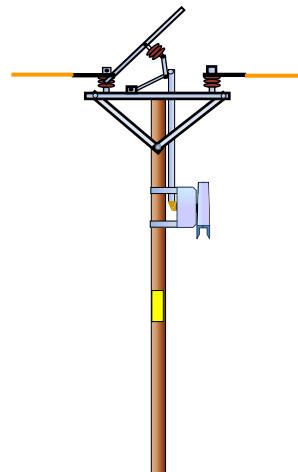
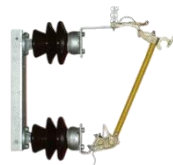
### Ground Mounted Equipment

High Voltage, Vacuum and oil or gas(SF<sub>6</sub>) filled circuit breakers, switches or disconnectors.



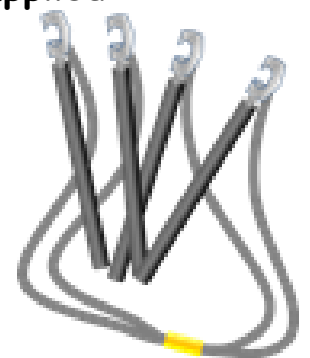
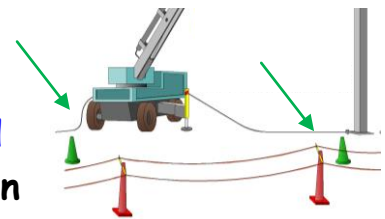
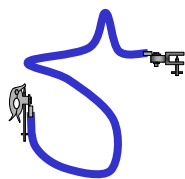
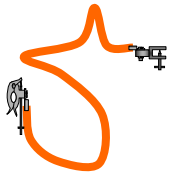
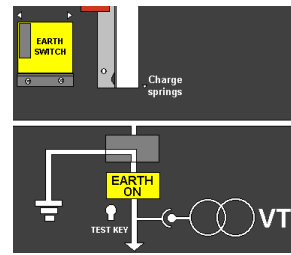
### Overhead Line Equipment

11kV Pole Mounted Air Break Switch, fuses or disconnected jumpers.



# Earthing

- Primary Earths** - The purpose of a **Primary Earth** is to protect against a failure of a Point of Isolation. A **Primary Earth** can be either portable or mechanical via a switch or circuit breaker, with the latter being the preferred method. (portables are either **Clear** or **Orange** in colour with 120mm<sup>2</sup> shorting conductor and 50mm<sup>2</sup> down leads). Transmission Portable Primary Earths have a larger conductor size, 150mm<sup>2</sup>
- Drain Earths** - The purpose of a **Drain Earth** is to protect against **Induced Voltages** from adjacent Live Circuits, **Impressed Voltages** for example lightning and or **Inadvertent Backfeeds** from generation or the network (**Blue** in colour with 50mm<sup>2</sup> conductors).
- A Fixed Drain Earth** is applied under Permit conditions specifically to prevent inadvertent removal by other working parties.
- Field Equipment Earth** - A **Field Equipment Earth** is applied to mobile plant or constructed access equipment to protect against **Induced** or **Impressed** voltages and can be applied by an Authorized Person identified by the SAP. (Clear insulation with 150mm<sup>2</sup> conductor)
- When applying **Portable Primary** or **Drain Earths** the **Earth Rod or Cluster** shall require to be driven into the ground a minimum of 500mm.
- During the application of **Primary, Drain or Field Equipment Earths** it is imperative that the **Earth End Clamp** is applied first i.e. earth mat, cluster or steelwork.
- Shorts or Bonds** - For Low Voltage (LV) overhead line conductors which have been isolated for work, **LV Shorts or Bonds** shall be applied to conductors either side of the point of work.
- Always inspect earthing and shorting equipment before use, checking the PVC sheathing for cuts or damage, broken strands on the cables, all clamps are in



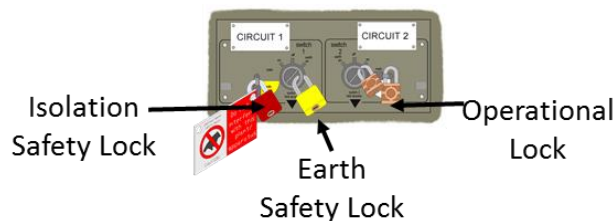
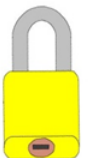
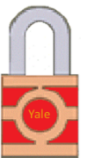


working order and no worn or missing parts. Check for a current inspection label.

- When applying distribution **Portable Primary Earths** to the **Isolated** conductors, you must test the tester, test the circuit and test the tester prior to applying the earth to the conductors.
- When applying tower earths you must maintain a minimum distance from the unearthed conductor of **1.5m** and the general sequence for application is Top, Middle, Bottom and the reverse for removal.
- At the tower peak the minimum distance to be maintained from an unearthed, earth wire is **1.0m**

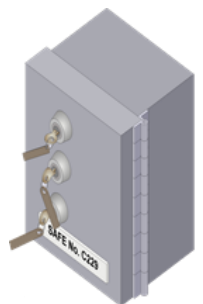
## Locks

- **Operational Lock** - Used to secure operational switches in their normal state, to prevent inadvertent operations and vandalism. The locks are brass with no colour markings.
- **Red Safety Lock** - Used to secure a point of isolation to prevent unplanned re-energisation. The padlock is brass with a red painted body the key is individual to that lock only.
- **Yellow Safety Lock** - Used to secure a mechanical Primary Earth from being opened in error. The padlock is brass with a painted yellow body the key is individual to that lock only.



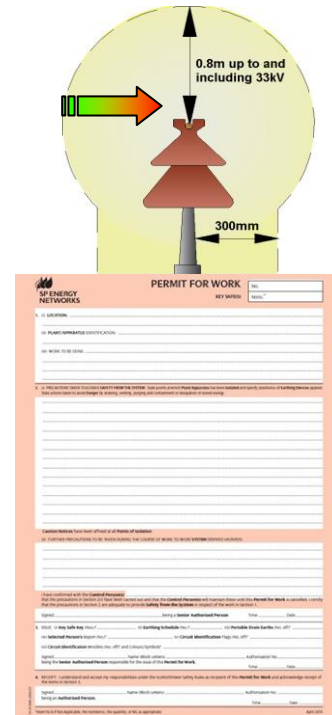
## Key Safe

- Used to retain **Safety Lock** keys associated with the **Points of Isolation** and **Earthing**. The **Control Key** is retained by the SAP and key **A** or **B** will be issued with the appropriate safety document. Both **A** and **B** keys may be issued from the **Key Safe** depending on the number of safety documents being issued.



# Safety Documents

- **Permit for Work** - Is issued where work is to be completed **Inside the Minimum** safety distance (**Safety Rule A2**) and the circuit has been Isolated and Primary Earths applied.
  - Know the Safety Document and what you would expect to be recorded within each section. (Guidance in OPSAF-11-026 & 031)
  - Ensure you comply with any **Demarcation** arrangements that have been established (sect 2.1 PFW) or you have been asked to establish (sect 2.2 PFW).



## OPSAF Updates:

Permits for Work can now be prepared in advance of switching being completed, providing the SAP confirms on the day of issue the isolation and earthing matches the precautions taken to ensure Safety from the System in Section 2.1 of the Permit for Work

A Safety document can now have unlimited minor changes prior to it being issued, as long as the document remains legible & unambiguous, both parties SAP & Recipient shall agree and initial all the changes before signing / accepting the safety document.



The document look is also changing as per drawings.

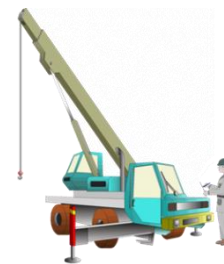
- **Limited Work Certificate** - Where work is to be completed **Outside** the safety distance. e.g. Where limiting the work or the work area is the means of achieving Safety from the System or where oral instructions are not considered sufficient.
  - Know the limits of the work you are carrying out and limits of the work area. Ensure all working party are correctly Authorised and fully briefed on the details contained in the Safety Document.

- **Sanction For Test** - This document is produced by the Senior Authorised Person (SAP) when testing and or confirmation of identification is required on Isolated and Earth Plant or Apparatus, for example cable identification and spiking.

- Under the Sanction for Test the Primary Earths can be removed to allow test equipment and test voltages to be applied to the Plant or Apparatus.



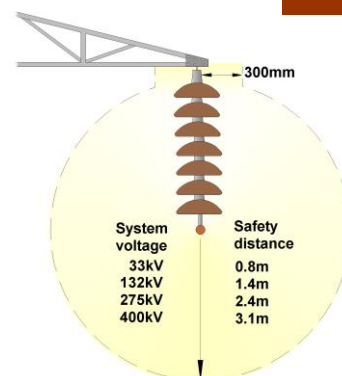
- **Selected Persons Report** - A report compiled by a person with specific technical knowledge and experience (see Red Tab C). This report can take the form of a method statement, providing a clear outline of the activity and the controls which are to be applied, for instance a crane operations



## Safety Distances

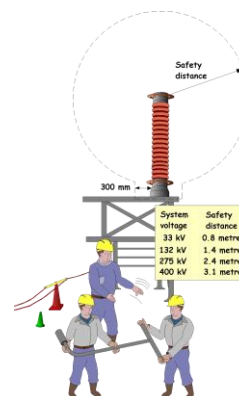
Identifying the voltage of the plant or apparatus you are going to be working on or adjacent to, is crucial to maintaining your safety, no matter what type of equipment you are working on, Substations, Overhead or Underground Equipment:-

- Know your safety distance for the various voltages.
- Always maintain a minimum of 300mm from the base of any insulator carrying Live conductors.



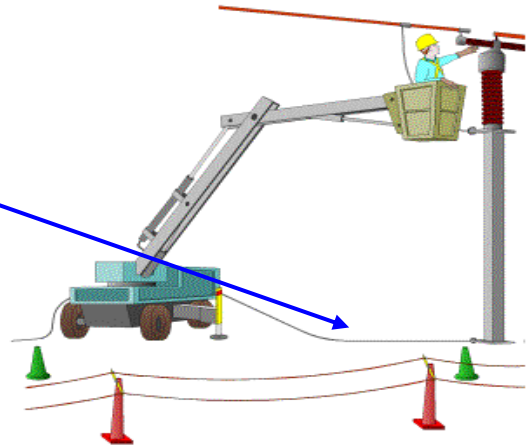
**It should be noted that within PSSI 8 it indicates:-**

- Before a vehicle can be taken into any live open bus bar compound the SAP shall be contacted for permission and guidance on entering the HV compound.
- Vehicles above 2.3 metres shall have their movement **Personally Supervised** by an Authorised Person.



