

# **ABC** Awards

## **SEG Awards ABC Award, Certificate and Diploma in Arboriculture**

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### **Qualification Guidance Level 4**

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**Level 4 Award – 600/2490/2**

**Level 4 Certificate - 600/2698/4**

**Level 4 Diploma – 600/2582/7**

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## About Us

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At the Skills and Education SEG Awards (ABC)<sup>1</sup> we continually invest in high quality qualifications, assessments and services for our chosen sectors. As a UK leading sector specialist we continue to support employers and skills providers to enable individuals to achieve the skills and knowledge needed to raise professional standards across our sectors.

ABC has an on-line registration system to help customers register learners on its qualifications, units and exams. In addition it provides features to view exam results, invoices, mark sheets and other information about learners already registered.

The system is accessed via a web browser by connecting to our secure website using a username and password:

[https://secure.ABCawards.co.uk/ors/secure\\_login.asp](https://secure.ABCawards.co.uk/ors/secure_login.asp)

## Sources of Additional Information

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The ABC website [www.ABCawards.co.uk](http://www.ABCawards.co.uk) provides access to a wide variety of information.

## Copyright

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This document may be copied by approved centres for the purpose of assessing learners. It may also be copied by learners for their own use.

## Specification Code, Date and Issue Number

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The specification code is A9300-04, C9300-04, D9300-04.

The date of this specification is April 2019. The Issue number is 5.5.

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<sup>1</sup> ABC Awards is a brand of the Skills and Education Group Awards, a recognised awarding organisation and part of the Skills and Education Group. Any reference to ABC Awards, its registered address, company or charity number should be deemed to mean the Skills and Education Group Awards.

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This is a live document and as such will be updated when required. It is the responsibility of the approved centre to ensure the most up-to-date version of the Qualification Guidance is in use. Any amendments will be published on our website and centres are encouraged to check this site regularly.

## Introduction

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The Level 4 Award, Certificate and Diploma in Arboriculture are designed for those people working in arboriculture, in both the public and private sectors, to complement their training and experience, and to provide evidence of their knowledge of arboriculture.

They have been developed in collaboration with industry, providers and Lantra, the Sector Skills Council for the Land based industries.

The Level 4 Award will be put forward for inclusion on the ASL catalogue. Please check the ABC Awards website for the current status of this qualification.

## Aims

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The ABC Level 4 Award, Certificate and Diploma in Arboriculture aim to:

- improve job prospects
- encourage knowledge and application of current arboricultural industry best practice
- encourage learners to follow a programme of structured continuing professional development (CPD)
- facilitate access to higher level management qualifications

## Target Group

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These qualifications are designed for those learners who

- have been involved in the practical side of the industry and wish to progress into a more managerial role
- work in related disciplines such as horticulture, forestry, countryside management, landscape architecture and planning and wish to increase their knowledge of arboriculture
- are currently working as tree officers, technicians and those involved in tree survey works who wish to achieve a recognised vocational qualification

ABC Awards expects approved centres to recruit with integrity on the basis of a learner's ability to contribute to and successfully complete all the requirements of a unit(s) or the full qualification.

## **Progression Opportunities**

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These qualifications provide suitable skills and experience to progress to other higher level qualifications such as the ABC Awards Level 6 Certificate or Diploma in Arboriculture.

In addition, achievement of these qualifications should provide a solid foundation of skills supporting progression to higher levels of responsibility and opening up the possibility of entrepreneurial activities such as starting one's own business.

Centres should be aware that Reasonable Adjustments which may be permitted for assessment may in some instances limit a learner's progression into the sector. Centres must, therefore, inform learners of any limits their learning difficulty may impose on future progression.

## **Language**

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These specifications and associated assessment materials are in English only.

## Qualification Summary

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<b>Qualification and Pathways</b>	
<p>ABC Level 4 Award in Arboriculture – 600/2490/2          ABC Level 4 Certificate in Arboriculture – 600/2698/4          ABC Level 4 Diploma in Arboriculture – 600/2582/7</p>	
<b>Regulated</b>	The qualifications identified above are all regulated by Ofqual
<b>Assessment</b>	Internal assessment, internal and external moderation.
<b>Grading</b>	Pass
<b>Progression</b>	<p>Learners could progress from these Level 4 qualifications onto the Level 6 Certificate or Diploma in Arboriculture.</p> <p>Centres should be aware that Reasonable Adjustments which may be permitted for assessment may in some instances limit a learner’s progression into the sector.</p> <p>Centres must, therefore, inform learners of any limits their learning difficulty may impose on future progression.</p>
<b>Operational Start Date</b>	01/08/2011
<b>Review Date</b>	31/08/2021
<b>ABC Sector</b>	Land Based/Environmental
<b>Ofqual SSA Sector</b>	03.2 Horticulture and Forestry
<b>Stakeholder support</b>	These qualifications are supported by Lantra, the Sector Skills Council for environmental and land-based industries
<b>Contact</b>	See ABC website for the Centre Support Officer responsible for this qualification.

## Level 4 Award in Arboriculture

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Rules of Combination: Learners must achieve a minimum of 9 credits and a maximum of 12 credits from any of the units below. A minimum of 7 credits must be at Level 4 or above.

Unit	Level	Credit Value	GL
Woody vegetation formation and physiology [D/503/3316]	4	6	35
Tree biomechanics and maintenance [M/503/3319]	4	7	40
Pest, disease and disorder identification	3	5	24
Principles of tree management [T/503/3323]	5	9	45
Development and tree protection [A/503/3324]	4	5	25
Selection, planting and design with hardy nursery stock for amenity and landscape purposes [L/503/3330]	5	8	40
Principles of woodland establishment and management [F/503/3325]	3	5	25
Tree related damage to built structures [L/503/3327]	4	4	20

<b>Qualification Purpose</b>	B. Prepare for further learning or training and/or develop knowledge and/or skills in a subject area Sub Purpose B1. Prepare for further learning or training, B2. Develop knowledge and/or skills in a subject area				
<b>Entry Requirements</b>	16+				
<b>Section 96/97</b>	<b>Pre 16</b>	<b>16 – 18</b>	<b>v'</b>	<b>19 +</b>	<b>v'</b>
<b>LARS Reference</b>	TBC				
<b>Recommended GLH<sup>2</sup></b>	44 GLH				

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<sup>2</sup> See Glossary of terms

<b>Recommended TQT<sup>3</sup></b>	90
<b>Credit Value</b>	See ABC Qualifications Directory
<b>Type of Funding Available</b>	See LARS (Learning Aim Rates Service)
<b>Qualification Fee/Unit Fee</b>	See ABC web site for current fees and charges
<b>Additional Information</b>	See ABC website for resources available for this qualification

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<sup>3</sup> See Glossary of terms



## Level 4 Certificate in Arboriculture

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Rules of Combination: Learners must achieve a minimum of 31 credits. This must include 27 credits from the mandatory units.

