

LEVEL 3 CERTIFICATE OF COMPETENCE IN UTILITY ARBORICULTURE

Unit UA5 - SITE SURVEY

ASSESSMENT SCHEDULE

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LEVEL 3 CERTIFICATE OF COMPETENCE IN UTILITY ARBORICULTURE – Unit UA5 – SITE SURVEY

Candidate Information

This assessment cover the requirements for safe working nearing proximity to overhead conductors which may be live.

Introduction

The scheme will be administered by NPTC.

NPTC will:

- Publish
 - Scheme regulations
 - Assessment schedule
 - Assessment material
- Approve centres to co-ordinate and administer the scheme
- Set standards for the training of Verifiers and Assessors
- Recruit, train and deploy Verifiers
- Manage verification
- Issue certificates to successful Candidates

The Certificate of Competence

Certificates of competence will be awarded to Candidates who achieve the required level of competence in the Units to which their Certificate relates.

Instruction

Attendance at a course of instruction is not a pre-requisite for an application for an assessment but potential Candidates are strongly advised to ensure that they are up to the standards that will be expected of them when they are assessed.

NPTC does **not** hold a register of instructors; however instruction will normally be available from recognised training providers and/or centres of further or higher education active in the areas covered by this certificate. Further information on training may be obtained from the centre.

Access to Assessment

Assessment Centres will be responsible for arranging assessment on behalf of a Candidate. Assessment may only be carried out by an Assessor approved by NPTC for that scheme. Under no circumstances can either instructors involved in the preparation of candidates, or the candidates work place supervisors, or anyone else who might have a vested interest in the outcome, carry out the assessment.

The minimum age limit for Candidates taking certificates of competence is 16 years. There is no upper age limit.

Assessment

Assessment is a process by which it is confirmed that the Candidate is competent in the Units within the award to which the assessment relates. It is a process of collecting evidence about his/her capabilities and judging whether that evidence is sufficient to attribute competence.

The candidate must be registered through an NPTC approved Assessment Centre for this qualification prior to assessment.

The result of the assessment will be recorded on the assessment report form.

The schedule of assessment contains the criteria relating to:

- Observation of practical performance
- Assessment of knowledge and understanding

Performance Evaluation for part 5.1

The result of each assessment activity in part 5.1 is evaluated against the following criteria:

- 4 = Meets or exceeds the assessment criteria by displaying a level of practical performance and/or underpinning knowledge, with no 'minor' or 'critical' faults. (Competent).
- 3 = Meets the requirements of the assessment criteria for both the practical performance and the underpinning knowledge, with some 'minor' faults but no 'critical' faults. (Competent).
- 2 = Does not fully satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or being deficient in underpinning knowledge leading to the recording of minor faults. (Not yet competent).
- 1 = Does not satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or safely or being deficient in underpinning knowledge leading to the recording of a critical fault. (Not yet competent).

A list of registered Assessment Centres is available from NPTC. (www.nptc.org.uk)

Verification

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 that NPTC 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.

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 an NPTC approved verifier.

Compliance with the verification requirements is a pre-requisite for Assessors remaining on NPTC's list of approved assessors.

Complaints and Appeals

NPTC and its Assessment Centres have a formal Complaints and Appeals procedure. In the event of any dissatisfaction with the arrangements and conditions of assessment, the candidate should first contact the Assessment Centre through whom the assessment was arranged and submit the complaint in writing.