- Cranes, mobile access equipment or their loads above 2 metres shall have their route and final position agreed by the SAP and shall be **Personally Supervised** by an Authorised Person.
- At no time shall the **Safety Distances** be infringed, but in addition, before any part of a crane, it's load or mobile access equipment infringe the following distances to exposed Live conductors, they shall be electrically bonded to earth. (**Field Equipment Earths**)

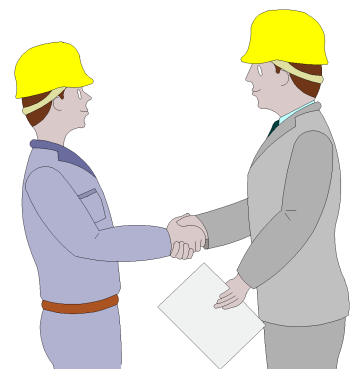
Up to 33	2.75m
66	3.00m
132	3.40m
275	4.60m
400	5.50m



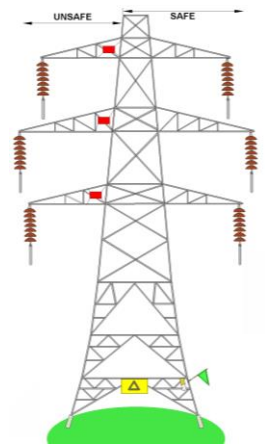
## Responsibilities

As an Authorised Person (**Safety Document Holder**) before you allow work to commence:

- Confirm your working party are holding the correct Authorisation Levels and Limitations on their certificate.
- Identify the level of supervision required for your working party
  - **Immediate Supervision**, Continuously Available at the work location, contactable & Sight & Sound where reasonably practicable, the responsibility for determining the means of supervision will be decided by the SAP and the person in charge of the working party e.g. Document holder.
  - **Personal Supervision** Continually Observing the individual with the ability to Directly Intervene in the activity, where an issue is identified.



- Where there is **no Safety Document** in force the lead person in the working party will agree who is in charge of ensuring general safety.
- A **Site Specific Risk Assessment** shall be completed prior to commencement of work and clearly communicated to the working party. The **Risk Assessment** shall be reviewed and regularly updated, with any changes in site conditions and the associated controls. A **Risk Assessment** will be completed regardless of any **Safety Document** requirements.
- Make sure that you are familiar with the work to be done and the equipment to be utilised, including winches, cranes, ladders, mobile elevated work platforms (MEWP`s) or other specialist vehicles.
- No work shall commence until you have received the **Safety Document** and or had the limits of the work communicated to you.
- A daily briefing and setting to work of the working party should be undertaken by the Supervisor to cover the work to be done and any hazards, controls and limitations, this is crucial to ensuring the safe performance of the work.



### Before the Safety Document is issued

The SAP will ensure that the Safety Document holder & working party are correctly authorised and fully conversant with the details of the Work Location, Plant or Apparatus Identification, Work to be done and any Limitations and Precautions taken to achieve Safety from the System. This may include the application of Danger Live Apparatus Notices to adjacent Live circuits or in the case of towers the application of red pennants.

### When receiving the Safety Document

- Read the document and make sure that you fully understand it. If you have any doubts ask the SAP to reconfirm before signing the document.
- Keep all documents and Key Safe Keys on your person or in a safe place and available at the work site.





- Provide the working party with **Immediate Supervision** at all times.
- Communicate clearly the details recorded within the safety document to the working party. This will include the controls established, the work to be done and the limits of the work area.



SAP

SAP to Safety Document Recipient

Safety Document Recipient to Working Party

If more work needs to be carried out than is specified on the Safety Document, the SAP must be notified and a new Safety Document will be issued.

### If you need to transfer your document

- Instruct all working party members to cease all work and leave the work area. Complete the transfer section of the Safety Document.
- Give the Safety Document and other relevant items to the SAP.



### If You Are Receiving a Transferred Document

Receive the briefing on the original scope of work, precaution taken to achieve safety from the system (sect 2.1) and the outstanding works, also any additional precautions taken (sect 2.2) from the SAP. The transfer record will be signed in the relevant sections. Following this procedure will help ensure a smooth transition of leadership and help



protect everyone's health and safety.



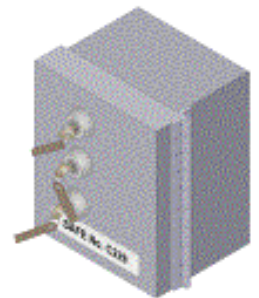
## Clearing the Safety Document

When work is complete and you need to clear the Safety Document

- Ensure all tools and equipment are cleared off the work site.
- Ladders must be removed from site or secured and where ropes are being left on towers they shall be secured to the tower leg and tied above the anti-climber and the tower access gate locked.
- Communicate to all members of the working party that all work has now ceased and recover any items issued in Sect 3 of the PFW. (flags, wristlets, Drain Earths etc.)
- Any items issued in Sect 3 of the Permit for Work must be returned with the Safety Document to the SAP.
- Sign the clearance section of the Safety Document. Declare any exceptions, such as ropes that have been left in position and or details of work that has not been completed.

Return the Safety Document and other relevant items e.g. key safe keys, flags and wristlets etc. to the SAP.

Remember the **Key Safe** is used to retain the **Safety Lock Keys** associated with the points of **Isolation** and **Earthing**. The **Key Safe** "control key" is retained by the SAP and one of the remaining (**A** or **B**) will be issued with the Permit for Work. This is only one part of the **Safe System of Work**.



## Safety Rule Structure

Foreword

General Provisions:-

- GP 1 General Safety
- GP 2 Safety Rules, Codes of Practice, Instructions and Procedures
- GP 3 Special Instructions
- GP 4 Objections on Safety Grounds (This may result in the formal arbitration procedure being invoked)
- GP 5 Reporting of Accidents and Dangerous Occurrences

ScottishPower  
Safety Rules  
and  
Procedures

**Section A**, contains the 8 Basic Safety Rules, these are the corner stone of all operational documents or procedures produced.

**Section B**, details the Procedure for Safety Documents and Keys

**Section C**, outlines the Responsibilities of Persons :- Competent, Authorised, Senior Authorised, Control Persons and Selected Persons

**Section D**, details the definitions of key words used within the Safety Rules, these are always highlighted in bold text within any operational document or procedure e.g. **Isolated**, **Caution Notice** etc.

**Company Safety Instructions** "CSI & SPs" Outlines the Company Safety Instructions CSI 1 to 6 and Specialised Procedures SP1 to 5

**Power Systems Safety Instructions** "PSSI" Contains all the Safety Instructions relating to work on or adjacent to the Electrical System, PSSI 1 to 36

Your Safety Rules must be kept up to date and available on the site you are working on.

Note :- A copy of your current ScottishPower Authorisations shall be available at the work location for inspection and verification, failure to comply with this requirement could result in you being excluded for the work activity.

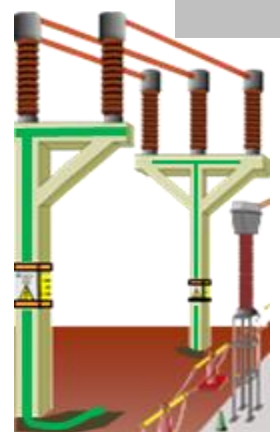
## Risk Assessment

Prior to starting any work, an on-site risk assessment must be completed and recorded to identify any risks or hazards. Where risks or hazards are identified a suitable control measure must be implemented and communicated to any person affected. The risk assessment must be reviewed and updated regularly to identify any change in site conditions. Any changes and subsequent modification of control measures must also be communicated to the persons affected.

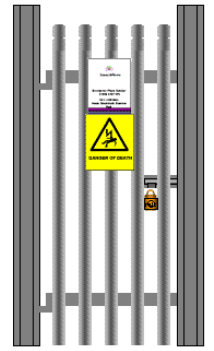
## Substation Working

Site Security is a high priority, the authorised key holder shall carryout the necessary security checks within the substation buildings the surrounding substation compound's to maintain safety & security of the full site. The loss of any access or operational keys should be reported immediately to your supervisor and the SP Security Department.

Always be vigilant for copper theft in substations as this could lead to a rise in voltage potential if there is a fault within the substation as a result of a disruptive failure of equipment where there is no earth path to dissipate the fault energy.



Prior to accessing any operational site, you must first confirm the Substation name and potential voltages. This information can be found on the Property Notice on the front gate and or Substation door. Other appropriate signage should be fitted i.e. Danger of Death, SF<sup>6</sup> and possibly PPE requirements. The condition of the fence and access gates must be assessed to confirm they meet the statutory requirements under the ESQC Regs. Any defects or significant deterioration must be reported. Following access to the site the internal area of the site should be assessed for signs of trespass or damage, also access gate should be locked once in the substation to prevent un-authorised access.



### Long Objects

A long object is any item which has the potential to breach the minimum safety distances at the various voltage levels. The movement of ladders, mobile access & lifting equipment which has been approved for use in the substation must comply with PSSI 8.



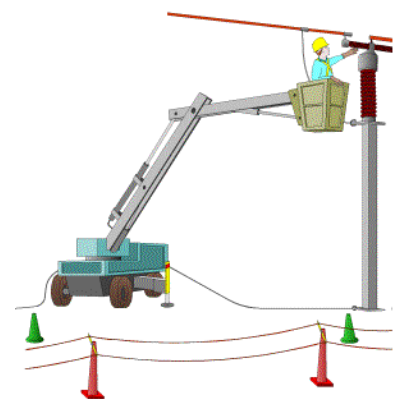
### Scaffolding

Scaffolding (Portable) must be of the approved type & erected by a suitably trained person who holds a current PASMA certificate. Scaffolding (Fixed) should be erected & inspected at regular intervals by a trained person and fitted with a Scaftag. All scaffoldings should be suitably earthed in accordance with PSSI 8. The movement and construction of scaffold may require supervision by a Standby Man, this will be determined by the SAP.



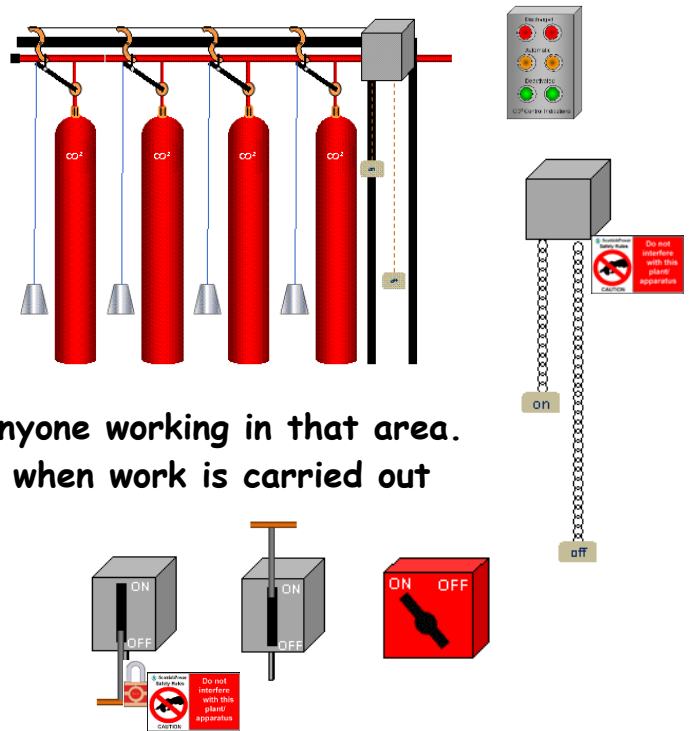
### M.E.W.P. (Mobile Elevated Work Platforms) & Cranes

This type of equipment should only be used by trained and competent personnel and the movement strictly controlled, in accordance with the SAP's instructions. The equipment must be inspected prior to use and confirmed as being fit for purpose. Further guidance on this plant can be found in PSSI 8 including the requirement for fitting of Field Equipment Earths.