Unit	Level	Credit Value	GL
<b>Mandatory Units</b>			
Woody vegetation formation and physiology [D/503/3316]	4	6	35
Tree biomechanics and maintenance [M/503/3319]	4	7	40
Pest, disease and disorder identification [M/503/3322]	3	5	24
Principles of tree management [T/503/3323]	5	9	45
<b>Optional Units</b>			
Development and tree protection [A/503/3324]	4	5	25
Selection, planting and design with hardy nursery stock for amenity and landscape purposes [L/503/3330]	5	8	40
Principles of woodland establishment and management [F/503/3325]	3	5	25
Tree related damage to built structures [L/503/3327]	4	4	20

<b>Qualification Purpose</b>	B. Prepare for further learning or training and/or develop knowledge and/or skills in a subject area Sub Purpose B1. Prepare for further learning or training, B2. Develop knowledge and/or skills in a subject area				
<b>Entry Requirements</b>	16+				
<b>Section 96/97</b>	<b>Pre 16</b>	<b>16 – 18</b>	<b>v'</b>	<b>19 +</b>	<b>v'</b>
<b>LARS Reference</b>	TBC				
<b>Recommended GLH<sup>4</sup></b>	164				

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<sup>4</sup> See Glossary of terms

<b>Recommended TQT<sup>5</sup></b>	310
<b>Credit Value</b>	
<b>Type of Funding Available</b>	See LARS (Learning Aim Rates Service)
<b>Qualification Fee / Unit Fee</b>	See ABC web site for current fees and charges
<b>Additional Information</b>	See ABC website for resources available for this qualification

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<sup>5</sup> See Glossary of terms

## Level 4 Diploma in Arboriculture

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Rules of Combination: Learners must achieve a minimum of 49 credits. This must include 40 credits from the mandatory units.

Unit	Level	Credit Value	GL
<b>Mandatory Units</b>			
Woody vegetation formation and physiology [D/503/3316]	4	6	35
Tree biomechanics and maintenance [M/503/3319]	4	7	40
Pest, disease and disorder identification [M/503/3322]	3	5	24
Principles of tree management [T/503/3323]	5	9	45
Development and tree protection [A/503/3324]	4	5	25
Selection, planting and design with hardy nursery stock for amenity and landscape purposes [L/503/3330]	5	8	40
<b>Optional Units</b>			
Principles of woodland establishment and management [F/503/3325]	3	5	25
Tree related damage to built structures [L/503/3327]	4	4	20

<b>Qualification Purpose</b>	B. Prepare for further learning or training and/or develop knowledge and/or skills in a subject area Sub Purpose B1. Prepare for further learning or training, B2. Develop knowledge and/or skills in a subject area			
<b>Entry Requirements</b>	16+			
<b>Section 96/97</b>	<b>Pre 16</b>	<b>16 – 18</b>	<b>19 +</b>	<input type="checkbox"/>
<b>LARS Reference</b>	TBC			
<b>Recommended GLH<sup>6</sup></b>	254			

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<sup>6</sup> See Glossary of terms

<b>Recommended TQT<sup>7</sup></b>	490
<b>Credit Value</b>	
<b>Type of Funding Available</b>	See LARS (Learning Aim Rates Service)
<b>Qualification Fee / Unit Fee</b>	See ABC web site for current fees and charges
<b>Additional Information</b>	See ABC website for resources available for this qualification

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<sup>7</sup> See Glossary of terms

# Unit Details

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## Woody Vegetation Formation and Physiology

<b>Unit Reference</b>	D/503/3316
<b>Level</b>	4
<b>Credit Value</b>	6
<b>Guided Learning Hours</b>	35
<b>Unit Summary</b>	<p>This unit covers the physiological function of woody vegetation and the application of that understanding to arboriculture.</p> <p>The learner will understand the effects on the tree system when conditions are not at their optimum for growth and how adverse conditions may be prevented or improved.</p>
<b>Learning Outcomes (1 to 9)</b> <b>The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 9.3)</b> <b>The learner can:</b>
1. Understand primary and secondary growth processes in trees	1.1 Describe determinate and indeterminate shoot development in trees  1.2 Describe secondary growth processes in trees  1.3 Compare the benefits and limitations of ring porous, diffuse porous xylem anatomy in tree.
2. Understand the makeup of woody cell connections and water movement	2.1 Explain the symplastic and apoplastic movement that occurs in the tree  2.2 Explain each of the following related to water movement <ul style="list-style-type: none"> <li>○ root pressure (pushed up)</li> </ul>

		<ul style="list-style-type: none"> <li>○ tension-cohesion theory (pulled up)</li> </ul>
3.	Understand the relationship between the concepts of dynamic and static mass and potential energy	<p>3.1 Explain how a tree regulates its mass/energy ratio as it ages</p> <p>3.2 Analyse five ways in which the impact of tree work on potential energy (Non-structural carbohydrates) can be reduced</p>
4.	Understand how the efficiency of a tree's system can be adversely affected	<p>4.1 Describe the significant effects on the tree system of:</p> <ul style="list-style-type: none"> <li>○ carrying out any operation as named in BS 3998</li> <li>○ a named abiotic disorder (excluding any</li> <li>○ climatic factor)</li> <li>○ a named climatic condition</li> <li>○ a named pest attacking the foliage</li> <li>○ a named pest attacking the vascular system</li> <li>○ a named pathogen attacking the root system</li> <li>○ a 'complex' decline (combination of problems)</li> </ul> <p>4.2 Describe how the principal requirements of an urban tree can be provided for in practice to achieve a healthy full-term life</p>
5.	Understand the process of photosynthesis	<p>5.1 State what occurs in the light and dark reactions during photosynthesis.</p> <p>5.2 Explain factors affecting the rate of photosynthesis</p>

	5.3 Describe how chlorophyll fluorescence can be measured to monitor tree performance
6. Understand branch formation and shedding	<p>6.1 Describe and compare the theories regarding fork/branch formation and attachment for similarities and differences (Shigo, Mattheck and Slater)</p> <p>6.2 Explain how significant structural weaknesses found in branch and co-dominant stem formation can lead to failure</p> <p>6.3 Describe measures that can reduce the incidence of branch or co-dominant stem failure</p> <p>6.4 Describe four unsound arboricultural practices explaining how each may increase the risk of tree/branch failure</p>
7. Understand the benefits of trees forming symbiotic relationships	<p>7.1 Evaluate the symbiotic relationship as formed between trees and</p> <ul style="list-style-type: none"> <li>○ fungi</li> <li>○ bacteria</li> </ul> <p>7.2 Describe how the above relationships can be encouraged to develop by cultural practices</p>
8. Understand how soil conditions effect root system development and function.	<p>8.1 Describe the formation, distribution and depth of a typical temperate root system</p> <p>8.2 Describe the principal effects on root development and/or function of each of the following soil factors:</p> <ul style="list-style-type: none"> <li>○ hydraulic conductivity</li> <li>○ bulk density</li> <li>○ soil aeration</li> <li>○ soil temperature</li> <li>○ pH</li> </ul>



	<ul style="list-style-type: none"> <li>○ poor cation exchange</li> <li>○ a man-made or natural barrier</li> </ul>
<p>9. Understand how a tree responds to wounding</p>	<p>9.1 Evaluate the process called compartmentalisation that a tree goes through following wounding</p> <p>9.2 Explain, with examples, why some species are better than others at compartmentalisation of wounds</p> <p>9.3 Describe and justify the use of three practices that can be adopted at the time of carrying out tree surgery operations that may assist a tree to form barriers as represented in the CODIT model</p>

## Supporting Unit Information

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Woody Vegetation Formation and Physiology – D/503/3316 - Level 4

### Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. The processes of plant growth - photosynthesis, cell division, vascular cambium, phloem, xylem and tracheid cells, meristems, thickening of cell walls, bark production. Secondary thickening. Morphology of crown and roots, growth pattern, shoot development, secondary growth. Tree design – structurally. Ring, diffuse and semi-ring porous types of vessels.