For further information on NPTC's Equal Opportunities Policy and Complaints and Appeals Procedures, please refer to www.nptc.org.uk

Learning Outcomes

The candidate will be able to:

- Prepare accurate paper work including risk assessment, method statement, work specification and work instruction based on a line survey that requires pruning work to be carried out
- Understand all essential factors to be included in work instruction, method statement, risk assessment, and work specification

Guidance Notes for Candidates and Assessors

The assessment is divided into two compulsory parts:

Part 5.1 – Produce Survey Report and Work Specification

Part 5.2 – Principles of Site Surveys (assessed via a written paper)

Candidates must also achieve Unit UA2 part 2.1

Part 5.1 – Produce Survey Report and Work Specification

An Assessor will be on site to issue candidates with a site map/schematic diagram of the two spans to survey. On completion of the survey, the candidate is then required to write up the survey and produce a "Work Specification", taking into account the assessment criteria laid down for this assessment. Production of the documentation takes place in the presence of an invigilator (who may be the assessor). On completion, the candidate submits the paper work to the invigilator. The paper work is then forwarded for marking by the Electrical Assessor and Arboricultural Assessor. Each will mark all paper work with regard to their specialist area (i.e. electrical accuracy and arboricultural accuracy respectively). Candidates will be informed of the assessment outcome for part 5.1 at a later stage.

Part 5.2 – Principles of Site Surveys (assessed via a written paper)

Assessment of Part 5.2 takes the form of a written paper in the presence of an invigilator (who may be the assessor). Candidates will be informed of the date and time of the written paper assessment. On completion, the candidate submits the paper work to the invigilator who in turn forwards it for marking. Candidates will be informed of the assessment outcome for part 5.2 at a later stage. **The exam is "closed book" and the candidate is not allowed access to any supporting information during the time of the examination.** Some sections of the paper are to be marked by the Electrical Assessor and others by the Arboricultural assessor. (This is noted on the paper and in the guidance).

Certificate Endorsement:

A **Level 3 Certificate of Competence in Utility Arboriculture – Site Survey** will be issued to candidates who successfully achieve **Unit UA5 parts 5.1 and 5.2** plus the **pre-requisite Units UA1 and UA2 part 2.1** from the Level 3 Certificate of Competence in Utility Arboriculture

The following should be available for part 5.1

First Aid box

Mobile phone

Two spans to be surveyed, preferably including a transformer pole

Site map

Schematic diagram

Range of trees species incorporating defects, hazards including dangerous overhang

Authorisation from landowner

LV : Vertical arrangement, minimum 3 lines, maximum 22.5 cm.

HV: Horizontal arrangement, minimum 2 lines, maximum 2 m. between lines

Minimum height of lines 5.2 metres from the ground

Safe Practice for Unit UA5

1. Assessors must hold a current 'First Aid at Work' Certificate.
2. It is strongly recommended that Candidates hold at least a recent, recognised 'Emergency First Aid' Training Certificate and may be a requirement of some Electricity Companies.
3. Any overhead line(s) will be live or treated as live.
4. The Assessor must ensure a Risk Assessment has been carried out, and sufficient control measures implemented. In particular, the location of the site and weather conditions should be assessed, details of access, etc, which may be required by emergency services must be noted, as well as the nearest Accident and Emergency Hospital Unit. The means of contacting the emergency services must be established.
5. All Personal Protective Equipment (PPE) used in the assessments must comply with Health and Safety Executive publications and current legal requirements in terms of specification and use.
6. A First Aid Kit complying with current Regulations, of the appropriate size for the number of persons on site, must be available on site
7. Warning signs must be erected as appropriate to Risk Assessment
8. All parts of this assessment must be carried out from the ground (the use of ladders, insulated rods or MEWPS is not permitted for this assessment)
9. Any necessary permissions must have been granted, and notifications made as appropriate: (e.g. Regional Electrical Companies, Local Planning Authority, Forestry Authority, Forest Enterprise, Highways Authority, Private owners, Statutory undertakers, Police, etc.).
10. The assessments are carried out in accordance with safety guidelines in the Electricity Act 1989 (Schedule 4 Para. 9), Electricity at Work Regulations, HSE Guidance Notes GS6 & HS (G) 47, HS (G) 85 Electricity at Work Safe Working Practices, Electricity Supply Industry (ESI) Model Distribution Safety Rules, EA Engineering Recommendation G55/1, BS EN 50110-1, local Distribution Network Operator (DNO) Distribution Safety Rules and other relevant Safety Guides and current legislation e.g. the Provision and Use of Work Equipment Regulations (PUWER) 1998 and LOLER 1998 where lifting equipment is used.
11. It is the responsibility of the Assessment Centre, Assessor and the Candidate to ensure that the additional requirements and provisions are met as relevant to the units
12. Additional information may be sought from the relevant operator manuals or any other appropriate training or safety publication.

