



City & Guilds Level 3 CPD Module in Utility Arboriculture Basic Electrical Knowledge (0041-06)

Version 2.0 August 2025

Qualification Handbook

Qualification at a glance

Subject area	03.2 Horticulture and Forestry
City & Guilds number	0041-06
Age group approved	16-18, 18+, 19+
Entry requirements	<p>Learners must meet the minimum age requirement.</p> <p>Learners must have achieved the pre-requisite qualification: City & Guilds Level 3 Certificate of Competence in Utility Arboriculture Basic Electrical Knowledge (0038-30)</p> <p>Details on accepted pre-requisites can be found in section 1 of this document under 'Pre-requisites'.</p>
Assessment	Practical Examination
Grading	Pass/Fail
Approvals	Fast track approval
Support materials	<p>Qualification handbook</p> <p>Assessment Pack - Centres/Candidates</p> <p>Assessment Pack - Assessors</p>
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates.

Title and level	City & Guilds number	Regulatory reference number	GLH	TQT
City & Guilds Level 3 CPD Module in Utility Arboriculture Basic Electrical Knowledge	0041-06	610/6053/7	8	9

Version and date	Change detail	Section
1.0 December 2021	Initial version	All
1.1 March 2022	Corrected formatting and typographical errors	Throughout
	Added 'In areas where different voltages are used to the ones listed within this guidance, regional variation may be applied.'	Unit 006 Supporting Information
2.0 August 2025	Title amended.	Throughout
	Qualification at a glance table updated. Level, regulatory reference number, GLH & TQT added.	Qualification at a glance
	Assessment specification section added. Skills evaluation test sheets and score descriptors updated and moved into Centre/Candidate and Assessor packs.	Assessment
	Level, GLH, Assessment method and Aim added. Old Topics 8-9 removed New Topics 1.8-1.12 added Topic reference numbers amended.	Unit 006

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1 Introduction

Area	Description																
Who is the qualification for?	<p>Under the Provision and Use of Work Equipment Regulations (PUWER) and HSE INDG317 Chainsaws at Work, it is recommended that individuals undertake regular refreshers/updates to ensure they work to industry best practice and maintain their levels of competence.</p> <p>The suggested intervals for refresher training are:</p> <ul style="list-style-type: none"> • occasional users – every two to three years; • full-time users – every five years. <p>This qualification is for individuals who have achieved the corresponding regulated Certificate of Competence (CoC) and wish to undertake formal Continuing Professional Development (CPD) to meet the above recommendations.</p>																
What does the qualification cover?	<p>Each CPD module will cover the appropriate practical skills required to meet legislation, industry technical standards and industry good practice.</p> <p>The Utility Arboriculture CPD modules are:</p> <table border="0"> <tr> <td>0041-06</td> <td>Utility Arboriculture Basic Electrical Knowledge</td> </tr> <tr> <td>0041-07</td> <td>Utility Arboriculture Tree Species Recognition, Growth Characteristics and Associated Hazards</td> </tr> <tr> <td>0041-08</td> <td>Utility Arboriculture Ground-based Pruning</td> </tr> <tr> <td>0041-09</td> <td>Utility Arboriculture Aerial Pruning</td> </tr> <tr> <td>0041-10</td> <td>Utility Arboriculture Assisted Tree Felling</td> </tr> <tr> <td>0041-11</td> <td>Utility Arboriculture Use of a Chainsaw from a Mobile Elevating Work Platform (MEWP)</td> </tr> <tr> <td>0041-12</td> <td>Utility Arboriculture Surveyor</td> </tr> <tr> <td>0041-13</td> <td>ETR 132 Resilience Arboricultural Surveyor</td> </tr> </table> <p>CPD Modules are also available for Chainsaw and Related Operations/Forestry and Arboriculture. See the City & Guilds NPTC website for details. www.nptc.org.uk</p>	0041-06	Utility Arboriculture Basic Electrical Knowledge	0041-07	Utility Arboriculture Tree Species Recognition, Growth Characteristics and Associated Hazards	0041-08	Utility Arboriculture Ground-based Pruning	0041-09	Utility Arboriculture Aerial Pruning	0041-10	Utility Arboriculture Assisted Tree Felling	0041-11	Utility Arboriculture Use of a Chainsaw from a Mobile Elevating Work Platform (MEWP)	0041-12	Utility Arboriculture Surveyor	0041-13	ETR 132 Resilience Arboricultural Surveyor
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0041-13	ETR 132 Resilience Arboricultural Surveyor																
What opportunities for progression are there?	<p>This qualification will support progression into/sustainment in employment where working around utility services is part of the role.</p> <p>This qualification will also support progression into further learning in utility arboriculture.</p>																