## Fire Fighting Systems.

There are a range of different types of fire fighting systems. One of the most common types uses  $CO_2$ , which is an automatic gas filled system used for suppressing fires in substations.  $CO_2$  will replace the oxygen from within the switch room, which could be fatal to anyone working in that area. Any Live  $CO_2$  systems must be isolated when work is carried out in the area the system protects and controls established as per [PSSI 35](#). There are a range of methods for isolating the system, here are some examples.



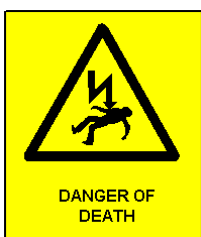
## Insulating Mediums

High Voltage switchgear uses a number of different insulating mediums, ranging from insulating oil, vacuum bottles and  $SF_6$ . Most new equipment uses  $SF_6$  gas and/or a combination of vacuum bottles and  $SF_6$ . Indication of a disruptive failure may be a smell of rotten eggs (Sulphur) and a small deposit of fine white powder which becomes corrosive when mixed with moisture i.e. respiratory system & skin contact. Further information can be found in [PSSI 10](#).



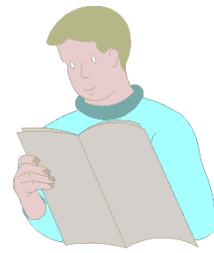
## Inspecting Substation Compounds

An inspection of the substation must take place to maintain the security of the site & protect the public. Check the fences & gates for signs of damage and climbing aids which might allow access to the compound. Check for damage to plant and apparatus such as smashed insulators, signs of distress or missing earthing. Check for damage to the buildings such as broken windows, leaking roofs, graffiti etc. Beware of sharps that have been thrown into the substation. Danger of Death notices should be fixed around the perimeter fence approximately every 10 metres. Where any of these defects are found they must be reported and dealt with accordingly (record in the Substation logbook)



## Signing In on Arrival

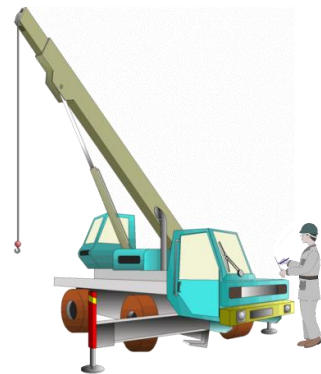
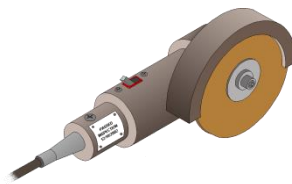
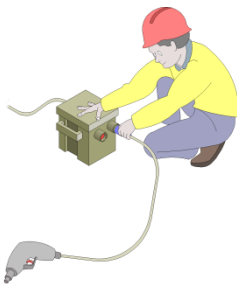
When entering the substation building, you must confirm if there is an intruder alarm system in operation, as this must be deactivated prior to contacting Control. Contact Control to let them know that you are on site and the type of work you are there to carry out. You must complete the substation logbook, recording your name and work details.



When entering the HV switch room, any CO<sup>2</sup> systems in operation must be Isolated, Caution Notice applied and, if a locking point is available "Safety Locked".

### Equipment Inspection

All equipment being used on site should have the necessary inspection certification fitted, i.e. PAT testing for electrical equipment, Calibration for instrumentation, Colour coding or some form of identification for Ladders, Scaffolding (Scaftag), Slings, Shackles etc. should all be inspected within the prescribed time intervals. Any identified with out of date testing or inspection labels shall be removed from service immediately.



### Towers & Wood poles

Prior to accessing any overhead line structure, ensure the appropriate Safety Precautions have been established as indicated within the front sections of this booklet.

Remember to select, wear and use the appropriate Personal Protective Equipment for your work activity.



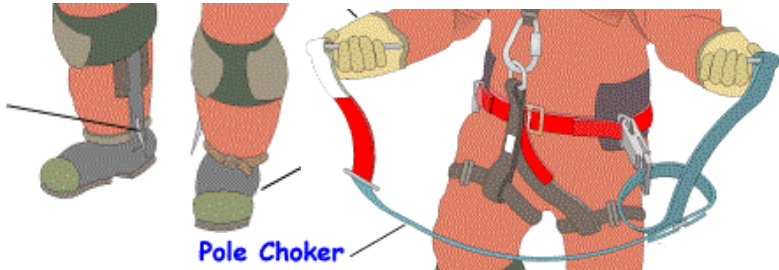


Access equipment and PPE may differ depending on the work activity or the Plant & Apparatus being worked on.

Ensure all members of the working party wear and use the appropriate personal protective equipment (PPE).

If you have any doubts about what PPE you need to wear at a particular site, ask the site

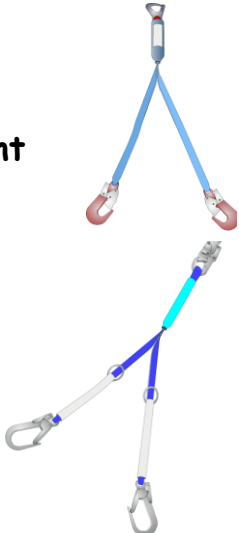
Climbing Irons  
(Wood poles only)



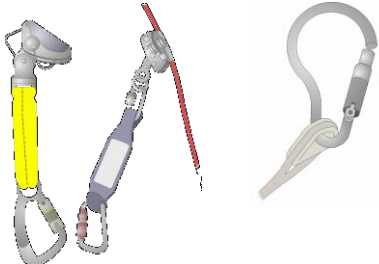
supervisor. It is the responsibility of the wearer to inspect all PPE before use and obtain a replacement if any item is found to be defective.

**Click Clacks** are used for clipping to step bolts on transmission towers for permanent attachment. These are used by the first man going up the tower who installs a climbing rope for subsequent climbers.

Once a **Climbing Rope** has been installed and secured the **Running Chuck** can be applied to the rope to ensure permanent attachment while accessing the tower.



**Large Karabiner`s** used for clipping to steel work while working and moving around on the tower.



**Safe Access to and From the Point of Work.**

Ensure a means of access and egress is agreed with the landowner prior to commencement of work. Protect the area at the base of the tower / pole to prevent unauthorised access. Where painting is being carried out, protect the ground below the work area to prevent damage. Damage to property must be avoided at all times, any damage must be reported to the supervisor.





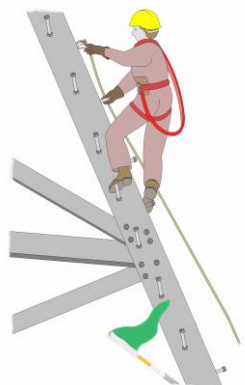
## Requirements Prior to Commencement of Work.

It is essential before any work is undertaken on a tower / pole that you:

- **Assess** the weather conditions
- **Assess** the condition of structure, for example:-
  - Step bolt security
  - General condition of structure, excessive rust, cross members fixings etc.
  - Sound pole, check fittings, jumpers secure, signs of damage or deterioration, binders secure and earthing intact.
- **Assess** the condition of any Portable Primary earths applied to the conductors and where conductors have been tied back onto the steelwork, check for security.
- **Assess** the condition of any Drain Earths on the equipment prior to accessing the tower or pole. Report any disconnected or damaged Drain Earths to the Document Holder.
- **Control** the area directly below the pole, tower and or conductors being worked on.
- **Check** all appropriate equipment for a current inspection date or colour code, visually inspect equipment prior to use and verify the equipment is suitable for the work and the environment.
- Where ropes are being used to access towers or to transport materials up the work position, the ropes must be controlled to prevent them infringing the safety distance on adjacent live circuits.
- Ensure **Emergency Procedures** are in place i.e Tower rescue and spacer chair kits

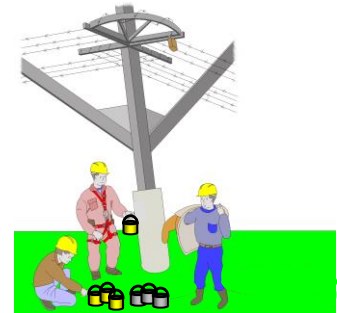
### Accessing a Tower

The first person accessing the tower should use click clacks as their permanent attachment to climb and install a climbing rope for the remaining members of the working party to apply a running chuck.



## Before and During Work

- Ensure that the working party are fully aware of the hazards and control measures and the limitations of work specified in the Safety Document. The Document Holder shall provide Immediate Supervision at all times to the Authorised Persons in the working party
- It is the responsibility of the Competent/Authorised Person (Safety Document Holder) to ensure that all of the working party are accounted for at all times.
- Make sure all members of the working party know which equipment is to be worked on and that it is correctly identified to them.
- Be sure working conditions are as expected and that the necessary work can be completed within the limits of the Safety Document.
- Only carry out the work described on the Safety Document.
- Ensure that a safe working environment and work methods are maintained at all times. Use the correct tools and equipment for the job.
- Make sure people in the vicinity are not put in Danger from your work activity. Make sure safe means of access and egress are identified and utilised.
- For steel tower works all hand tools shall be tethered when in use or captive when not in use.
- Working above or below another activity which is in progress is prohibited, unless for justified unavoidable specified OHL activities.



## Clearing the work area

Stop all work and instruct the working party to leave the work area if:

- The document holder needs to leave the site.
- Any hazards or other conditions arise that are not covered by the Safety Document.
- The work is completed or the Safety Document is about to be 'Cleared'.

## Lighting Risk Warnings (SMS-17-035)

Lightning risk and disruption colour code matrix.

### Risk of Disruption

- Green - No risk of disruption
- Amber - Significant risk of disruption
- Red - Severe risk of disruption

	Intensity A	Intensity B	Intensity C
Risk Level 1	Intensity A	Intensity B	Intensity C
Risk Level 2	Intensity A	Intensity B	Intensity C
Risk Level 3	N/A	N/A	N/A
Risk Level 4	N/A	N/A	N/A

## Lightning Risk Categories

- 1- Lightning will almost certainly occur across the region or is currently occurring.
- 2- Lightning is likely across the region
- 3- Lightning is unlikely across the region, although convective activity or an active weather front is forecast
- 4- Lightning is not expected to occur across the region

## Lightning Intensity Index

- A. Very frequent lightning strikes
- B. Frequent lightning strikes
- C. Infrequent lightning strikes

## Communications

### Action to be taken on declaration of Lightning Risk 1 or 2.

Once Lightning Risk 1 or 2 is declared, the respective Control Centre should record this information. A message should then be issued using an SMS message to all interested parties.