Indeterminate and determinate shoot growth.

2. Symplast and apoplast, passive and active movement of water, nutrients and materials made by photosynthesis. Osmosis and diffusion. Root pressure and tension-cohesion theory to move water.

3. The process of tree aging from seedling to old age. Potential/stored energy and kinetic energy/energy in use and the ration between the two (Shigo). Dynamic mass and static mass and why this transition occurs. Ways to reduce the impact of pruning on energy levels.

4. The tree system composed of photosynthesis, transpiration, translocation, reproduction, respiration, defence, storage, anchorage and cell division/growth and these processes can be adversely affected by factors faced by trees through their life time. Describe the tree's principal requirements to sustain life, symbiotic relationships, protection from pests, diseases and disorders.

5. The process of photosynthesis, Photophosphorylation, factors affecting the rate of photosynthesis, measuring chlorophyll activity to determine health.

6. Theories of branch attachment, similarities and differences – Shigo, Mattheck and Slater. Included bark, compression fork, tensile fork, practices

for dealing with co-dominant stems and avoidance of the incidence of them, and unsound practices - lions tailing, over thinning and excessive removal of lower branches.

7. The benefits of trees forming symbiotic relationships with Mycorrhiza fungi and nitrifying bacteria. How to encourage the relationships with trees.

8. Root system development and make-up – root plate, buttress roots, droppers/sinkers, lateral roots, fibrous roots, root hairs. Shapes and forms of root system. Distribution, depth and spread of a typical root system. Principal effects on root growth of various soil conditions.

9. Tree responses to wounding – CODIT model. Reaction zone – walls 1-3 and barrier zone wall 4 and continues to grow. Effectiveness of the responses. Trees natural defensive substances phenolic compounds and suberin. Long lived and shorter lived trees. Methods to assist wound occlusion - Target pruning, small wounds, timing, age of tree and avoids when pruning.

## **Teaching Strategies and Learning Activities**

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Centres should adopt a delivery approach which supports the development of their particular learners. The aims and aspirations of all learners, including those with identified special needs, including learning difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

## **Methods of Assessment**

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This unit will be internally assessed, internally and externally moderated via a learner's portfolio and other related evidence, against the unit outcomes and assessment criteria.

The assessment of some knowledge and understanding may take place in a non-work based environment e.g. training centre, however it must link directly to workplace performance and include performance evidence.

All learners must complete a portfolio of evidence that shows achievement of all the relevant learning outcomes and assessment criteria

### **Minimum requirements when assessing this unit**

ABC expects that staff will be appropriately qualified to assess learners against the outcomes and criteria within the units. Generally teaching staff should be qualified and/or vocationally experienced to at least a level above that which they are teaching

### **It is important that practical assessment activities are supervised appropriately**

### **Evidence of Achievement**

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Evidence presented to support achievement is not prescribed for each learning outcome. It **could** typically include:

- Product evidence
- Observation reports
- Oral/written questions and answers
- Reports/notes
- Worksheets/job sheets/workbooks
- Witness statements
- Taped evidence (video or audio)
- Photographic evidence
- Case studies/assignments/projects
- Interview/professional discussion
- Site risk assessment
- Tool / equipment inventory lists / maintenance schedules
- Pictorial identifications
- Letters / emails seeking clarification / confirmation of understanding
- Internet research / copies of items with relevant knowledge highlighted

This is not an exhaustive list and learners should be encouraged to develop the most appropriate evidence to demonstrate their achievement of the learning outcomes and assessment criteria.

All evidence must be clearly signposted and made available for the external moderator upon request.

All internal assessments must be accompanied by a signed Declaration of Authenticity (this document is available on the ABC web site).

### **Additional Information**

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#### **Useful sources of reference**

- "Modern Arboriculture" by Alex Shigo - *ISBN 0-943563-09-7*
- "Trees: Their Natural History" by Peter Thomas - *ISBN 0-521-45963-X*
- "Photosynthesis" by D. O. Hall and K. K. Rao - *ISBN 0-521-64497-6*
- "Tree Roots in the Built Environment" - 'Research for Amenity Trees No.8' - *ISBN 0-11-753620-2*
- "Field Guide: The Identification of Soils for Forest Management" - Forestry Commission - *ISBN 0 85538 559 6*
- "Soil Types: A Field Identification Guide" by Stephen Trudgill, Field Studies Council - *ISBN 1 58153 196 3*
- "Up by Roots: Healthy Soils and Trees in the Built Environment" by James Urban - *ISBN 1-881956-65-2*
- Applied Tree Biology by A D Hirons and P A Thomas *ISBN 978-1-11829640-0*

**See ABC website for further information**

## Tree Biomechanics and Maintenance

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<b>Unit Reference</b>	M/503/3319
<b>Level</b>	4
<b>Credit Value</b>	7
<b>Guided Learning Hours</b>	40
<b>Unit Summary</b>	This unit covers the inspection of trees related to their condition and remedial actions that maybe required as a result of finding defects.
<b>Learning Outcomes (1 to 4) The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 4.4)</b> <b>The learner can:</b>
1. Understand tree form as an ideal structure	<p>1.1 Summarise the concept that is the foundation of the principle 'The Axiom of Uniform Stress'</p> <p>1.2 Outline the reasoning for the school of thought that the axiom of uniform stress is an incomplete concept</p> <p>1.3 Explain why sound trees might break</p>
2. Be able to recognise warning signs or symptoms of impending mechanical failure in trees	<p>2.1 Identify ten symptoms of mechanical defects and explain how each defect can lead to a named failure type</p> <p>2.2 Undertake a systematic inspection of five trees and record any defects found:</p> <ul style="list-style-type: none"> <li>○ evaluate the defects, without the use of specialised equipment,</li> </ul>

	<ul style="list-style-type: none"> <li>○ draw conclusions regarding the potential risk posed by each tree</li> <li>○ present the findings in an appropriate format</li> </ul> <p>2.3 Apply one hollow tree failure criteria to a tree</p>
<p>3. Understand the treatment of defects in trees</p>	<p>3.1 Describe how each of the following may reduce or prevent risks to a target posed by trees</p> <ul style="list-style-type: none"> <li>○ formative pruning</li> <li>○ crown reduction</li> <li>○ selective branch removal</li> <li>○ monolithing</li> <li>○ treatment of significant decay/cavities</li> <li>○ treatment of weak structures</li> </ul> <p>3.2 Prescribe an appropriate treatment for each of five given tree conditions in accordance with best practice</p> <p>3.3 Evaluate the effectiveness of each treatment prescribed in assessment criteria 3.2</p>
<p>4. Understand the principles of operation of specialised devices used to assist tree inspection</p>	<p>4.1 Prescribe the use of an appropriate device to a given range of three different tree conditions and justify the decision</p> <p>4.2 Evaluate the use of specialist equipment listed in one of the following categories identifying four strengths and four weaknesses excluding cost:</p> <ul style="list-style-type: none"> <li>○ sonic or ultrasonic</li> <li>○ electrical impedance</li> <li>○ computerised tomography</li> <li>○ micro-drills</li> </ul>