Area	Description
Who did we develop the qualification with?	Developed with City & Guilds NPTC Stakeholders, associates and industry representatives.
Is it part of an apprenticeship framework or initiative?	No
What is issued on successful completion of the qualification?	<p>Successful candidates will receive an e-certificate and will be issued with a Digital Credential (DC) to their registered email when claimed by their NPTC Assessment Centre.</p> <p>The assessor will complete a feedback form on the candidate's performance in the skills evaluation with any recommendations required. This will be given to the candidate on the day of the assessment.</p>
What is the impact of a Fail result in the assessment?	<p>A Fail result in this qualification does not invalidate any pre-requisite Certificate of Competence (CoC).</p> <p>However, employers, landowners, or those commissioning works may require evidence that valid training/assessment has been completed within the suggested intervals set out in INDG317 before work commences on a site or contract.</p> <p>There is no limit on the number of times a candidate can re-sit the assessment. Centres, candidates and their employers should review the scores and feedback from the assessor and arrange appropriate training before any re-sits.</p>

Structure

For the **City & Guilds Level 3 CPD Module in Utility Arboriculture Basic Electrical Knowledge (0041-06)** learners must achieve:

City & Guilds unit number	Unit title	GLH
006	Utility arboriculture basic electrical knowledge	8

Pre-requisites

Learners must have achieved the pre-requisite Certificates of Competence (CoCs) listed below before they can be registered for this qualification.

Title	City & Guilds number
City & Guilds Level 3 Certificate of Competence in Utility Arboriculture Basic Electrical Knowledge	0038-30

- **Equivalent, regulated Certificates of Competence (CoCs) from other awarding organisations are acceptable.**
- **Equivalent legacy City and Guilds Certificates of Competence (CoCs) are acceptable.**

Total Qualification Time (TQT)

TQT is the number of notional hours which represents an estimate of the total amount of time that could reasonably be expected for a learner to demonstrate the achievement of the level of attainment necessary for the award of a qualification.

TQT consists of the following two elements:

- the number of hours that an awarding organisation has assigned to a qualification for guided learning
- an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by – but, unlike guided learning, not under the immediate guidance or supervision of – a lecturer, supervisor, tutor or other appropriate provider of education or training.

Title and level	GLH	TQT
City & Guilds Level 3 CPD Module in Utility Arboriculture Basic Electrical Knowledge (0041-06)	8	9

2 Centre requirements

Approval

Fast track approval

Your centre must be approved to offer the associated City & Guilds NPTC Certificate of Competence (CoC) to deliver this qualification (please see pre-requisites table in Section 1: Introduction).

You can apply for fast track approval for this qualification using the fast-track approval form, available from City & Guilds upon request. Please email qasupport@cityandguilds.com for further information on the approval process.

Centres should use the fast track form if:

- there have been no changes to the way the CoC qualifications are delivered
- they meet all of the approval criteria in the fast-track form guidance notes.

Centre staff should familiarise themselves with the structure, content and skills evaluation requirements of the qualification before delivering the programme.