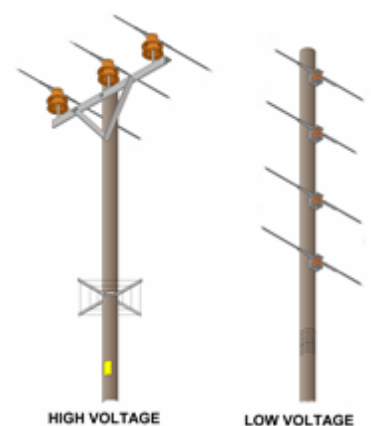
### Action to be taken on relaxation of Lightning Risk from Lightning Risk 1 or 2.

When the control centres reduce the declared Lightning Risk to category 3 or 4 for a Network(s) that was previously at Lightning Risk 1 or 2, a message shall then be issued using the SMS system detailing the end of the enhanced Lightning Risk period. Be vigilant and review weather conditions at the work location, if conditions change and you consider there is a risk of lightning, cease work and contact your SAP.

## Tree Cutting

A method statement shall be produced prior to any tree cutting operation and shall take into consideration any Isolation or Live Work requirements.

- **Assess** work and distance to the OHL.
- **Confirm** the voltage of the OHL.
- Live Line work can only be carried out by suitably trained and Authorised Persons (**WL-1.29 & WL-1.100**). Remember Live Work requires accompaniment (**Min WL-2**)
- When carrying out Live Line tree cutting adjacent to HV OHL conductors & equipment, Auto Reclose Settings must be set to non automatic "**one shot to lock out**".
- **Assess** the condition of the OHL (poles, stays, insulators, conductors etc).

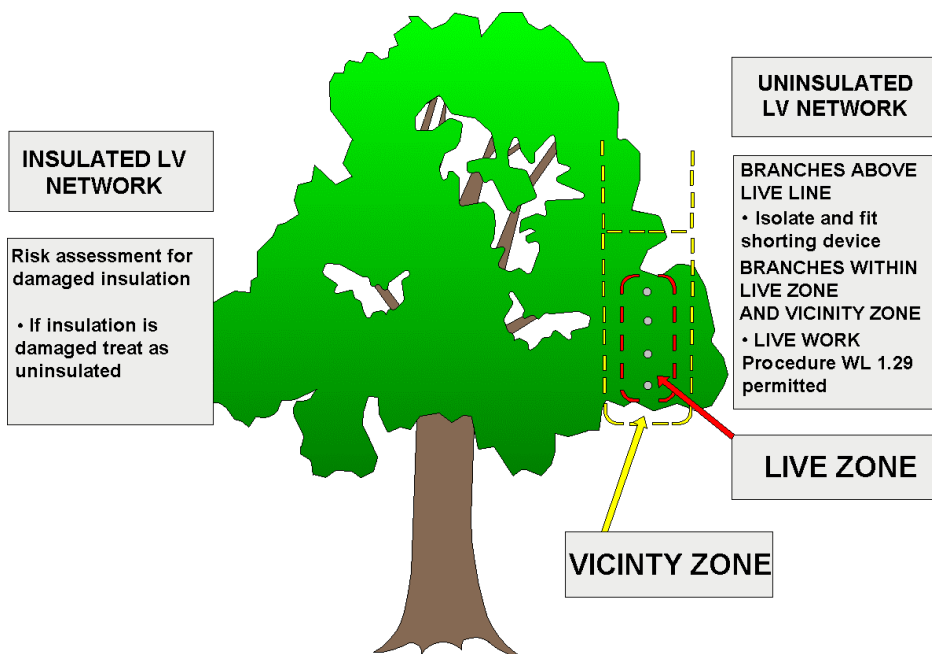


- Poles being climbed shall be sounded to establish condition prior to climbing.
- **Report** any defects identified in accordance with the I.U.P. Hazard Management Policy.
- **Assess** the falling distance of tree or trees to be felled from the OHL.
- **Confirm** Drain Earths are visible from the point of work on Isolated Overhead Lines

## Live Line Tree

### Cutting

Shall be carried out in accordance with Live Working Manual 5.6 (OPSAF-12-18). Only trained Authorised Persons can carry out this activity. Check for document updates as voltage ranges and procedures may be updated.



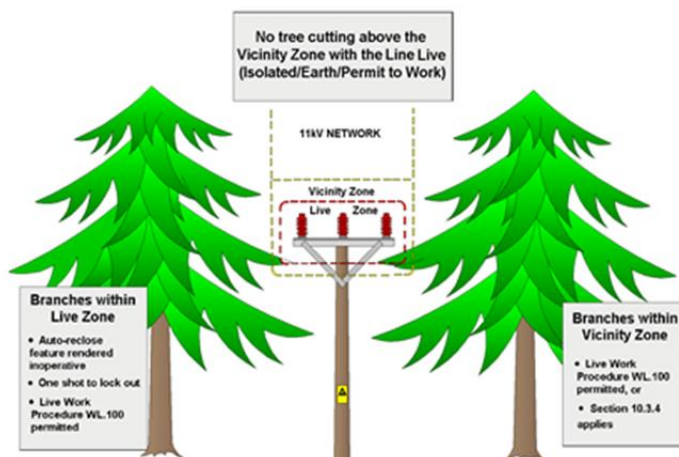
## Live and Vicinity Zone Distances

The table below provides the Live Zone and Vicinity Zone distances to be complied with during Live tree cutting operations.

Line Voltage	Live Zone Distance or Safety Distance (Metres)	Vicinity Zone Distance (Metres)
Not Exceeding 1kV	0.8	1.0
Exceeding 1kV but not exceeding 11kV	0.8	2.0
Exceeding 11kV but not exceeding 33kV	0.8	2.5
Exceeding 33kV but not exceeding 66kV	1.0	3.0
Exceeding 66kV but not exceeding 132kV	1.4	3.5
Exceeding 132kV but not exceeding 275kV	2.4	4.0
Exceeding 275kV but not exceeding 400kV	3.1	5.0

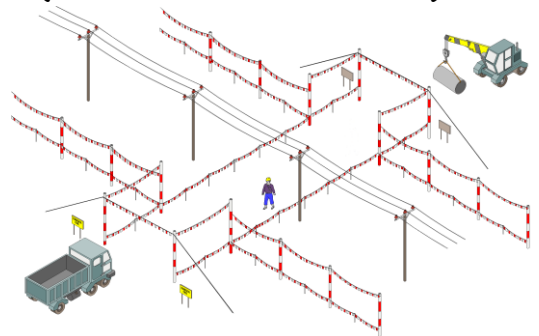
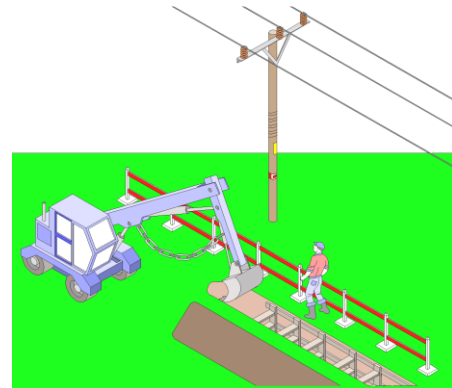
## Storm condition working.

Where grounded conductors are identified or trees are in contact with the OHL conductors, **NO** work shall be carried out until confirmation by an SAP that the circuit has been Isolated and, in the case of HV, Earthed, and a Safety Document issued.



## When using equipment on or working adjacent to OHL networks.

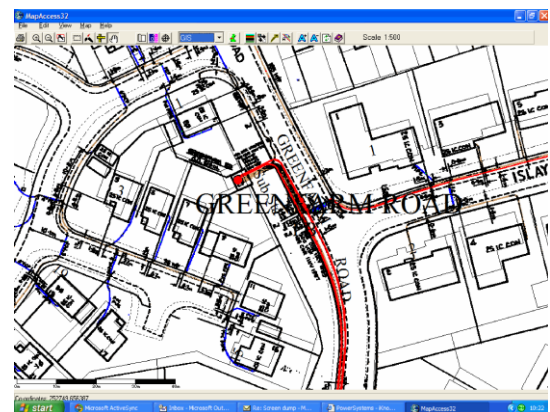
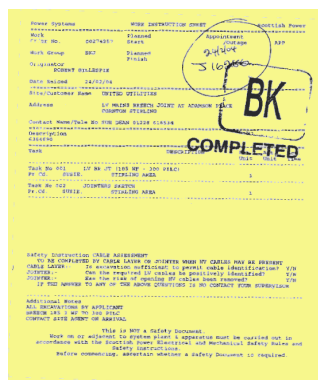
- When carrying out excavations, cable records shall be used to identify the location of underground services.
- There may be a requirement to apply field equipment earths to mobile equipment which is working adjacent to Live conductors, to discharge any induced voltages. This will be determined by the SAP
- Consider other utilities in the vicinity of the work and use a Cable Avoidance Tool (Cat & Genny) to confirm the location of underground services.
- Follow safe digging practices in accordance with "Avoiding danger from underground services" **HSG 47**.
- Clearly identify any adjacent Live Apparatus and establish suitable controls for height restriction of mobile plant. (Mechanical or Electronic)
- Only use excavators following agreement with the SAP.
- Where work is to be carried out in close proximity to Live Apparatus, application of Danger Live Apparatus wrap round notices shall be considered.
- Consider the requirements of "Avoidance of Danger from Overhead Power Lines" **GS 6**



## Excavations and Underground Cables

Prior to any excavation work commencing, the following requirements shall be met.

- Clear work instructions and multi-utility records are issued.
- Confirm actual location of work site using work instructions and utility records provided.

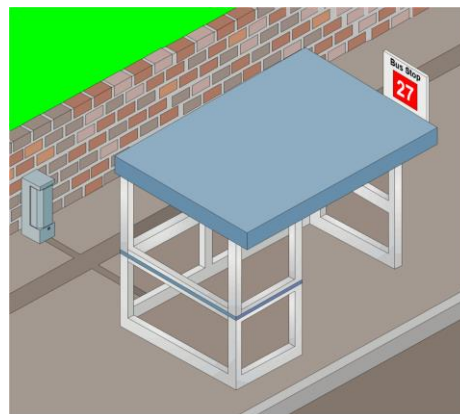
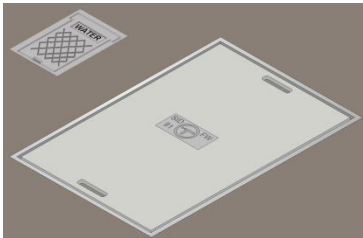




- Consideration should also be given to the location or position of other utilities.
- Assess the area to identify inspection covers, water valve covers and other electrical service pillars.
- Haldo pillar (for bus shelter supply)
- Water valve & BT inspection covers in pavement

All excavation work shall comply with **HSG 47**. Hand digging shall be carried out to ensure that the excavation area is clear of obstructions.