- Fractometer
- ground penetrating radar

4.3 Evaluate the use of invasive decay detection devices and draw conclusions in relation to:

- wounding of woody tissues
- providing a pathway for colonisation by fungi
- monetary cost of their use versus the benefits

4.4 Demonstrate the application of one specialist item of equipment used to undertake an investigation of symptoms or signs of structural defects from the following:

- sonic or ultrasonic
- electrical impedance
- computerised tomography
- micro-drills
- Fractometer
- ground penetrating radar



## Supporting Unit Information

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Tree Biomechanics and Maintenance – M/503/3319 - Level 4

### Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. Tree biomechanics (the body language of trees) – axiom of uniform stress, trees external and internal stresses, even load distribution, minimum level arm. Tension wood, compression wood, shear and torsion. Arrangement of wood fibres. Thigmomorphogenesis – trees are touched by the wind. Why might sound trees break.

2. Identification of mechanical defects that can lead to failure. Tree inspection processes and data collection. Visual Tree Assessment (VTA) use of binoculars, probe and mallet. Presentation of findings and recommendations, use of a timescale for works and inspection period. Application of failure criteria - Wessolly and Erb - Static Integrated Assessment or method. Anyone of the American theories Wagener, Coder, Smiley and Fraedrich. Application and interpretation of findings against the failure criteria.

3. Pruning methods/treatments - Formative pruning, crown reduction, crown thinning, selective branch removal, pollarding, monolithing, treatment of significant decay/cavities, treatment of weak structures as per BS3998. Effectiveness when measured against preventing or reducing risk to a target.

4. Principle of operation of the following categories of specialist equipment.

- sonic or ultrasonic
- computerised tomography
- micro-drills
- Fractometer 1 and 11
- Ground Penetrating Radar

Which are invasive and which are not. Use of the equipment.

## Teaching Strategies and Learning Activities

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### Methods of Assessment

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### Evidence of Achievement

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- Reports/notes
- Worksheets/job sheets/workbooks
- Witness statements
- Taped evidence (video or audio)

- Photographic evidence
- Case studies/assignments/projects
- Interview/professional discussion
- Site risk assessment
- Tool / equipment inventory lists / maintenance schedules
- Pictorial identifications
- Letters / emails seeking clarification / confirmation of understanding
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## **Additional Information**

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### **Useful sources of reference**

- "The Body Language of Trees: A Handbook for Failure Analysis" by Claus Mattheck and Helge Breloer - 'Research for Amenity Trees No.4' - *ISBN 011-753067-0*
- "Principles of Tree Hazard Assessment and Management" by David Lonsdale - 'Research for Amenity Trees No.7 - *ISBN 0-11-753355-6*
- British Standard 3998:2010 'Tree Work – Recommendations'
- "Common Sense Risk Management of Trees" National Tree Safety Group
- *ISBN 978-0-85538-840-9*
- "Stupsi Explains the Tree" Mattheck
- *ISBN 3-923704-22-4*
- "The Body Language of Trees : Encyclopaedia of visual Tree Assessment" by Claus Mattheck, K. Bethge, K Weber 2015
- *ISBN 978-3-923704-89-7*
- "Field Guide for Visual Tree Assessment" C. Mattheck
- *ISBN: 978-3-923704-59-0 2007*
- "Manual of Tree Statics and Tree Inspection" Lothar Wessolly and Martin Erb *ISBN 978-3-87617-143-2*

**See ABC website for further information**

## Pest, Disease and Disorder Identification

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<b>Unit Reference</b>	M/503/3322
<b>Level</b>	3
<b>Credit Value</b>	5
<b>Guided Learning Hours</b>	24
<b>Unit Summary</b>	This unit covers the identification, diagnosis, understanding, implications and treatment of present diseases and disorders that are a threat to woody vegetation populations in GB
<b>Learning Outcomes (1 to 4) The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 5.3)</b> <b>The learner can:</b>
1. Understand how the control of pests and diseases are regulated	1.1 Describe how domestic legislation would operate for a named pest or disease which is subject to a plant health order
2. Know how to undertake an investigation to establish the presence of a pest, disease or abiotic disorder	2.1 Using signs or symptoms present on woody vegetation identify three different causal agents from each of the following categories: <ul style="list-style-type: none"> <li>○ bacteria</li> <li>○ mammals</li> <li>○ invertebrates</li> <li>○ abiotic disorders</li> </ul>
3. Know what preventative measures or remedial	3.1 Prescribe and justify an appropriate prevention, control or treatment intervention for those agents identified in 2.1

<p>treatments are available</p>	
<p>4. Understand how fungi colonise woody tissues</p>	<p>4.1 Describe the four principal strategies employed by tree decay fungi to colonise woody tissues</p> <p>4.2 Describe each of the following types of rot and give an example of a fungal pathogen for each</p> <ul style="list-style-type: none"> <li>○ white – selective delignification</li> <li>○ white simultaneous</li> <li>○ brown</li> <li>○ soft</li> </ul> <p>4.3 For each of 20 principal decay fungi identify the following aspects:</p> <ul style="list-style-type: none"> <li>○ common hosts</li> <li>○ colonisation strategy</li> <li>○ type of rot caused</li> <li>○ arboricultural significances</li> <li>○ parts of host affected</li> <li>○ any preventative measures/treatment</li> </ul>
<p>5. Understand about biosecurity</p>	<p>5.1 Describe the main benefits to the UK of a biosecurity policy</p> <p>5.2 Outline the main points to be included in a biosecurity policy.</p> <p>5.3 Undertake / produce a biosecurity risk assessment.</p>

## Supporting Unit Information

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Pest, Disease and Disorder Identification – M/503/3322 - Level 3

### Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. Pest and disease control - Work of GB National legislation National Plant Protection Organisation (NPPO) – Defra for urban trees and the Forestry Commission (FC) for forests and woodlands. Animal and Plant Health Agency. Use of Plant passports and phytosanitary certificates and Plant health orders.

2. Undertake an investigation to establish the presence of a pest, disease or abiotic disorder. Sign – something which indicates the presence of a pest or disease. Symptom – a physical feature, visible effect indicating the presence of a pest/ disease. Field sampling and collecting samples for lab analysis.

3. Know what preventative or remedial treatments are available - integrated approach, cultural practices, biological, chemical, physical, mechanical, sanitation, quarantine.