Resource requirements

Physical resources

Centres must be able to demonstrate that they have access to the equipment and technical resources required to deliver this qualification and its assessment.

Centre staffing

Staff delivering this qualification must be able to demonstrate that they meet the following requirements:

- be technically competent in the areas in which they are delivering
- be able to deliver across the breadth and depth of the content of the qualification being taught
- have recent relevant teaching and assessment experience in the specific area they will be teaching, or be working towards this

Continuing Professional Development (CPD) for delivery staff

Centres are expected to support their staff in ensuring that their knowledge remains current of the occupational area and of best practice in delivery, mentoring, training, assessment and quality assurance, and that it takes account of any national or legislative developments.

Assessor requirements

Staff delivering this assessment must be approved Certificate of Competence (CoC) City & Guilds NPTC Assessors. This assessment can only be delivered by an assessor who is suitably qualified and meets the requirements of the awarding organisation.

Certificate of Competence (CoC) City & Guilds NPTC Assessors must meet the following requirements:

- show competence and provide evidence of industry expertise in the qualification/s they wish to assess
- hold the qualification as a candidate and have been technically evaluated as an Assessor
- be up to date with their verification and relevant first aid
- demonstrate continuing technically relevant CPD
- compliance with these requirements is a pre-requisite for Assessors remaining on the list of approved Assessors.

Verification is a process of monitoring assessment; it is an essential check to confirm that the assessment procedures are being carried out in the way City & Guilds has laid down. The overall aim of verification is to establish a system of quality assurance that is acceptable in terms of both credibility and cost effectiveness and approved Assessors will be subject to a regular visit by the Verifier at a time when assessments are being undertaken. A selection of assessment reports completed by the Assessor will be evaluated by a City & Guilds approved Quality Consultant.

Safe Practice

Appropriate Personal Protective Equipment (PPE) must be worn at all times All equipment must be operated in such a way that the Candidate, Assessor, other persons, animals or other equipment are not endangered. If these conditions are not observed this will result in the Candidate not meeting the required standard.

Validation of Equipment

Any item(s) equipment used for the assessment must comply with current legal requirements. Additional information may be sought from the relevant manufacturer's instruction book, operators' manual, product label/database or any other Government/Government Agency publication.

Quality Assurance

Approved centres must have effective quality assurance systems to ensure optimal delivery and assessment of qualifications. Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance. All external quality assurance processes reflect the minimum requirements for verified and moderated assessments, as detailed in the Centre Assessment Standards Scrutiny (CASS), section H2 of Ofqual's General Conditions. For more information on both CASS and City & Guilds quality assurance processes visit the **What is CASS?** and **Quality Assurance Standards** documents on the City & Guilds website.

Standards and rigorous quality assurance are maintained by the use of:

- internal quality assurance
- City & Guilds external quality assurance.

In order to carry out the quality assurance role, Internal Quality Assurers (IQAs) must:

- have appropriate teaching and vocational knowledge and expertise
- have experience in quality management/internal quality assurance
- hold or be working towards an appropriate teaching/training/assessing qualification
- be familiar with the occupation and technical content covered within the qualification.

External quality assurance for the qualification will be provided by City & Guilds. External Quality Assurers (EQAs) are appointed by City & Guilds to approve centres, and to monitor the assessment and internal quality assurance carried out by centres. External quality assurance is carried out to ensure that assessment is valid and reliable, and that there is good assessment practice in centres.

The role of the EQA is to:

- provide advice and support to centre staff
- ensure the quality and consistency of assessments and marking/grading within and between centres by the use of systematic sampling
- provide feedback to centres and to City & Guilds.

Learner entry requirements

Learners must meet minimum age requirements.

Centres must ensure that any pre-requisites stated in Section 1: Introduction are met.

Centres must ensure that the qualification is appropriate for the learner.