Part 5.1 – Produce Survey Report and Work Specification (assessed by both Electrical and Arboricultural Assessors)		
	Assessment Activity	Assessment Criteria
1.	Carry out a line survey and prepare an accurate and practical risk assessment, work specification and method statement to achieve adequate clearance between an overhead line and adjacent trees that includes reference to the following:	
1a.	<p>Prepare accurate and practical work instruction taking into account:</p> <p>The relevant aspect of Electricity at Work Regulations</p> <p>The relevant aspect of Highway legislation/New Road and Street Works Act</p> <p>Justification for pruning methods appropriate to the trees along the span</p> <p>Justification for restricted cuts</p>	<ul style="list-style-type: none"> - Live or dead working - Traffic management - Pedestrian/vehicle access - Plan - Site location - Land owner details - Landowner requirements - Environmental considerations - Equipment required (chipper, MEWP etc) - Type, use and number of insulated rods - Use plans, sketches, marked maps etc. - Clearance distances - Identify trees by location and species - Work to be carried out described - Access arrangements stated - Estimation of job time/staff/staff hours - Replanting requirements - Form signed and dated <p>Through pruning:</p> <ul style="list-style-type: none"> - LV overhead lines in residential areas - Allows conductors to pass through the canopy - Allows sufficient tree/conductor clearance <p>Under pruning:</p> <ul style="list-style-type: none"> - Amenity considerations in residential areas - Removal of some branches overhanging, but retaining the general shape of the tree <p>Side pruning:</p> <ul style="list-style-type: none"> - Woodland or forest locations - All branches on the line side of the tree removed by a pruning cut at the trunk <p>Crown reduction:</p> <ul style="list-style-type: none"> - For trees directly under or adjacent to the line - Growth directed away from conductors - Alternative to removal where tree has to be retained - Minimum acceptable clearance - Where requested by the landowner - Environmental or planning controls are in place - Where keeping a good form to the tree is important
1b.	<p>Prepare a site specific risk assessment taking into account:</p> <p>The relevant aspect of HS(G)47</p> <p>The relevant aspect of AFAG 804 and 805</p> <p>The relevant aspects of ER/G55/1</p>	<ul style="list-style-type: none"> - Reference to Generic Risk Assessment - Location of all other utilities - Guidance on the avoidance of danger from underground cables - General guidance on the prevention of danger from work in proximity to overhead lines and underground cables - Operator qualifications - Live Zone - Vicinity Zone - Proximity Zones 1 and 2 - Category 1, 2 and 3 trees - Operator qualifications