4. Fungal colonisation strategies – (Dr A Rayner)- Heartrot, Sapwood exposed (Unspecialised opportunists) Sapwood intact (latent decay) (specialist opportunists) and Active pathogenesis (Fungal Induced dysfunction)

Type of rot - Brown rot, selective delignification, simultaneous white rot, soft rot. 20 examples of principal decayers of woody tissues plus common host(s), colonisation strategy, type of rot caused, arboricultural significance, part of host affected and preventive measures/treatment.

5. Understand about biosecurity – a set of precautions that aim to prevent the introduction and spread of harmful organisms. These may be pests, pathogens or invasive species. A Plant Biosecurity Strategy for Great Britain.

Policy contents for a tree surgery company. Undertake a biosecurity risk assessment.

## Teaching Strategies and Learning Activities

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Centres should adopt a delivery approach which supports the development of their particular learners. The aims and aspirations of all learners, including those with identified special needs, including learning difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

## Methods of Assessment

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This unit will be internally assessed, internally and externally moderated via a learner's portfolio and other related evidence, against the unit outcomes and assessment criteria.

The assessment of some knowledge and understanding may take place in a non-work based environment e.g. training centre, however it must link directly to workplace performance and include performance evidence.

All learners must complete a portfolio of evidence that shows achievement of all the relevant learning outcomes and assessment criteria

### **Minimum requirements when assessing this unit**

ABC expects that staff will be appropriately qualified to assess learners against the outcomes and criteria within the units. Generally teaching staff should be qualified and/or vocationally experienced to at least a level above that which they are teaching

**It is important that practical assessment activities are supervised appropriately.**

## Evidence of Achievement

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Evidence presented to support achievement is not prescribed for each learning outcome. It **could** typically include:

- Product evidence
- Observation reports
- Oral/written questions and answers



- Reports/notes
- Worksheets/job sheets/workbooks
- Witness statements
- Taped evidence (video or audio)
- Photographic evidence
- Case studies/assignments/projects
- Interview/professional discussion
- Site risk assessment
- Tool / equipment inventory lists / maintenance schedules
- Pictorial identifications
- Letters / emails seeking clarification / confirmation of understanding
- Internet research / copies of items with relevant knowledge highlighted

This is not an exhaustive list and learners should be encouraged to develop the most appropriate evidence to demonstrate their achievement of the learning outcomes and assessment criteria.

All evidence must be clearly signposted and made available for the external moderator upon request.

All internal assessments must be accompanied by a signed Declaration of Authenticity (this document is available on the ABC web site).

### **Additional Information**

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#### **Useful sources of reference**

- "Principles of Tree Hazard Assessment and Management" by David Lonsdale - 'Research for Amenity Trees No.7 - ISBN 0-11-753355-6
- "Diagnosis of Ill-Health in Trees" - 'Research for Amenity Trees No.2' - ISBN 0-11-752919-2
- "Diagnosis and Prognosis of the Development of Wood Decay in Urban Trees" by Francis W. M. R. Schwarze - ISBN 978-0-646-49144-8
- "Fungi on Trees – An Arborists' Field Guide" Watson and Green
- ISBN 978-0-900978-55-5
- "Manual of Wood Decay in Trees" Weber and Mattheck ISBN 0 900978 35 X

**See ABC website for further information.**

## Principles of Tree Management

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<b>Unit Reference</b>	T/503/3323
<b>Level</b>	5
<b>Credit Value</b>	9
<b>Guided Learning Hours</b>	45
<b>Unit Summary</b>	This unit covers management aspects of trees, legislation and common laws that apply to working practices.
<b>Learning Outcomes (1 to 7) The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 7.4)</b> <b>The learner can:</b>
1. Know the value of trees	<p>1.1 Describe six principal values and four drawbacks of trees under each of the following headings</p> <ul style="list-style-type: none"> <li>○ environmental</li> <li>○ ecological</li> <li>○ social/economic</li> <li>○ amenity/landscape</li> </ul> <p>1.2 Carry out an amenity evaluation of a tree using a recognized methodology and draw conclusions related to the outcome</p> <p>1.3 Evaluate the strengths and weaknesses of the methodology used</p>
2. Understand how common law precedent may be applied to trees	<p>2.1 Extrapolate from previous cases, the current common law precedents related to the following:</p> <ul style="list-style-type: none"> <li>○ overhanging branches</li> <li>○ encroaching roots</li> <li>○ poisonous trees</li> </ul>

	<ul style="list-style-type: none"> <li>○ dangerous trees</li> <li>○ rights to light</li> </ul> <p>2.2 Apply common law to the following:</p> <ul style="list-style-type: none"> <li>○ overhanging branches</li> <li>○ encroaching roots</li> <li>○ dangerous trees</li> </ul>
<p>3. Understand the implications of statutes related to trees</p>	<p>3.1 Interpret statute law related to each of the following scenarios:</p> <ul style="list-style-type: none"> <li>○ the management of height clearance of highway trees</li> <li>○ a dangerous tree within falling distance of a public bridleway</li> <li>○ a high evergreen boundary hedge between house owners</li> <li>○ the removal of an important hedge in the countryside</li> <li>○ the movement of waste materials</li> <li>○ the application of a systemic herbicide</li> <li>○ a protected species harmed by the actions of a tree surgeon</li> <li>○ the habitat of a protected species destroyed by tree removal</li> <li>○</li> </ul>
<p>4. Understand the implications of Health and Safety legislation and best practice related to tree work</p>	<p>4.1 Interpret statute law and/or best practice as applied to each of the following scenarios:</p> <ul style="list-style-type: none"> <li>○ the manual lifting of wood</li> <li>○ the use of work equipment</li> <li>○ the use of noisy machinery</li> <li>○ the use of hazardous substance</li> <li>○ working at height</li> <li>○ the use of equipment used for lifting purposes</li> </ul>

	<ul style="list-style-type: none"> <li>○ the requirement to have a first aid assistance</li> <li>○ an accident at work carrying out tree work</li> <li>○ the use of machinery that can vibrate</li> <li>○ carrying out tree work alongside a highway</li> <li>○ working near electric utility lines</li> </ul> <p>4.2 Identify the duties, rights, or responsibilities under the Management of Health and Safety at Work Regulations for:</p> <ul style="list-style-type: none"> <li>○ employer</li> <li>○ employee</li> <li>○ self-employed</li> </ul> <p>4.3 Prepare a site specific risk assessment for a given tree surgery operation that conforms to the requirements of the regulations</p> <p>4.4 Prepare a method statement for dismantling trees on a construction site</p>
<p>5. Understand the application and implications of pruning methods to tree management, excluding risk management</p>	<p>5.1 Evaluate each of the following pruning operations available to manage trees as described in the British Standard illustrated with named examples of tree species:</p> <ul style="list-style-type: none"> <li>○ formative pruning</li> <li>○ crown reduction</li> <li>○ crown thinning</li> <li>○ selective branch removal</li> <li>○ pollarding</li> </ul>