Access arrangements and reasonable adjustments

City & Guilds has considered the design of this/these qualification(s) and its/their assessments in order to best support accessibility and inclusion for all learners. City & Guilds understands however that individuals have diverse learning needs and may require reasonable adjustments to fully participate. Reasonable adjustments, such as additional time or alternative formats, may be provided to accommodate learners with disabilities and support fair access to assessment.

Access arrangements are adjustments that allow candidates with disabilities, special educational needs, and temporary injuries to access the assessment and demonstrate their skills and knowledge without changing the demands of the assessment. These arrangements must be made before assessment takes place.

The Equality Act 2010 requires City & Guilds to make reasonable adjustments where a disabled person would be at a substantial disadvantage in undertaking an assessment.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Special consideration is a post examination adjustment to a candidate's mark or grade to reflect temporary injury, illness or other indisposition at the time of the examination/assessment.

Please refer to the documents 'Joint Council for Qualifications (JCQ) Access Arrangements and Reasonable Adjustments', 'JCQ – A Guide to the special consideration process' and 'Access arrangements – When and how applications need to be made to City & Guilds' for more information. All of these are available on the **City & Guilds website**

3 Delivering the qualification

Initial assessment and induction

An initial assessment of each learner should be made before the start of their programme to identify:

- if the learner has any specific training needs
- any support and guidance they may need when working towards their qualification
- the appropriate type and level of qualification.

We recommend that centres provide an induction programme so the learner fully understands the requirements of the qualification, their responsibilities as a learner and the responsibilities of the centre. This information can be recorded on a learning contract.

Inclusion and diversity

City & Guilds is committed to improving inclusion and diversity within the way we work and how we deliver our purpose which is to help people and organisations develop the skills they need for growth. More information and guidance to support centres in supporting inclusion and diversity through the delivery of City & Guilds qualifications can be found here:

[Inclusion and diversity | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com)

Sustainability

City & Guilds are committed to net zero. Our ambition is to reduce our carbon emissions by at least 50% before 2030 and develop environmentally responsible operations to achieve net zero by 2040 or sooner if we can. City & Guilds is committed to supporting products that support our customers to consider sustainability and their environmental footprint.

More information and guidance to support centres in developing sustainable practices through the delivery of City & Guilds products can be found here:

[Our Pathway to Net Zero | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com)

Centres should consider their own carbon footprint when delivering this qualification and consider reasonable and practical ways of delivering this qualification with sustainability in mind. This could include:

- reviewing purchasing and procurement processes (such as buying in bulk to reduce the amount of travel time and energy, considering and investing in the use of resources that can be reused, instead of the use of disposable or single use consumables)
- waste procedures (ensuring that waste is minimised, recycling is in place wherever possible)

- minimising water use.

Support materials

The following resources are available for this qualification:

Description	How to access
Qualification Handbook	www.nptc.org.uk
Assessment Pack – Centres/Candidates	www.nptc.org.uk
Assessment Pack – Assessors (available to approved NPTC assessors only)	www.nptc.org.uk (secure login)
Record of Assessment (ROA) (available to approved centres and NPTC assessors only)	www.nptc.org.uk (secure login)

4 Assessment

Assessment of the qualification

Candidates must:

- successfully complete one skills evaluation carried out by an approved Certificate of Competence (CoC) City & Guilds NPTC Assessor.

Skills evaluation			
Unit	Title	Method	Where to obtain materials
006	Utility Arboriculture Basic Electrical Knowledge	Practical observation with oral questioning.	Materials can be downloaded from the secure area of www.nptc.org.uk

Assessment strategy

Non-Independent Assessment

Practical assessment with oral questioning by an NPTC City & Guilds approved Assessor. The Assessor can be the same individual who carried out the training or could be a different person. The Assessor must be approved and registered with City & Guilds NPTC. The assessment must be a stand-alone process that is separate to the training and cannot be spread out across the length of the training course i.e. the assessment is conducted at the end of the training course or on a separate day.