Up to **150mm** of the top surface shall be broken using a road-breaker / any disk cutters used, require water suppression. Use of this type of equipment beyond **150mm** carries the risk of damaging cables or other utilities, possibly resulting in operator injury.



## Excavators and Portable Plant

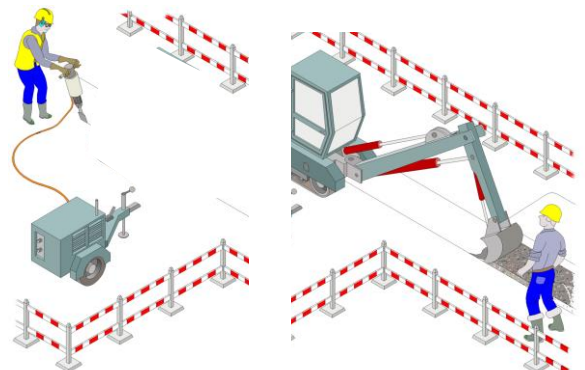
When excavating for a cable fault using a mini excavator, working within the **500mm** limit from the live cable can proceed with caution where risk assessment has shown that there is an increased risk to persons hand digging near the cables. A banksman shall be in a position to observe and control the excavations at all times.

A calibrated cable avoidance tool (C.A.T) shall be available on site. A signal generator may also be used in conjunction with the C.A.T to track the position of underground services.

Use of excavation equipment for example mini excavator shall be carried out with the aid of an appointed banksman.



**Note:-** All equipment that generates vibration, for example vibro-plates, whackers, road-breakers etc must be fitted with anti vibration suppression which must comply with the "Hand Arm Vibration Regs". This type of equipment will have a time limited operation due to the vibration effects on the body.

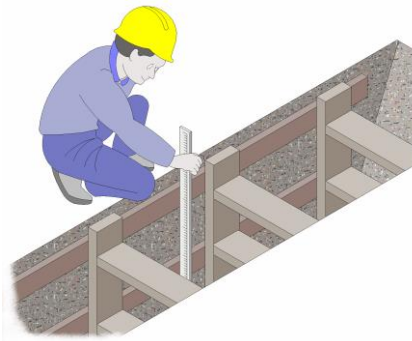




## Shoring

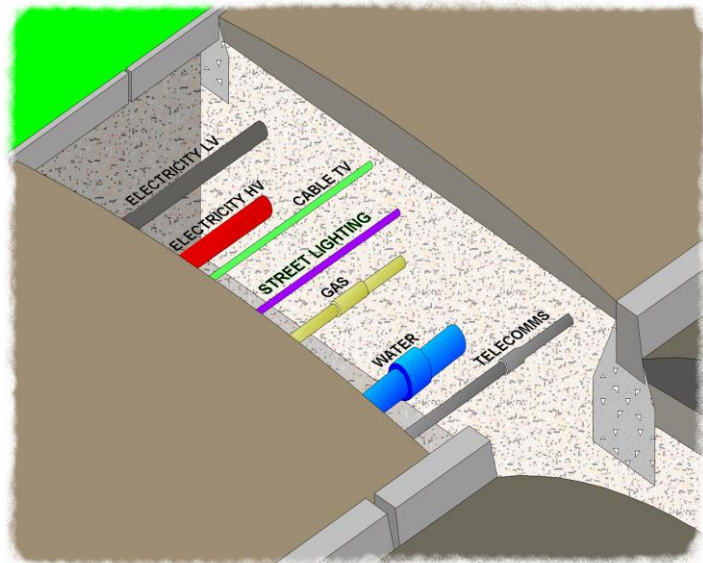
Where a Risk Assessment has identified the requirement for supporting the excavation, a trained competent person shall install the appropriate shoring.

- Consider soil conditions, depth of excavation and proximity of any watercourse.
- Excavated materials shall be positioned clear of the open excavation or removed from site as this will contribute to the depth of excavation and represent a risk of trench collapse.



## While carrying out excavations check for:-

- Cable types, whether Paper Insulated Lead Covered (PILC) or polymeric.
- Presence of pilot cables, possible indication of HV cables.
- Tiles or marker tapes indicating the presence of utilities.
- Confirm cable records match the cables exposed at the point of work (types and sizes).
- Ensure all cables related to the work area are exposed to assist in identification.
- If required, track to the nearest service mains joint to identify the LV cable to be worked on.



## Never excavate straight down onto a suspected cable fault position

- Check for the smell of burning or carbon.
- Check for steam or smoke.
- Leave at least 1.5 Metre (Min) of undisturbed excavation between the suspected cable fault position and the work position.
- In the event of a damaged cable or fault being exposed during the excavation, the area should be cleared and a supervisor contacted to arrange Isolation.



## Always remember to wear the appropriate Personal Protective Equipment (PPE)

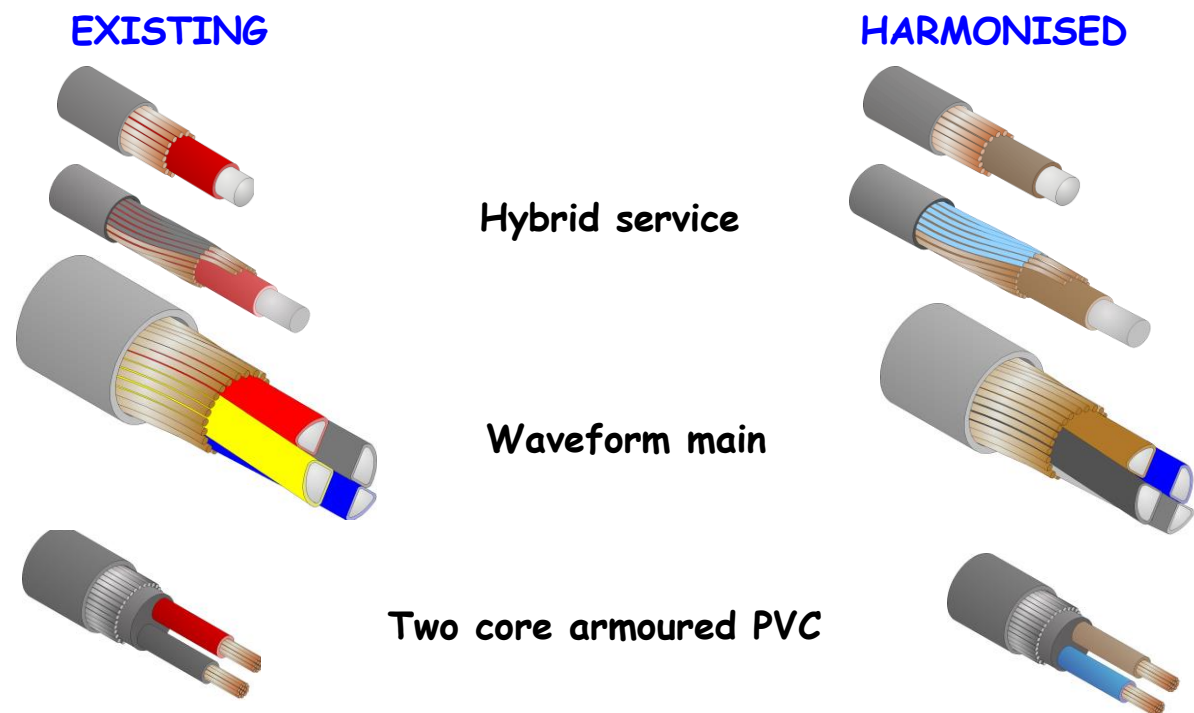
For access to certain areas, you and your working party will need to wear PPE. This may include some of the examples included in the drawing.

It is the responsibility of the wearer to inspect and maintain all PPE before use and obtain a replacement if any item is found to be defective. Insulated gloves shall be checked for damage, such as punctures, burning or deterioration. Insulated gloves shall be replaced 6 months from the date of issue.