<p>6. Understand the advantages of pro-actively managing tree populations</p>	<p>6.1 Contrast the pro-active and re-active management of a population of trees and form a conclusion</p> <p>6.2 Identify the values of preparing a tree renewal programme for an example of over-mature trees in a street</p>
<p>7. Understand the values of Ancient and Veteran trees</p>	<p>7.1 Identify twelve reasons why a veteran or an ancient tree is recognised as being 'special'</p> <p>7.2 Outline ten principles of managing Ancient/Veteran trees and justify why each principle contributes to enhancing the special aspects of those trees</p> <p>7.3 Describe the principles and processes involved in 'veteranising' a tree and evaluate the potential results related to: <ul style="list-style-type: none"> <li>○ Habitat creation</li> </ul> </p> <p>7.4 Describe the treatment required for a 'lapsed pollard' that is to be retained as a pollard and identify the physiological threats to its continued survival as a result of the treatment</p>

## Supporting Unit Information

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Principles of Tree Management – T/503/3323 - Level 5

### Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. Values of tree - environmental, ecological, social/economic and amenity/landscape. The concepts of the various methodologies of valuing trees e.g. Helliwell, CTLA, TEMPO, CAVAT, i-Tree. Use a recognized methodology and evaluate its usefulness.
2. Common law and how it applies to trees - duty of care - overhanging branches, encroaching roots, poisonous trees, dangerous trees and rights to light. Court precedent and extrapolate facts from court precedents related to the above.
3. The implications of Statute laws related to trees related to tree operations.
4. The implications of Health and Safety legislation and best practice related to tree work. Employer, employee and self-employed and the Duties, Responsibilities and Rights required by the H&SW Act. Site specific assessment, generic sheets and method statements, their construction and use.
5. The application and implications of pruning methods to tree management, excluding risk management - formative pruning, crown thinning, crown lifting, crown reduction, selective pruning, pollarding as per BS3998.
6. Managing tree populations by pro-active and re-active approach – contrast the approaches. Tree renewal programme – pro-active policy of renewing a population of trees.

7. The values of Ancient and Veteran trees. Why are they special and the principles of managing them. The principles and processes involved in 'veteranising' a tree. Lapsed pollard management and threats to its continued survival.

## **Teaching Strategies and Learning Activities**

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## **Methods of Assessment**

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### **Minimum requirements when assessing this unit**

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## **Evidence of Achievement**

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- Product evidence
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## **Additional Information**

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### **Useful sources of reference**

- Arboricultural Association Guidance Note 4 – “Visual Amenity Valuation of Trees and Woodlands – The Helliwell System” 2008
- Capital Asset Value for Amenity Trees (CAVAT) by Christopher Neilan
- British Standard 3998:2010 ‘Tree Work – Recommendations’
- “The Law of Trees, Forests and Hedgerows” – by Charles Mynors - *ISBN 042159040-8*
- “Urban Tree Management for the Sustainable Development of Green Cities” edited by Andreas Roloff *ISBN 978-1-118-95458-4*
- Arboricultural Practice Note 11 – “Trees and Hedges in Dispute”



- [www.communities.gov](http://www.communities.gov) – various downloads:
  - 'Tree Preservation Orders: A guide to the Law and Good Practice'
  - 'Hedge Height and Light Loss'
- 'Health and Safety Package' – produced by the Arboricultural Association  
- ISBN 0 900978 40 6
- 'Safety at Street Works and Road Works – A Code of Practice' –  
ISBN 011551958-0
- [www.hse.gov](http://www.hse.gov) - free downloads available for:
  - information relating to all health and safety legislation
  - industry best practice - AFAG leaflets
- "Veteran Trees: A guide to Risk and Responsibility" - ISBN 1 85716 508 X
- Ancient and other Veteran Trees: further guidance on management edited  
by D Lonsdale. ISBN 978-0-904853-09-4
- [www.businessballs.com](http://www.businessballs.com) - free downloads available for all aspects of  
management
- "Veteran Trees: A guide to Good Management" by Helen Read - ISBN 1  
85716 474 1

**See ABC website for further information**

## Development and Tree Protection

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<b>Unit Reference</b>	A/503/3324
<b>Level</b>	4
<b>Credit Value</b>	5
<b>Guided Learning Hours</b>	25
<b>Unit Summary</b>	This unit covers the arboricultural aspects of site development and tree protection and how this is managed through planning policies, legislation and best practice.
<b>Learning Outcomes (1 to 3)</b> <b>The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 3.3)</b> <b>The learner can:</b>
1. Understand the impacts on trees of development and how this may be mitigated or reduced	<p>1.1 Explain how to determine the value and quality of the woody vegetation on and around the site</p> <p>1.2 Identify:</p> <ul style="list-style-type: none"> <li>○ The tree constraints on a development site</li> <li>○ the likely impacts of development on woody vegetation and vice versa</li> <li>○ the importance of physically protecting trees on a development site</li> </ul> <p>1.3 Identify the tree related components required in a planning application to assist a developer within the planning process</p>

	<p>1.4 For each of the following impacts describe an appropriate measure which mitigates or eliminates the impact on trees within a root protection area</p> <ul style="list-style-type: none"> <li>○ ground compaction and asphyxiation of roots</li> <li>○ severance of roots for foundation construction</li> <li>○ severance of roots for construction of a utility service</li> </ul> <p>1.5 For each of the following impacts describe an appropriate measure which mitigates or eliminates the impact on trees on a development site:</p> <ul style="list-style-type: none"> <li>○ mixing of materials</li> <li>○ use of cranes</li> <li>○ hard landscaping</li> <li>○ soft landscaping</li> <li>○ storage of materials</li> <li>○ entry by contractors to a Construction Exclusion Zone (CEZ)</li> <li>○ post development requests for pruning due to a shading issue</li> <li>○ impacts on new tree planting</li> </ul>
<p>2. Understand planning policy and guidance</p>	<p>2.1 Summarise the aims of planning policies and legislation as used by local planning authorities to both plan for and control development</p>
<p>3. Understand how tree protection mechanisms operate</p>	<p>3.1 Distinguish between the purposes of each of the following:</p>

	<ul style="list-style-type: none"><li>○ Tree Preservation Order (TPO)</li><li>○ Designated Conservation Area (CA)</li><li>○ Felling license</li></ul> <p>3.2 Identify the information that must be present on a:</p> <ul style="list-style-type: none"><li>○ completed TPO</li><li>○ Regulation 5 notice</li></ul> <p>3.3 Describe the procedures undertaken by the parties involved following:</p> <ul style="list-style-type: none"><li>○ a planning application to fell a protected tree</li><li>○ a notice to prune a tree in a Conservation Area</li></ul>
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## Supporting Unit Information

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Development and Tree Protection – A/503/3324 - Level 4

### Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. Quality and Value of a tree or group according to BS 5837. Tree survey data to be collected. Identify the constraints posed by trees to developing a site.

Identify the likely impacts of development on vegetation and vice versa. Know the importance of protecting trees on a development site. Identify the tree related components required for a planning application. Mitigation or elimination of the impacts on roots in a root protected area.

2. Summary of the aims of national and local planning policies as used by LPAs to both plan and control development.

National Planning Policy Framework, Town and Country Planning Act, Planning (Listed Buildings and Conservation Areas) Act, Town and Country Planning (Tree Preservation) (England) Regulations, The Town and Country Planning (Environmental Impact Assessment) Regulations, Planning and Compulsory Purchase Act 2004, Planning Act 2008, Localism Act, Local Development Plans.