City & Guilds has written the practical skills evaluation to use with this qualification. Live assessment materials can be downloaded by the assessor via the **Assessment Pack** from the NPTC website.

Time constraints

The following must be applied to the assessment of this qualification:

- Qualification registration is valid for: **12 months**.
- Assessment duration: **30 - 60 minutes**
- Expected maximum number of candidates per day: **4**
- Maximum recommended number of candidates to assessor is **1:1**

Assessment specification

The way the content is covered by the assessment is laid out in the table below:

Assessment: Skills evaluation		Duration: 30 – 60 minutes	
Unit	Outcome	Topic	Skills evaluation
006 Utility arboriculture basic electrical knowledge	LO1 Apply basic electrical knowledge for utility arboriculture	1.1-1.18	Activity 1-18

The Skills Evaluation is graded **Pass/Fail**.

- Each activity is scored 1-5 according to the score descriptors below and the guidance in the **Assessment Pack**.
- To achieve an overall Pass result, candidates must score a minimum of 3 for **each** activity in the skills evaluation.
- A score of 2 or below for **any** activity will automatically result in a Fail overall.

Refer to the relevant **Assessment Pack** for further detail. Materials can be downloaded from www.nptc.org.uk

Score descriptors

The descriptors in the table below will be used to assign a score for each activity in the skills evaluation. Scores provide targeted feedback to candidates/employers on areas of strength/development and training needs.

Score	Descriptor
1	A poor level of skill/knowledge, potentially requiring intervention or termination of the assessment on the grounds of safety. It would be recommended that the candidate carries out no further work in the topic until further training has been completed.
2	A less than sufficient level of technical skills/knowledge demonstrated. It would be recommended that further training and consolidation in the topic should be sought.
3	Sufficient level of technical skills/knowledge. Candidate worked at the minimum standard for the topic, complying with industry good practice. Candidate should continue as demonstrated and consolidate their skills/knowledge.
4	A good level of technical skills/knowledge. Candidate worked above the minimum standard for the topic, complying with industry good practice while working efficiently. Candidate should continue as demonstrated and consolidate their skills/knowledge.
5	Excellent technical skills/knowledge. Candidate consistently worked above the minimum standard for the topic, complying with industry good practice while working highly efficiently. Candidate should continue as demonstrated.

5 Units

Structure of the units

These units each have the following:

- City & Guilds reference number
- title
- level
- guided learning hours (GLH)
- assessment method
- unit aim
- learning outcomes, which consist of several topics
- supporting information.

Guidance for delivery of the units

This qualification is made up of a single unit. A unit describes what is expected of a competent person in particular aspects of their job.

Each unit is divided into learning outcomes which describe in further detail the skills and knowledge that a candidate should possess.

Each learning outcome has a set of topics (performance and knowledge and understanding) which specify the desired criteria that must be satisfied before an individual can be said to have performed to the agreed standard.

Supporting information provides specific guidance on delivery. Centres are advised to review this information carefully before delivering the unit.

Unit 006

Utility arboriculture basic electrical knowledge

Level:	3
GLH:	8
Assessment method:	Skills Evaluation carried out by an approved Certificate of Competence (CoC) City & Guilds NPTC Assessor: Practical observation with oral questioning
Aim:	The purpose of this unit is to provide formal Continuing Professional Development (CPD) for learners who have achieved the pre-requisite Certificate of Competence, to maintain and/or develop their competence in utility arboriculture basic electrical knowledge.