	Assessment Activity	Assessment Criteria
1b. (continued)	<p>The relevant aspect of the Electricity at Work Regulations</p> <p>The relevant aspect of GS6</p> <p>COSHH implications</p> <p>Description of trees within the span and factors influencing growth</p> <p>Tree defects identified on the trees within the span and implications as to how the work should be carried out</p> <p>Trees with dangerous overhang</p> <p>Implications of trees in poor health</p> <p>Implications of: Over pruning</p> <p>Good pruning</p>	<ul style="list-style-type: none"> - Justification of Live or Dead working - Live working only acceptable after a risk assessment has demonstrated that the risk to on-site workers is less than the risks to those affected by making the line dead - Use of barriers and goal posts for the safe movement of vehicles through a site - Pesticide usage - Wood dust - Engine exhaust emissions - Smoke from fires - Vegetation (e.g. hogweed) - Micro organisms (e.g. Weils Disease) - Machine fluids - Species of trees identified - Health - Age - Growth characteristics - Previous sub standard work undertaken - Climate and environment - Altitude - Soil Condition - Terrain - Tight compression/forks identified - Old pollards - Extensive decay identified - Root heave - Cracks and splits - Abnormal bulges - Abnormal sway - Roots above ground - Forks/splits moving apart in the wind - Cankers - Cavities - Hazards presented by tree cover - Fungal fruiting bodies - Major decay, defect or damage may prevent: - Tree being climbed for dismantling operations - Tree/branch being sectioned as appropriate - Winch assisted felling of the tree on a shut down may be necessary - Line may need to be de energised and dropped to allow the branch/tree to fall - Dangerous overhang identified Method of removal: <ul style="list-style-type: none"> - Line made dead - Appropriate work technique chosen - Qualified and competent workers deployed - Branch reduced / sectioned - Branch sections allowed to fall / cast / lowered as appropriate - Windblow - Branch drop - Exacerbation of any defects - Loss of amenity - Spread of disease - Production of dense regrowth - Poor crown architecture - Long whippy stems, end loading - Extensive long lone laterals - Open crowns, over pruning allowing too much movement - Arching branches - Tree death - Good crown architecture - Secondary thickening because of wind/sway - Even distribution of main branches and leaf cover - Typical branch and leaf growth for the species

	Assessment Activity	Assessment Criteria
1c.	<p>Prepare a site specific Method Statement taking into account:</p> <p>The relevant aspect of GS6</p> <p>The relevant aspect of HS(G)47</p> <p>The relevant aspect of AFAG 804</p> <p>The relevant aspects of BS3998</p> <p>The relevant aspects of ER/G55/1</p> <p>The relevant aspect of Electricity at Work Regulations</p>	<ul style="list-style-type: none"> - Site location - Operator qualifications - Insulated Rods - Use of barriers and goal posts for the safe movement of vehicles through a site - Guidance on the avoidance of danger from underground cables where present - General guidance on the prevention of danger from work in proximity to overhead lines and underground cables - Aspects of BS3998 as appropriate <ul style="list-style-type: none"> - Safety.(clothing, weather, warning notices, highways, hung up trees, service wires, fires, chemicals, poisonous plants - Season of works. - Cleaning Out (crown cleaning, Ivy). - Pruning (cuts, formative pruning, crown lifting, crown thinning, pollarding). - Bracing (flexible bracing, rod bracing). - Decay, cavities and water pockets. - Tree Felling. - Stump treatment (killing, removal) - Disposal of arisings - Live Zone - Vicinity Zone - Proximity Zones 1 and 2 - Category 1, 2 and 3 trees - Justification for Live or Dead working - Number of customers affected - Types of customer - Use of generation
1d.	Prepare Emergency procedure documentation	<ul style="list-style-type: none"> - Grid Reference of work site (identified with 2 letter prefix and 6 numbers) and access point if considerably different - Appropriate Telephone Numbers for the DNO Control Room , Emergency Services. - Mobile phones signal strength and battery checked - Location (Address, Post code) - Name / Number of Circuit / Line etc identified - Pole numbers (span) - Nearest telephone location - Nearest Accident and Emergency Unit - Name of First Aid at Work holder on site
2.	Communicate to landowner reasons for carrying out work following preparation of proposals	<ul style="list-style-type: none"> - Specific clearance required to meet with DNOs standard - Arboricultural standards explained - Reasons for pruning cuts to gain possible restricted clearance - Reasons for removal of hazard trees - Replanting where/if necessary - Disposal of arisings explained/agreed - Proposals agreed and signed by owner

Part 5.2 – Principles of Site Surveys (assessed as a written paper)

The written paper consists of four compulsory section:

Section 1 - Communication with the landowner.

Section 2 - Electrical Safety.

Section 3 - Work instruction /Method Statement.

Section 4 - Risk Assessment.