3. How tree protection mechanisms operate – Tree Preservation Orders (TPO), Conservation Area protection and Felling Licences. Complete an application for works under a TPO and a notification of works (211 notice) and understand how the processes work for the parties involved - applicant, LPA and interested parties.

### Teaching Strategies and Learning Activities

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difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

## **Methods of Assessment**

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## **Evidence of Achievement**

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Evidence presented to support achievement is not prescribed for each learning outcome. It **could** typically include:

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- Oral/written questions and answers
- Reports/notes
- Worksheets/job sheets/workbooks
- Witness statements
- Taped evidence (video or audio)
- Photographic evidence
- Case studies/assignments/projects
- Interview/professional discussion

- Site risk assessment
- Tool / equipment inventory lists / maintenance schedules
- Pictorial identifications
- Letters / emails seeking clarification / confirmation of understanding
- Internet research / copies of items with relevant knowledge highlighted
- This is not an exhaustive list and learners should be encouraged to develop the most appropriate evidence to demonstrate their achievement of the learning outcomes and assessment criteria.

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## **Additional Information**

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### **Useful sources of reference**

- British Standard 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'
- National House Building Council (NHBC) Chapter 4.2 – 'Building near Trees'
- British Standard 3998 : 2010 – 'Tree Work – Recommendations'
- National Joint Utilities Group (NJUG) Vol 4 – 'Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'
- Arboricultural Practice Note 4 – "Root Barriers and Building Subsidence"
- Arboricultural Practice Note 5 – "Shaded by Trees?"
- Arboricultural Practice Note 12 – "Through the Trees to Construction"
- "The Law of Trees, Forests and Hedgerows" – by Charles Mynors - *ISBN 0-421-59040-8*
- 'Tree Preservation Orders: A guide to the Law and Good Practice'

**See ABC website for further information**

## Selection Planting and Design with Hardy Nursery Stock for Amenity and Landscape Purposes

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<b>Unit Reference</b>	L/503/3330
<b>Level</b>	5
<b>Credit Value</b>	8
<b>Guided Learning Hours</b>	40
<b>Unit Summary</b>	Learners will cover nomenclature, tree and shrub identification, nursery selection, plant selection, transportation, planting, protection, production, after care, planning, uses and design principles for planted hardy nursery stock used in amenity landscapes.
<b>Learning Outcomes (1 to 8) The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 8.5) The learner can:</b>
1. Understand nomenclature and how to use a botanical key and other source to identify trees and shrubs.	<p>1.1 Identify 100 trees/shrubs by their genera, species cultivar or variety names as applicable using their characteristics and features to include a minimum of 15 each from</p> <ul style="list-style-type: none"> <li>○ evergreen broadleaved</li> <li>○ deciduous broadleaved</li> <li>○ conifer</li> <li>○ shrubs</li> </ul> <p>1.2 Demonstrate the use of a botanical key to identify a species</p> <p>1.3 For each tree or shrub identified in 1.1 state their main arboricultural</p>



	<ul style="list-style-type: none"> <li>○ uses</li> <li>○ limitations</li> <li>○ in urban, rural or woodland landscapes as applicable</li> </ul>
2. Understand the principles of taking trees from the nursery to independence in the landscape	<p>2.1 Summarise the processes of taking trees from the nursery to independence in the landscape under the following headings:</p> <ul style="list-style-type: none"> <li>○ Policy and strategy</li> <li>○ Site evaluation and constraints assessment</li> <li>○ Species selection</li> <li>○ Nursery Production and procurement</li> <li>○ Handling and Storage</li> <li>○ Planting</li> <li>○ Post Planting management and maintenance</li> </ul> <p>2.2 Discuss the concept of adding or not adding soil ameliorants to the planting pit at the time of planting</p>
3. Know what species to select for any set of conditions or requirements.	3.1 Prepare and present advice with justifications for clients on species choice related to three sets of different difficult site conditions/usage.
4. Know what woody plant stock size and type is available.	<p>4.1 Specify an appropriate species, size, stock type and appropriate protection for each of the following sites, justifying the selection for each aspect</p> <ul style="list-style-type: none"> <li>○ tree in a city street</li> <li>○ canopy tree for an amenity woodland</li> <li>○ tree for a motorway embankment</li> <li>○ ornamental tree for a public open space</li> </ul>

	<ul style="list-style-type: none"> <li>○ tree for prestigious development</li> <li>○ shrubs for mass planting adjacent to a highway</li> </ul> <p>4.2 Critically compare the selection of each of the following stock types for planting</p> <ul style="list-style-type: none"> <li>○ bare rooted whip versus cell grown</li> <li>○ bare root standard versus air pot standard</li> </ul> <p>4.3 Critically evaluate the quality of one sample of purchased standard sized tree stock against British Standards and the HTA plant specification manual</p>
<p>5. Understand current methods of tree and shrub production.</p>	<p>5.1 For each of the following describe a production method used by nursery growers to produce one named ornamental tree to a standard size</p> <ul style="list-style-type: none"> <li>○ worked tree (budded or grafted) to include rootstock and scion production</li> <li>○ tree from seed to include collection and breaking of dormancy</li> </ul>
<p>6. Know how to select hardy nursery stock and have it delivered in good condition.</p>	<p>6.1 Produce a list of criteria to be used in selecting a supplier of good quality nursery stock.</p> <p>6.2 Specify the measures required to get stock delivered at the planting site in good condition in accordance with the JCLI code of practice for plant handling – lifting in the nursery to delivery at site.</p> <p>6.3 Prepare a schedule of purchase for tree and shrub stock for a given scenario using</p>

	the Horticultural Trades Association (HTA) plant specification guidance.
7. Know how to prepare a site for planting	<p>7.1 Conduct a preliminary site survey and undertake a basic soil analysis drawing conclusion regarding suitability and if improvements are required.</p> <p>7.2 Apply survey and analysis findings to determine the required preparation for planting site and be able to identify further analysis requirements as applicable.</p>
8. Know how to plant, protect and care for newly planted trees and shrubs	<p>8.1 Describe an appropriate planting method for each of the following in a given site situation</p> <ul style="list-style-type: none"> <li>○ 40-60 transplant</li> <li>○ bare-rooted standard tree</li> <li>○ container grown shrub</li> <li>○ Semi-mature tree</li> </ul> <p>8.2 Evaluate four given methods/ materials for each of the following practices drawing conclusions</p> <ul style="list-style-type: none"> <li>○ support systems</li> <li>○ protection methods</li> <li>○ moisture control methods</li> <li>○ soil ameliorants</li> </ul> <p>8.3 Describe the post planting aftercare requirements for each in a given situation</p> <ul style="list-style-type: none"> <li>○ 40-60 transplant</li> <li>○ bare-rooted standard tree</li> <li>○ container grown shrub</li> <li>○ Semi-mature tree</li> </ul> <p>8.4 Cost the stock and materials for the following</p> <ul style="list-style-type: none"> <li>○ whip in a tree shelter</li> </ul>

- standard tree with stake requiring rabbit protection
- 2 litre shrub with a strimmer/mower guard

8.5 Critically evaluate post-planting conditions on a recently (up to 5 years) planted site where trees are failing, draw conclusions and make management recommendations preparing advice for a client in line with current professional practice

## Supporting Unit Information

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Selection, Planting and Design with Hardy Nursery Stock for Amenity and Landscape Purposes – L/503/3330 - Level 5

## Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. The purpose of the International Code of Nomenclature for algae, fungi, and plants, define the terms, Family, Genus, Species, Variety, Cultivar, Clone, Common name, Interspecific hybrid, Intergeneric hybrid, Chimera/graft hybrid.