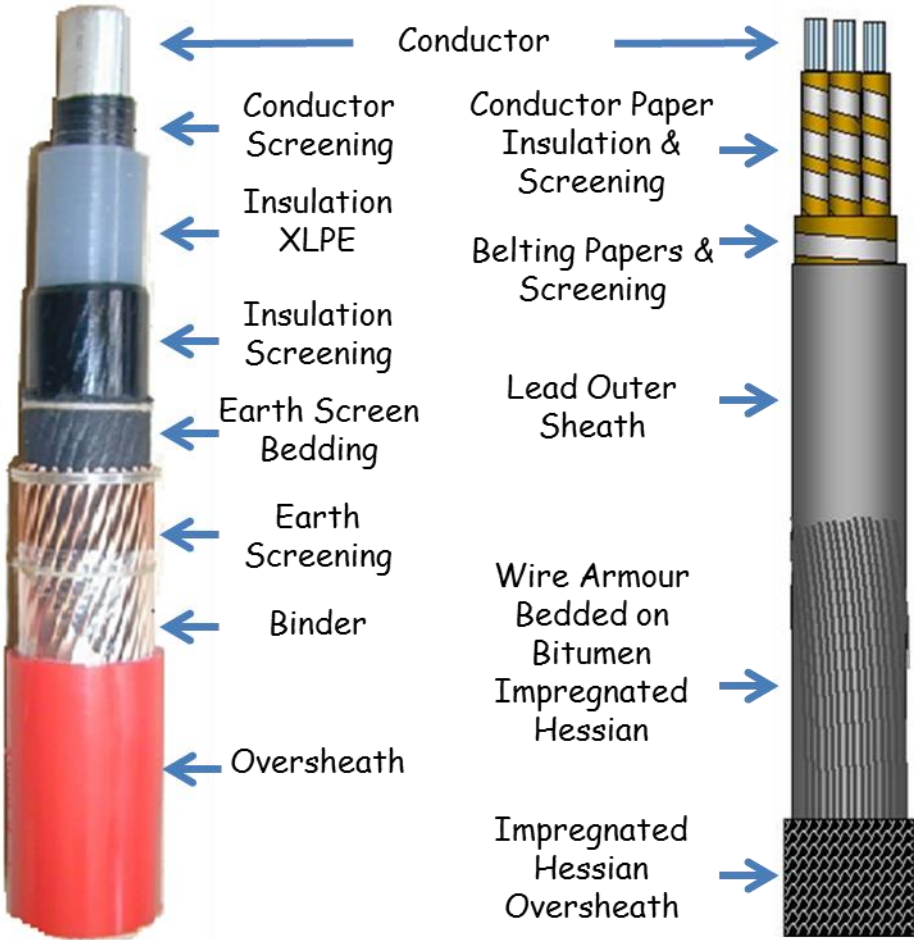


## Cable types for LV and HV (Examples).

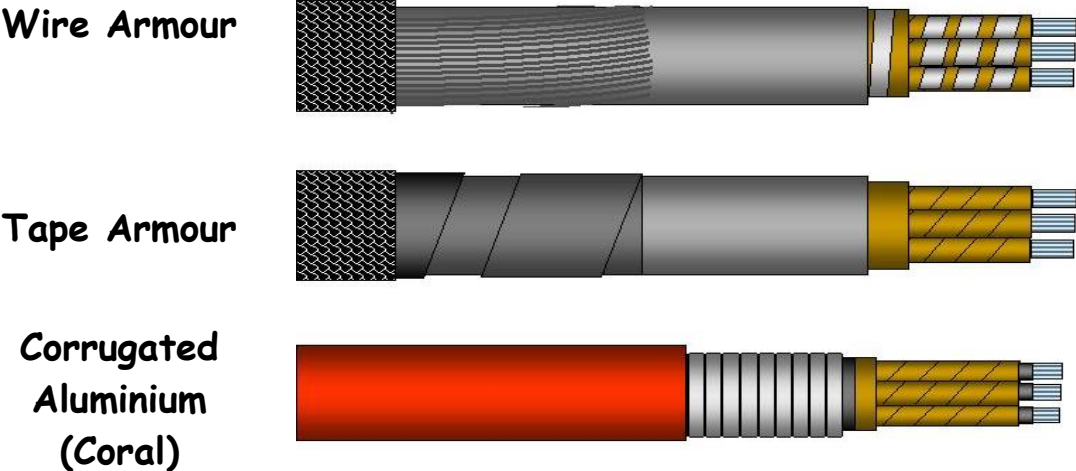
(Be aware of the harmonised cable core identification colours)



# Polymeric and Paper Insulated HV Cable Construction

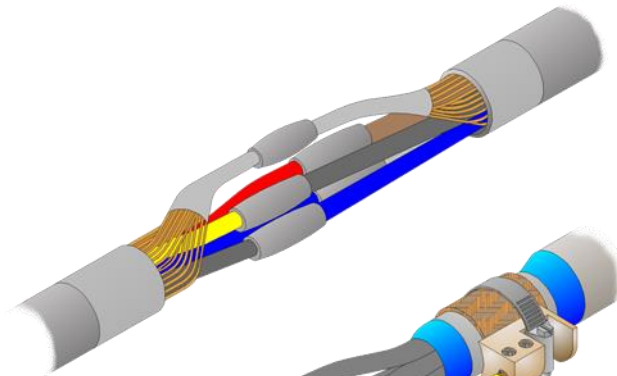


# Paper Insulated Lead Covered Cables (PILC) Types

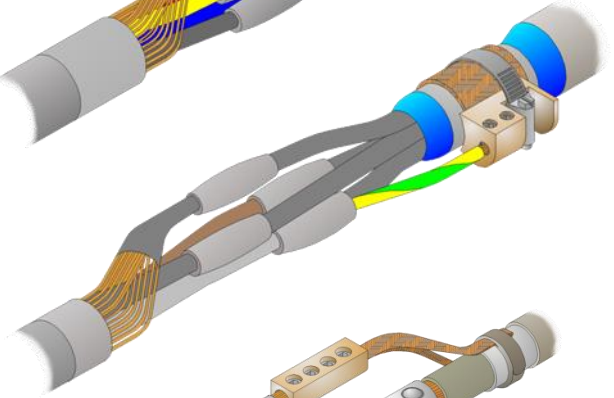


## Typical LV and HV Cable Joints

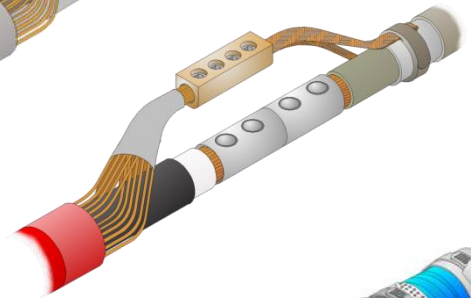
Old Colour LV waveform cable to  
New Colour waveform.



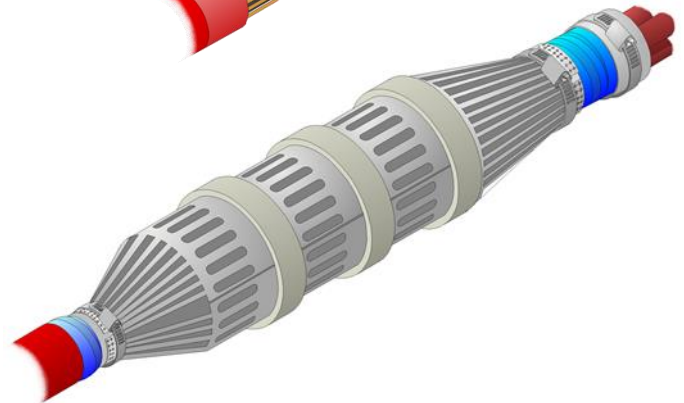
New Colour LV waveform cable to  
PILC type cable



HV Single core polymeric to single core  
PILC

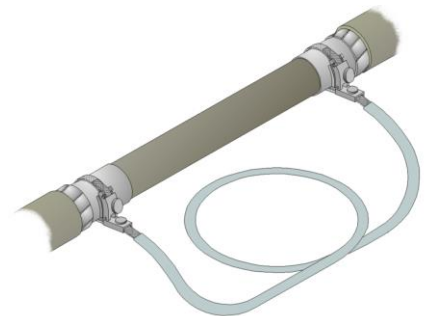


HV three core polymeric to three  
core Paper Insulated with Faraday  
cage applied.



## Continuity Strap

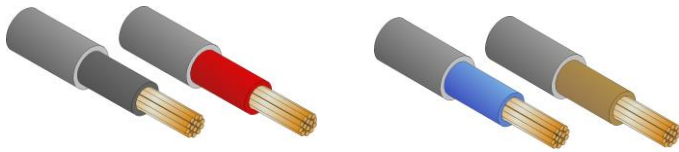
This is applied to ensure the earth continuity and potential is maintained throughout the work and protects both the operative and customers installations in the event of fault current flowing or circulating currents. The continuity strap shown is for an LV cable with only two cable earth clamps, there are other types with multiple cable earth clamps when jointing single core cable to three core cable.



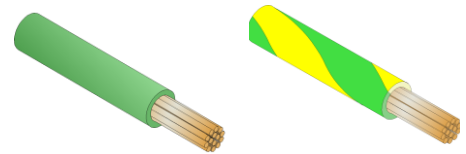


## Service Position Cables

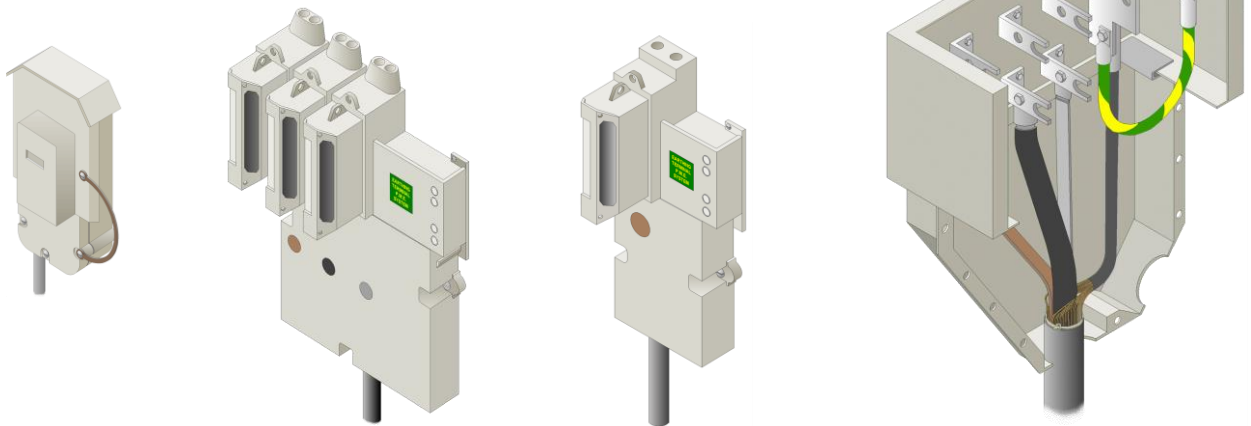
### Double Insulated



### Earth Cables



## LV Cable Terminations



### Street Lighting & Series 7 Cutout

### Industrial Cutout

## Operations

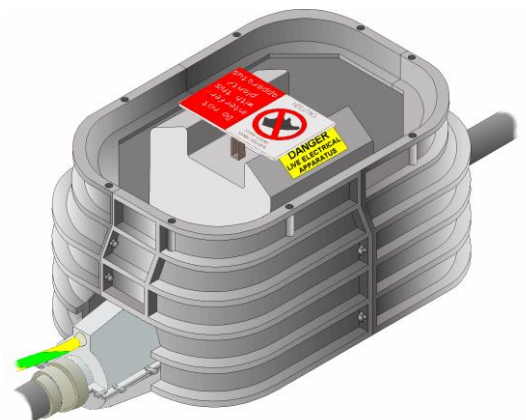
Prior to any operations on the LV or HV network all equipment shall be assessed for:-

- Signs of burning
- Deterioration
- Damage
- Water ingress

Any **Point of Isolation** shall be clearly identified with a Caution Notice

## Link box

Where work or operations are to be carried out on a link box, all items that have a potential to cause a short circuit or flashover shall be removed from the operative's pockets. (i.e. pens, keys, glasses etc)

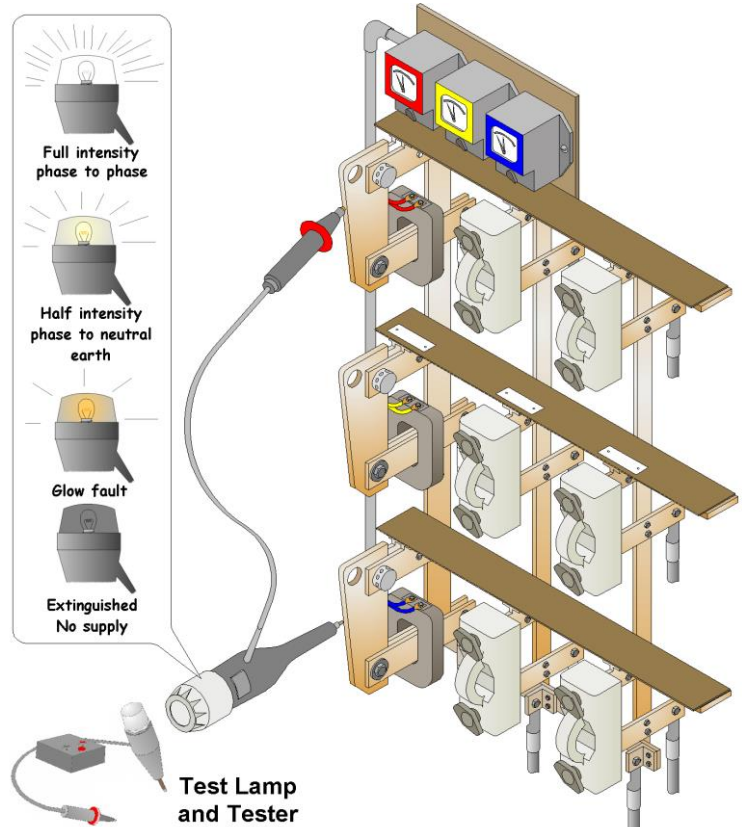


## LV Board and Test Lamp Indications

Prior to any work or operations on the LV board, a visual inspection shall be carried out to confirm its condition. Check for burning connections, broken or missing phase barriers and faulty cable sealing ends etc.