Learning outcomes

The learner will be able to:

LO1 Apply basic electrical knowledge for utility arboriculture (**Topic 1.1-1.18**)

Topic 1.1 Explain the risk assessment process

The risk assessment process contains the following five steps:

- identify the hazards
- decide who might be harmed and how
- evaluate the risks and decide on precautions
- record the findings and implement them
- review and update the assessment as necessary

Topic 1.2 State personal protective equipment requirements

PPE that is required where appropriate:

- high visibility clothing
- head protection
- eye protection
- hand protection
- foot protection
- hearing protection
- specialist equipment as specified by the network operator
- all PPE should conform to latest standards

Topic 1.3 State the factors to consider when carrying out ground-based operations

Factors to consider when carrying out ground-based operations may be:

- do not point chipper discharge shoot towards conductors or equipment
- do not leave long branches on site where there is a possibility of them being handled later and breaching the Vicinity Zone
- ensure that a clear path is left under conductors to allow access for future patrols and maintenance

- do not stack timber adjacent to substation boundary fences that may allow climbing access
- ensure that hanging branches are not left as a hazard for others

Topic 1.4 State the definition of the vicinity zone

Definition of the Vicinity Zone:

- the zone around an exposed live circuit conductor which if maintained will prevent the danger of burn or electric shock
- the Live Zone is included within the measurement of the Vicinity Zone

Topic 1.5 State the vicinity zone distances for the range of voltages

The Vicinity Zone distances for the following range of voltages are:

- LV = 1m
- 11kV = 2m
- 33kV = 2.5m
- 66kV = 3m
- 132 kV = 3.5m
- 275 kV = 4m
- 400 kV = 5m

Topic 1.6 State the definition of the live zone

Definition of the Live Zone is:

- the zone around an exposed live circuit conductor where there is danger of burn or electric shock if any part of a person's body or non-insulated tools, they are using enters the zone

Topic 1.7 State the live zone distances for the range of voltages

The Live Zone distances for the range of voltages are:

- **LV = 0.3m
- **11kV = 0.8m
- **33kV = 0.8m
- 66kV = 1.0m
- 132kV = 1.4m
- 275kV = 2.4m
- 400kV = 3.1m

**must be stated

Topic 1.8 Explain how to categorise trees

Category A:

- trees within the Vicinity Zone (including the Live Zone) at or above the level of conductors or associated equipment

Category B:

- trees outside but capable of breaching the Vicinity Zone (including the Live Zone) adjacent to conductors or associated equipment

Category C:

- trees within the Vicinity Zone (including the Live Zone) that are beneath the conductors or associated equipment

Category D:

- trees outside the Vicinity Zone with no potential of breaching the Vicinity Zone

Documents for reference may be:

- G55
- Distribution Safety Rules (DSR's)

- Operational Practice Manual (OPM's)

Topic 1.9 State proximity zone 1 and 2 distances, and who they apply to

Proximity Zone one:

- includes all the trees that are to be felled that are within two tree lengths of any live equipment

Proximity Zone two:

- includes all the trees that are to be dismantled, pruned, or have other arboricultural work carried out on them that are within:
 - 9m of any live equipment up to and including 66kV
 - 15m of any live equipment greater than 66kV
- Only certified and competent operatives may work within Proximity Zones without appropriate supervision of the network operator

Topic 1.10 State the minimum ground clearances for overhead lines

Minimum ground clearances for overhead lines are:

- LV = 5.2m
- 11kV = 5.2m
- 33kV = 5.2m
- Over roads = 5.8m
- Jumpers = 4.3m

Topic 1.11 Explain permit to work/permit for work and its details

Conditions that must be met for a Permit to Work (PTW)/ Permit for Work (PFW) to be issued are:

- issued for work on dead, earthed, high voltage equipment

Key aspects of a Permit to Work:

- issued by a network operator appointed person
- received by a network operator appointed person
- describes the work to be carried out
- describes the limit of the work and safety precautions to be applied
- it describes the equipment (spans etc.) which can be worked on safely
- shows limitations of the work area
- identifies that the overhead line is earthed
- it shows where the high voltage is isolated
- shows the location of the circuit main earth
- when all work is complete, document is cleared, and staff informed

Topic 1.12 State safety points related to applying earths

Safety points when proving the line dead and applying earths may include:

- demonstrates that the overhead line is dead and safe for work
- must be applied before work starts
- must be seen from the point of work.
- any equipment without an earth must be treated as live
- circuit main earths must not be disturbed during work
- additional earths may be moved to cover the works

Topic 1.13 Identify the emergency equipment required on site

Emergency equipment required on site:

- telephone (with signal)
- first aid kit

- fire extinguisher
- spill kit
- rescue equipment

Topic 1.14 State the emergency action required following contact with the electrical network

Emergency action required following contact by either machinery, trees, equipment or personnel with live overhead lines or underground cables:

- keep everyone at least five meters away from the scene of the incident
- do not become a victim by going too close or attempting a rescue
- be aware that the high voltage auto re-closer circuit breaker may have switched power back on and there will be a voltage gradient in the ground
- post a watchperson (if applicable)
- do not touch any broken conductors or equipment
- contact network operator/owner of overhead line so the line can be made dead
- only approach a casualty after the overhead line has been proven dead and earthed by the network operator
- contact supervisor/line manager

Topic 1.15 State the action to take when rescuing a person from a low voltage line

The action to take when rescuing a person from a low voltage line is:

- consider pulling the persons or conductors clear using approved insulated rods – minimum of three 1.2m sections

Topic 1.16 State the action to take when rescuing a person from a high voltage line

The action to take when rescuing a person from a high voltage line is:

- no attempt should be made to rescue the person if they are in contact with a high voltage line
- the circuit may auto-re-close and there will be a voltage gradient in the ground
- only approach a casualty after the overhead line has been proven dead and earthed by the network operator

Topic 1.17 State the information given to the network operator in an emergency

Information that needs to be given to the network operator for the line to be made dead:

- your name
- explain what has happened
- ask for the line to be made dead
- give accurate location
- give an accurate grid reference/W.3.W
- give name and or number of overhead line
- give pole numbers/equipment ID
- transformer/switch name/number
- describe damage you can see

Topic 1.18 Identify a range of EHV, HV and LV overhead line components and explain the risks when working adjacent to each

High voltage overhead line identified associated risks:

- high voltage conductors between poles
- supporting steelwork at the pole top
- stay wires above the 'in-stay' insulator

Low voltage overhead line identified associated risk:

- low voltage conductors between poles

- supporting steelwork at the pole top
- stay wires above the 'in-stay' insulator
- street lighting

Transmission tower lines identified associated risks:

- High-voltage conductors between towers
- damaged insulators at each tower
- jumpers connecting one part of the line to another

Transformer identified associated risks:

- high voltage bushings on the transformer
- low voltage bushings on the transformer
- connecting jumpers from the high- voltage lines
- connecting jumpers are lower than the minimum overhead line ground clearance
- vicinity zone close to ground

Cable terminal pole high voltage and low voltage identified associated risks:

- high voltage bushings on the pole box or cable termination
- jumpers connecting the cable to the overhead line
- supporting steelwork at the pole top
- damage to the cable at ground level

High voltage and low voltage jumpers identified associated risks:

- any jumpers that come down the pole and connect to other equipment.
- all jumpers that connect one line to another

Air brake switch (pole top mounted or under slung) identified associated risks:

- jumpers that connect the overhead line to the air brake switch.
- supporting steelwork at the pole top
- operating handle that comes down the pole to ground level
- open/closed

Aerial bundled conductor identified associated risks:

- damaged to the conductor insulation
- conductor terminations may be exposed
- must be always treated as live

High voltage and low voltage fuses identified associated risks:

- fuse unit
- live equipment above or inside the fuse unit even when fuse removed

Auto reclosers/pole mounted circuit breaker identified associated risks:

- high-voltage bushings
- jumpers connecting the Auto recloser /pole mounted circuit breaker to the overhead line

Primary and Grid substation identified associated risks:

- damage to 'un-climbable' fence
- unauthorised access
- live equipment at low level
- ground mounted high voltage equipment

Substation (transformer) identified associated risks:

- damage to any cable connected to the substation high voltage/low voltage
- damage to substation plant and equipment

Underground cables identified associated risks:

- shallow cable depth
- any cable damage caused by digging, ground anchors, fencing etc
- cable damage if suitable methods of locating not used (network operator plans, cable locator e.g., CAT/JENNY)

HV high voltage earths and LV low voltage bonds identified associated risks:

- any equipment without an earth must be treated as live

The hazards of high voltage earths:

- be aware if either; the earth is disconnected at ground level before removal from the overhead line
- the earth is disconnected at the ground level during the period of the work

Supporting information

Unit guidance

The delivery of this unit should be carried out in a real-life working environment.

Appropriate Personal Protective Equipment (PPE) must be worn at all times on site.

A First Aid kit meeting current regulations, of the appropriate size for the number of persons on site, must be available. It is strongly recommended that candidates hold at least a recent, recognised 'Emergency First Aid' Training Certificate. Assessors must hold a current 'First Aid at Work' Certificate.

Assessors must ensure a risk assessment is carried out, and sufficient control measures are implemented.

A breach of Health and Safety that puts any person at risk during the assessment process will result in the assessment being terminated and the Candidate not meeting the required standard.

Provision must be made to comply with environmental and sustainability regulations and standards; segregation of resources for reuse, recycling and disposal should be implemented.

If these conditions are not observed this will result in the learner not completing the assessment.

Suggested learning resources

- Forest Industry Safety Accord (FISA) guides.
- Arboriculture Association (AA) technical guides.
- HSE Safety bulletins.
- Safe tree working in proximity to overhead electric lines ENA Engineering Recommendation G55/1
- Distribution Safety Rules (DSR's)
- Operational Practice Manual (OPM's)

In areas where different voltages are used to the ones listed within this guidance, regional variation may be applied

Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to www.cityandguilds.com or click on the links below:

Centre handbook: quality assurance standards

This document is for all approved centres and provides guidance to support their delivery of our qualifications. It includes information on:

- centre quality assurance criteria and monitoring activities
- administration and assessment systems
- centre-facing support teams at City & Guilds/ILM
- centre quality assurance roles and responsibilities.

The centre handbook should be used to ensure compliance with the terms and conditions of the centre contract.

Centre assessment: quality assurance standards

This document sets out the minimum common quality assurance requirements for our regulated and non-regulated qualifications that feature centre-assessed components. Specific guidance will also be included in relevant qualification handbooks and/or assessment documentation.

It incorporates our expectations for centre internal quality assurance and the external quality assurance methods we use to ensure that assessment standards are met and upheld. It also details the range of sanctions that may be put in place when centres do not comply with our requirements or actions that will be taken to align centre marking/assessment to required standards. Additionally, it provides detailed guidance on the secure and valid administration of centre assessments.

Access arrangements: when and how applications need to be made to City & Guilds

This provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre document library** also contains useful information on such things as:

- conducting examinations
- registering learners
- appeals and malpractice.

Useful contacts

Please visit the **contact us** section of the City & Guilds website.

About City & Guilds

City & Guilds is the global skills partner, empowering people, organisations and economies to develop the skills they need for growth. With almost 150 years of trusted expertise, we support people into work, help them develop on the job and move into the next job.

We work with Governments, employers, training providers, colleges and industry stakeholders to design and deliver high-quality training, qualifications, assessments and credentials that lead to meaningful career progression. We understand the life changing link between skills development, social mobility and success. Our solutions span critical sectors including construction, engineering, transport, energy and electrical, serving over 1 million learners annually.

Through our comprehensive portfolio of brands and trusted global network, we set industry-wide standards for technical, behavioural and commercial skills to improve performance and productivity. We believe you can achieve your potential - and we're here to help make it happen.

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