Section 1 ~ Communication with the landowner (Assessed by the Electrical Assessor)		
	Assessment Activity	Assessment Criteria
1.	Demonstrate knowledge of introducing yourself to the landowner for the first time	<ul style="list-style-type: none"> - Proof of identity to owner - Name of Company representing - Name of DNO - Confirmation of landowner details - Permission to access owners grounds to assess work
2.	Demonstrate knowledge of the need to have tree clearance work carried out	<ul style="list-style-type: none"> - DNO require specific clearance - Trees may be in contact with the line <p>Branch contact with line may cause:</p> <ul style="list-style-type: none"> - Interruption of supply - Shock or burn if anyone touches tree - Danger if tree is climbed - Tree to catch fire <ul style="list-style-type: none"> - Specific clearance required to meet with DNOs standard - Arboricultural standards explained - Reasons for pruning cuts to gain possible restricted clearance - Reasons for removal of hazard trees - Replanting where/if necessary - Disposal of arisings explained/agreed - Proposals agreed and signed by owner
3.	Demonstrate knowledge of restrictions to work being carried out as required by DNO	<ul style="list-style-type: none"> - Site of Special Scientific Interest - Tree Preservation Order(s) - Conservation area - Felling Licences - Disposal of arisings - Site access - Other

Section 2 – Electrical Safety (Assessed by the Electrical Assessor)		
1.	Demonstrate knowledge of the relevant safety documentation and health and safety recommendations to be considered	<ul style="list-style-type: none"> - Guidance of identification of all non-electrical utilities plant - Guidance on the avoidance of danger from underground cables - Erection of barriers to prevent unauthorised access - Use of barriers and goal posts for the safe movement of vehicles through a site - Agreement with DNO for positions and height - Live Zone/Vicinity Zone/Proximity Zones 1 and 2 - Category 1, 2 and 3 trees - Competence of operators, standards of work and specification of equipment - Risk Assessment must be carried out and agreement of DNO required - Justification for Live or Dead working <ul style="list-style-type: none"> • Dead working as specified in the Electricity at Work Regulations • Use of generation - Live working justified after risk assessment can demonstrate risk to workers is less than risk to those affected by making the line dead, including: <ul style="list-style-type: none"> • Number of customers affected • Industrial premises with continuous manufacturing process • Hospitals without alternative supplies • Other customers that would be endangered by cut in electricity supply
2.	Identify the electrical plant on a schematic diagram and key	Candidate to identify the following on a schematic diagram <ul style="list-style-type: none"> - Air break switch Unique number and name - Transformer name/number - HV fuses - Pole mounted circuit breakers - Secondary Ground Mounted Substation - Underground cable terminations
3.	Justify live or dead working at a specified point on the schematic diagram	Candidate to justify live or dead working at a specified point on the Schematic Diagram provided, assuming there are trees in the vicinity zone throughout the entire length of the line and state reasons for decision.
4.	Justify the number of Permits to Work (PTW's) required for simultaneous work along the line	<ul style="list-style-type: none"> - One Permit To Work per work point on the diagram if the PTW holder cannot provide immediate supervision to each site - May only require one permit to work in total if immediate supervision can be provided.
5.	Identify point of isolation and point of application of 'circuit main earth' for work described in activity 4.	<ul style="list-style-type: none"> - Pole number and Plant Unique Number used - Pole number identified for CME.

Section 3 - Work instruction and Method Statement (Assessed by the Arboricultural Assessor)		
1.	Demonstrate knowledge of the relevant aspects of the New Road and Street Works Act	<ul style="list-style-type: none"> - Traffic management - Pedestrian/vehicle access
2.	Demonstrate knowledge of different pruning techniques	<p>Through pruning:</p> <ul style="list-style-type: none"> - LV overhead lines in residential areas - Allows conductors to pass through the canopy - Allows sufficient tree/conductor clearance <p>Under pruning:</p> <ul style="list-style-type: none"> - Amenity considerations in residential areas - Removal of some branches overhanging, but retaining the general shape of the tree <p>Side pruning:</p> <ul style="list-style-type: none"> - Woodland or forest locations - All branches on the line side of the tree removed by a pruning cut at the trunk - Cut back to measured distance to overhead line <p>Crown reduction:</p> <ul style="list-style-type: none"> - For trees directly under or adjacent to the line - Growth directed away from conductors - Alternative to removal where tree has to be retained
3.	Demonstrate knowledge of using restricted cuts	<ul style="list-style-type: none"> - Minimum acceptable clearance - Where requested by the landowner - Environmental or planning controls are in place - Where keeping a good form to the tree is important