The Test Lamp must be proved to be working prior to and following tests.

Test lamp sequence can be found in Live Working Manual section 2 (OPSAF-12-003).

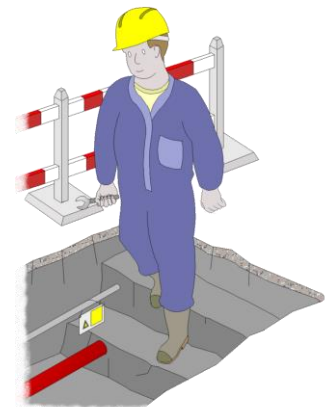


## Cable Jointing

Ensure a safe means of access and egress is established prior to commencement of work and maintained during the work i.e. stepping the side wall of the excavation.

## HV cables opened in error

- When excavations have been carried out prior to your arrival **NEVER** assume that the cable exposed is the correct one.
- Confirm the location is correct.
- Confirm with cable records that all cables in the vicinity have been exposed.
- Assess the cable types and sizes against the cable records.
- At the first indication of an incorrect identification **CEASE WORK** immediately and seek assistance.



During jointing work the appropriate precautions shall be taken:-

## Low Voltage

- Assess cable condition prior to and throughout the stripping process.
- Apply Earth Continuity Strap.

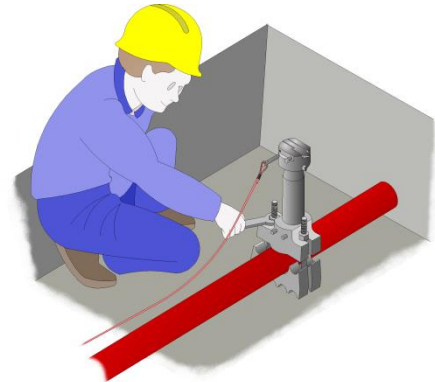




- Carry out work using only approved Live Working Procedures, Approved insulated tools and materials.

## High Voltage

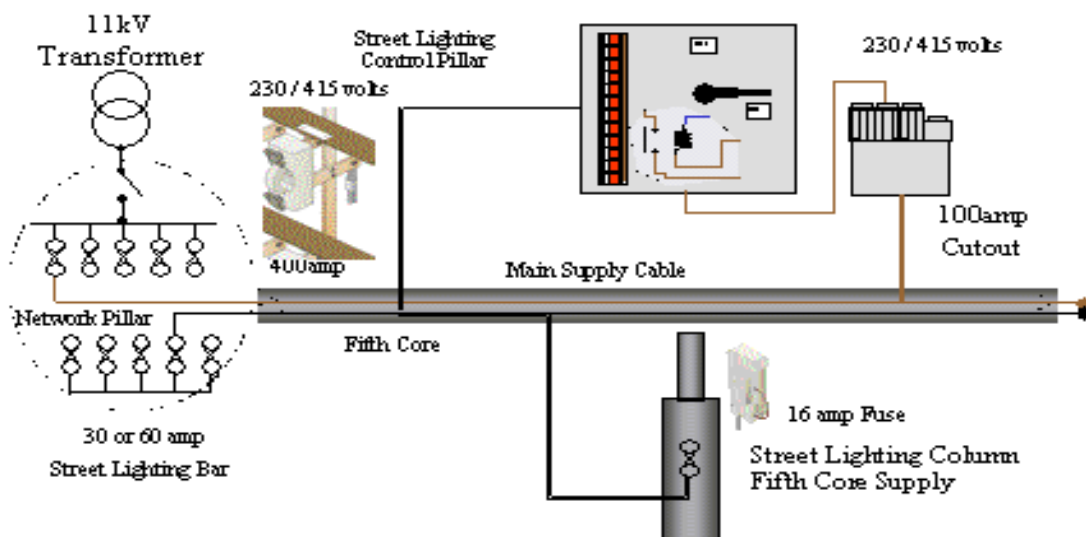
- The cable is Isolated and Earthed prior to the SAP preparing a Sanction for Test. Cable insulation resistance and condition established prior to spiking and re-established following spiking of the cable. Any actions carried out by the jointer at this stage are under the personal supervision of the SAP i.e. application and removal of the spiking tool and establishing phasing,
- Only on receipt of a Permit for Work shall the agreed jointing works commence .
- Brief the working party on the contents of the Permit for Work and the controls established.



## Street Lighting Networks

Fifth core supply using mains distributor in conjunction with street lighting equipment.

### Substation



# HV Cable Identification

Circuit Open & Isolated

Safety Locks & Caution Notices applied @ Points of Isolation

Primary Earths Applied (Prove Not Live where applicable)

SAP prepares and issues a Sanction for Test (SFT)

Under the SFT the SAP can insert test prods and remove the Primary Earths as required

The SAP can now apply a signal down the cable to the earth at the remote end, to identify the HV cable at the point of work

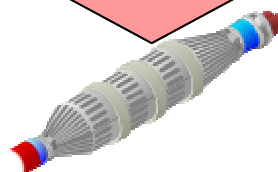
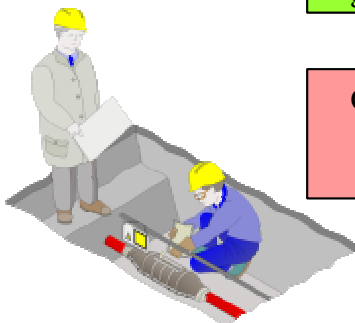
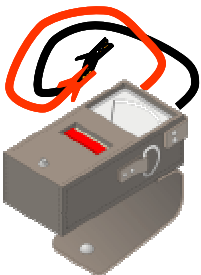
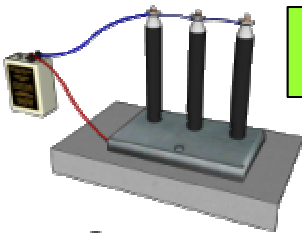
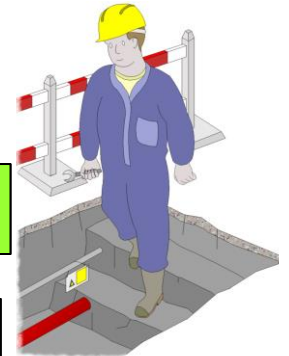
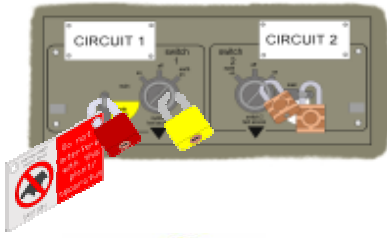
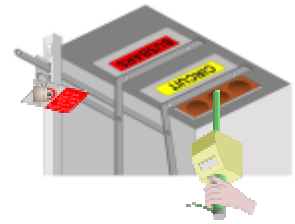
With the earth on at the remote end the cable is checked for continuity (short to earth). The earth at the remote end is removed and the pre spiking condition of the cable is confirmed

The SAP can request the Joints to apply the spiking tool to the cable and the SAP spikes the cable

The SAP confirms the change in condition following spiking by completing a continuity test, the cable has now been identified

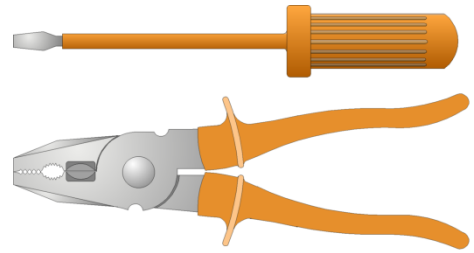
Following re-application of the earths and under the supervision of the SAP, the joints can remove the spiking gun and open the cable to allow phasing to be identified

On completion of the phasing all Primary Earths are re-applied, the SFT is cancelled and the Permit for Work (PFW) is prepared and issued to the joints



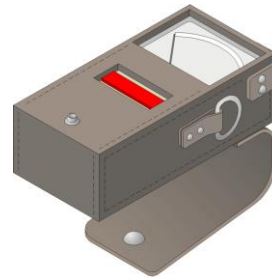
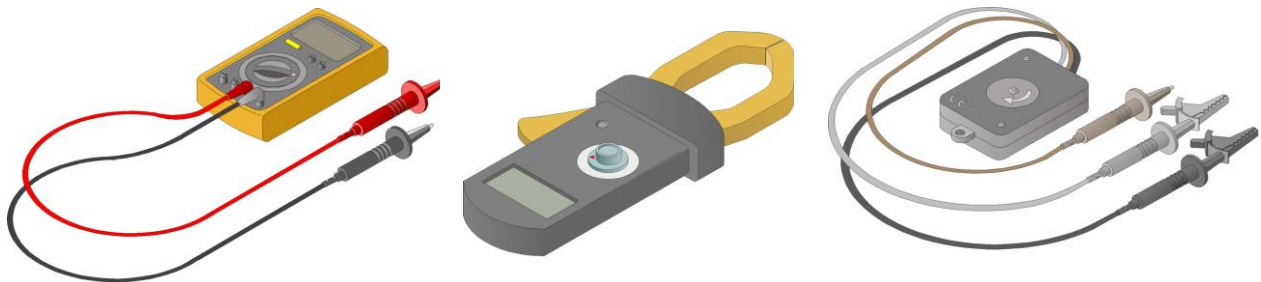
## Tools and Equipment

**Inspect** Insulated tools for condition and suitability for work. Report any damages or defects and arrange for replacements.

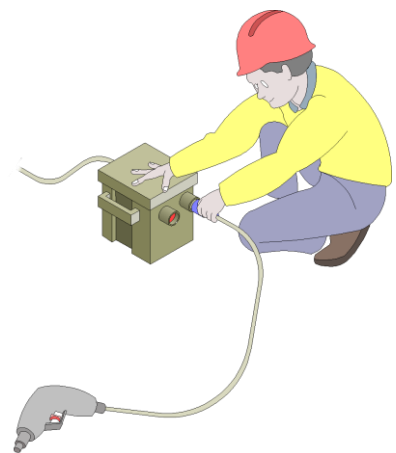
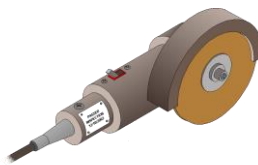


**Check** that instruments are in good condition, fit for purpose and are supplied with fused leads.

**Ensure** that all instruments carry a current inspection or calibration label.



**Ensure** all electric portable tools are PAT tested and have inspection test dates labels applied.



**Inspect** ladders for safe condition.

**Check** the ladder for a current inspection date or colour code.

**Visually** inspect equipment prior to use and confirm the ladder is suitable for the work and environment.

**Ensure** correct ladder inclination- details may be found on side of ladder.

**Consideration** should be given to using an appropriate work platform for work other than short duration activities.



# Interview Preparation Guide

The table below provides a guide to some of the key areas you need to be familiar with before you attend an Authorisation Course (Initial or refresher) and any subsequent interview.

The supporting material described above can be found in the Safety Rules and Procedures, Live Working Manual, Management Safety Procedures and Health and Safety Guidance Notes. Your manager or company representative will have access to these materials either via the SP Website .

	WI	AMES (EN)	OP-2/1	OP-3	WL-1	WL-2	SR	SB-2	SB-1
Know Your New and current Authorisations	✓	✓	✓	✓	✓	✓	✓	✓	✓
What Must you Complete Before Starting Work	✓	✓	✓	✓	✓	✓	✓	✓	✓
Read Grey Tab (General Provisions GP4)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Read Red Tab A(Basic Safety Rules)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Read Red Tab B(Safety Documents)	✓							✓	✓
Read Red Tab C (Responsibilities)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Read Red Tab D (Definitions)	✓			✓					
Read PSSI 6 (Substations)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Read PSSI 8 (Substations)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Read PSSI 4 (Overhead Lines / Linesman)	✓								
Read PSSI 16 (Overhead Lines / Linesman)	✓								
Read PSSI 12 (LV Cables)			✓	✓	✓	✓	✓	✓	✓
Read PSSI 10 (Substations SF <sup>6</sup> )		✓					✓	✓	✓
Read PSSI 35 (Substations CO <sup>2</sup> )		✓					✓	✓	✓
Read PSSI 17 (Customer Interface)				✓					
Know Your Safety Signs, General and SP Specific (Within Booklet)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Purpose of a Primary Earth (Within Booklet)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Purpose of a Drain Earth (Within Booklet)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Purpose of a Field Equipment Earth (Within Booklet)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Purpose of a Fixed Drain Earth (Within Booklet)	✓						✓		✓
Read OPSAF-11-44(MSP 6.1)							✓	✓	✓
Read OPSAF-11-31 (MSP 4.6)							✓	✓	✓
Read OPSAF-13-01 (MSP 5.1)							✓	✓	✓
Read OPSAF-11-35 (MSP 5.5)								✓	✓
Read LVM Associated Procedures					✓				
Know Your Safety Document (All Sections)							✓	✓	✓
What is Isolation	✓	✓	✓	✓	✓	✓	✓	✓	✓
What is LOLAR									✓
What is PUWER									✓
Joining Techniques (LV & HV)	✓				✓	✓			
Read The Course Notes & Assessment Info						✓			

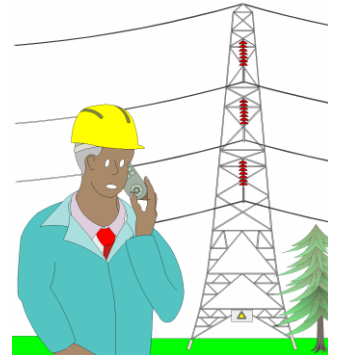
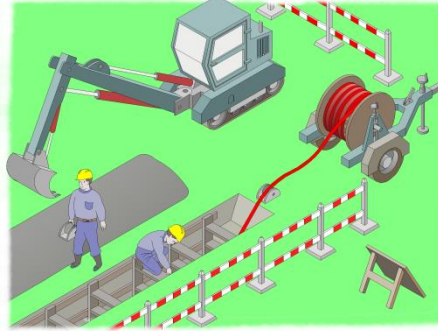
# In case of emergency

If all persons involved do their part to ensure safety, accidents should not happen, but know how to respond just in case.

## Call for help right away

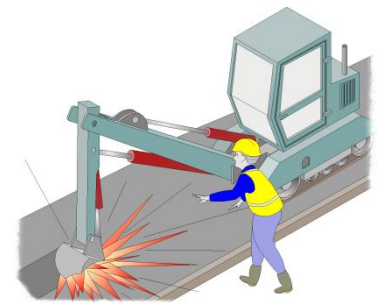
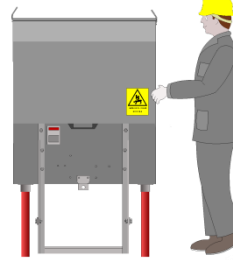
Make sure you and the working party know the address of the work location.

Call the emergency services where appropriate and contact the SAP immediately for assistance.



## Ensure your personal safety

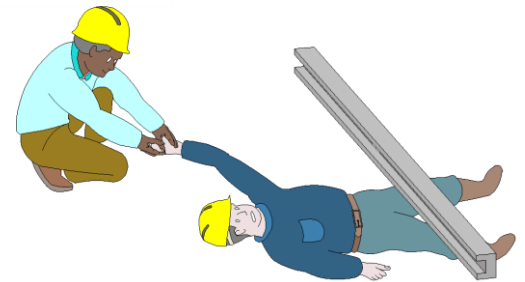
Do not try to rescue someone unless it is safe to do so. If in doubt, don't.



## Provide first aid treatment



If you have been properly trained, help and comfort the person until medical assistance arrives. (Find out about first aid courses if you have not been properly trained).



## Rescue equipment

Rescue equipment shall be subject to routine inspection and may only be used by trained, competent staff.



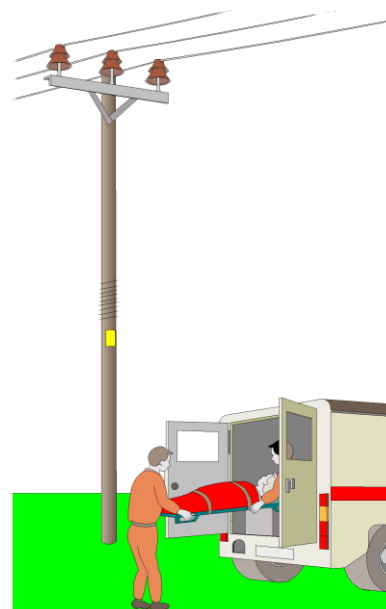
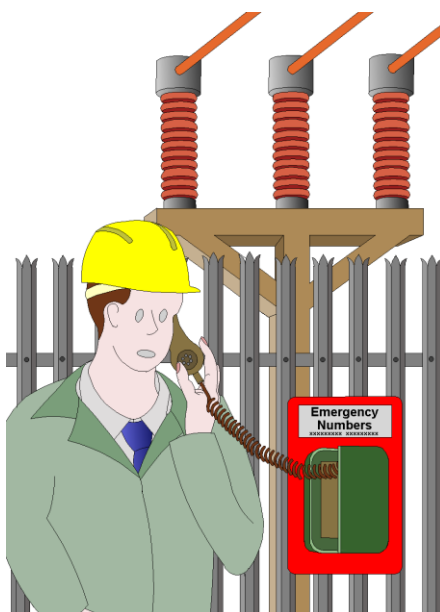
## Secure the site

Limit access to the site until the SAP/Site Supervisor arrives and takes control of the emergency. Prior to giving access to the site, provide information to the Emergency Service of the hazards and controls on site. Ensure safe and controlled access is provided for Emergency Services at all times.

## Report the incident to SP Energy Networks staff as soon as possible

Provide the following information:

- The address and site location.
- The name of the injured person and his or her employer, if known.
- When the ambulance, fire brigade, etc. arrived.
- Specific details about the accident.



### Emergency Telephone numbers

OCC Scotland 0141 776 2877

NMC Manweb 0151 609 4999



# All Authorised Persons

Have site safety responsibilities.

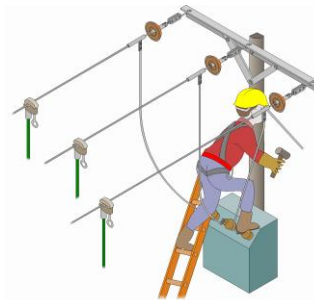
Store materials, equipment and tools properly.

This should be done as soon as you've finished with them. Tools and equipment left lying around can cause injury.



Never take chances or short cuts.

Think before you act, peoples bad behaviours can cause accidents.



Report any health and safety hazards. This must be done right away.



Follow the established site specific emergency procedures.

Report any emergency situations immediately.



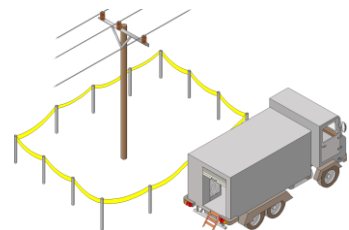
Make proper use of PPE

And don't interfere with equipment provided for health and safety.



Control the work site.

Prevent access to area below work for both staff and others in the area.



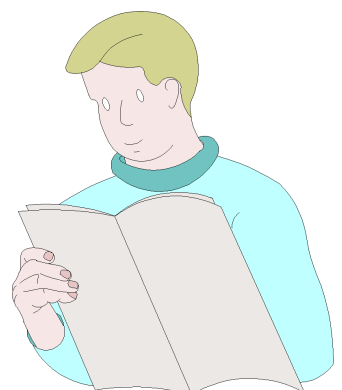
Never try to perform work you are not trained and qualified to do.

Ask for help if you are unsure about any procedures.



Follow all relevant health and safety policies.

You should keep up to date with any revisions, new requirements or regulations. This will include compliance with the Safety Rules.



In short, everyone needs to practice safe work habits.

# How safely do you work?

Use the checklist to find out! The next time you're at work, be sure that you:

- Familiarise yourself with the equipment and work to be done. Ensure the equipment to be worked on can be clearly identified.
- Note the location of demarcation and any hazards, e.g. adjacent Live equipment, open excavations, trenches, etc.
- Read and understand the Safety Document. Be sure you can do the work described within the defined safe working area.
- Ensure that the working party understand the limits of their work and who is in charge of the work.
- Make sure everyone is wearing the appropriate PPE and using tools and equipment correctly. Make sure people nearby are not put in Danger by your work activity.
- Know when and how to clear the work area.
- Supervise others. Make sure all work is done within the limits of the Safety Document and that Safety Distance is not infringed.
- Do not allow work outside the designated safe work area.
- Provide Personal Supervision to workers moving long objects to ensure the Safety Distance is not infringed.
- Make sure the working party use the defined safe access route to and from the point of work.
- Tidy up the site and sign the paperwork when work is complete. Declare any exceptions, such as equipment or materials left on site.
- Know and follow the procedures for transferring Safety Documents.
- Know how and who to respond to in an emergency.