Section 4 – Risk Assessment (Assessed by the Arboricultural Assessor)		
1.	Demonstrate knowledge of Emergency Procedures	<ul style="list-style-type: none"> - Grid Reference of work site (identified with 2 letter prefix and 6 numbers) and access point if considerably different - Appropriate Telephone Numbers for the DNO Control Room, Emergency Services. - Mobile phones signal strength and battery checked - Location (Address, Post code) - Name / Number of Circuit / Line etc identified - Pole numbers (span) - Nearest telephone location - Nearest Accident and Emergency Unit - Name of First Aid at Work holder on site
2.	Demonstrate knowledge of inclusion of HSE guidance in Risk Assessment	<p>AFAG 804:</p> <ul style="list-style-type: none"> - General guidance on the prevention of danger from work in proximity to overhead lines and underground cables <p>AFAG 805</p> <ul style="list-style-type: none"> - Operator qualifications
3.	Demonstrate knowledge of the inclusion of 'COSHH' in the Risk Assessment	<ul style="list-style-type: none"> - Pesticide usage - Wood dust - Engine exhaust emissions - Smoke from fires - Vegetation (e.g. hogweed) - Micro organisms (e.g. Weils Disease) - Machine fluids
4.	Demonstrate knowledge of describing a tree to be worked on as part of the generic/site specific risk assessment	<ul style="list-style-type: none"> - Species or Type - Reference number of tree - Location - Overhang - Decay - Dead
5.	Demonstrate knowledge of the factors that influence tree growth	<ul style="list-style-type: none"> - Climate and environment - Altitude - Soil Condition - Terrain - Age
6.	Demonstrate knowledge of tree defects that would need to be included in the risk assessment	<ul style="list-style-type: none"> - Tight compression/forks identified - Old pollards - Extensive decay identified - Root heave - Cracks and splits - Abnormal bulges - Abnormal sway - Roots above ground - Forks/splits moving apart in the wind - Cankers - Cavities - Hazards presented by tree cover
7.	Demonstrate knowledge of working on a tree that has decay/defects or damage	<p>Fungal fruiting bodies:</p> <ul style="list-style-type: none"> - Type of decay (brittle or elastic) <p>Major decay, defect or damage may prevent:</p> <ul style="list-style-type: none"> - Tree being climbed for dismantling operations - Branch being sectioned in manageable pieces <ul style="list-style-type: none"> - Winch felling on the tree on a shut down may be necessary - Line may need to be de energised and dropped to allow the branch to fall

Section 4 – Risk Assessment (continued)		
8.	Demonstrate knowledge of removing large branches over hanging the line	<ul style="list-style-type: none"> - Dangerous overhang identified Method of removal: <ul style="list-style-type: none"> - Line made dead - Appropriate work technique chosen - Qualified and competent workers deployed - Branch reduced / sectioned - Branch sections allowed to fall / cast / lowered as appropriate
9.	Demonstrate knowledge of identifying tree health	<ul style="list-style-type: none"> - Crown die back - Thin canopy - Premature autumn colours - Abnormally small leaves - Peeling bark - Poor extension growth - Abnormal colouring
10.	Demonstrate knowledge of ‘over pruning’ and ‘good pruning’	Biological tree reactions to over pruning: <ul style="list-style-type: none"> - Poor crown architecture - Long whippy stems, end loading - Extensive long lone laterals - Open crowns, over pruning allowing too much movement - Arching branches Biological tree reactions to good pruning: <ul style="list-style-type: none"> - Good crown architecture - Secondary thickening because of wind/sway - Even distribution of main branches and leaf cover - Typical branch and leaf growth for the species