Write scientific and common names correctly in accordance with the International code. Demonstrate the use a botanical key to identify a species of tree or shrub. Able to identify trees and shrubs stating their main attributes.

2. The principles of taking trees from the nursery to independence in the landscape – BS8545. Site evaluation and constraints assessment, Species selection, Nursery Production and procurement, Handling and Storage, Planting, Post Planting management and maintenance. Benefits and dis-benefits of adding soil ameliorants to a planting pit.

3. Species selection and justification for varying site conditions or requirements and preparing of advice for clients.

4. What woody plant stock sizes are available - Seedling, cutting, transplant, maiden, whip, feathered tree, standard trees, semi-mature tree, multi-stem trees. Types - bare root, cell grown, container grown- black bag/pot, white bag, spring ring, air pot, root balled/wrapped, containerized. Compare the selection of bare rooted seedling versus cell grown and bare root standard versus air pot. Evaluate a sample of tree stock for quality.

5. Current methods of tree and shrub production - worked tree in the field or bench graft and a tree from seed to point of sale to include details of typical

nursery operations grafting/budding staking, watering, nutrition, pruning, undercutting. Production for a shrub or conifer from a semi-ripe cutting to sale as a 2 litre size.

6. How to select hardy nursery stock and have it delivered in good condition - JCLI /HTA Plant Handling Code. Specification required for delivery of stock from lifting in the nursery to temporary storage after delivery. Preparation of a schedule of purchase for hardy nursery.

7. How to prepare a site for planting - conduct a site and soil survey on a specific site. Specify the required preparations and or further site/soil analysis requirements.

8. How to plant, protect and care for newly planted trees and shrubs. A wide range of plating methods – notch, pit, bare root, root balled, container, semi mature, standard, whip, over ground support, underground support, short stake long stake, various protection – rabbit guard, vandal resistant, stock proof, shelter, mulching, soil amendments, moisture control methods. Costs of stock and accessories. Aftercare requirements – 3 year programme. Investigate why trees fail to establish.

## **Teaching Strategies and Learning Activities**

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Centres should adopt a delivery approach which supports the development of their particular learners. The aims and aspirations of all learners, including those with identified special needs, including learning difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

## **Methods of Assessment**

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This unit will be internally assessed, internally and externally moderated via a learner's portfolio and other related evidence, against the unit outcomes and assessment criteria.

The assessment of some knowledge and understanding may take place in a non-work based environment e.g. training centre, however it must link directly to workplace performance and include performance evidence.

All learners must complete a portfolio of evidence that shows achievement of all the relevant learning outcomes and assessment criteria

### **Minimum requirements when assessing this unit**

ABC expects that staff will be appropriately qualified to assess learners against the outcomes and criteria within the units. Generally teaching staff should be qualified and/or vocationally experienced to at least a level above that which they are teaching

### **It is important that practical assessment activities are supervised appropriately**

### **Evidence of Achievement**

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Evidence presented to support achievement is not prescribed for each learning outcome. It **could** typically include:

- Product evidence
- Observation reports
- Oral/written questions and answers
- Reports/notes
- Worksheets/job sheets/workbooks
- Witness statements
- Taped evidence (video or audio)
- Photographic evidence
- Case studies/assignments/projects
- Interview/professional discussion
- Site risk assessment
- Tool / equipment inventory lists / maintenance schedules
- Pictorial identifications
- Letters / emails seeking clarification / confirmation of understanding
- Internet research / copies of items with relevant knowledge highlighted

This is not an exhaustive list and learners should be encouraged to develop the most appropriate evidence to demonstrate their achievement of the learning outcomes and assessment criteria.

All evidence must be clearly signposted and made available for the external moderator upon request.

All internal assessments must be accompanied by a signed Declaration of Authenticity (this document is available on the ABC web site).

## **Additional Information**

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### **Useful sources of reference**

- A Field Guide to the Trees of Britain and Northern Europe by Alan Mitchell - *ISBN 0 00 219213 6*
- Trees in Britain, Europe and North America by Roger Phillips - *ISBN 0 330 25480 4*
- The Tree and Shrub Expert by Dr. D.G. Hessayon - *ISBN 0-90350517-7*
- Hillier's Manual of Trees and Shrub - *ISBN 0-7153-8302-7*
- British Standard 3936 Part 1 – 'Specification for Trees and Shrubs'
- Horticultural Trades Association – 'National Plant Specification' and 'Handling and Establishing Landscape Plants'
- BS8545:2014 'Trees: from nursery to independence in the landscape – Recommendations'
- Principles and Practice of Planting Trees and Shrubs by Gary Watson and E.B. Himelick – ISA - *ISBN 1-881956-18-0*
- The Planting Design Handbook 2<sup>nd</sup> edition by Nick Robinson - *ISBN 07546-3035-8*

**See ABC Awards for further information.**



# Principles of Woodland Establishment and Management

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<b>Unit Reference</b>	F/503/3325
<b>Level</b>	3
<b>Credit Value</b>	5
<b>Guided Learning Hours</b>	25
<b>Unit Summary</b>	This unit covers the maintenance of existing woodland and establishment of new amenity woodlands which are open to public access and where the main aims of management include public enjoyment, conservation of wildlife and landscape value.
<b>Learning Outcomes (1 to 7) The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 7.4)</b> <b>The learner can:</b>
1. Understand the principles of silviculture	<p>1.1 Describe the main principles of the following silvicultural systems:</p> <ul style="list-style-type: none"> <li>○ Clear fell</li> <li>○ Selection</li> <li>○ single</li> <li>○ strip</li> <li>○ Shelterwood</li> <li>○ Group</li> <li>○ Irregular</li> </ul> <p>1.2 Evaluate the application of a Continuous Cover Forestry approach where the primary aims include wildlife conservation, recreation and landscape value</p>

<p>2. Know the different types of woodland present in GB</p>	<p>2.1 Distinguish the main characteristics of the following:</p> <ul style="list-style-type: none"> <li>○ ancient woodland</li> <li>○ ancient semi-natural woodland</li> <li>○ plantation on an ancient woodland site</li> <li>○ semi-natural woodland</li> <li>○ recent semi-natural woodland</li> <li>○ new native woodland</li> <li>○ pasture woodland</li> <li>○ coppice with standards</li> <li>○ coppice</li> </ul> <p>2.2 Summarise the main principles of managing five of the following:</p> <ul style="list-style-type: none"> <li>○ ancient woodland</li> <li>○ ancient semi-natural woodland</li> <li>○ plantation on an ancient woodland site</li> <li>○ semi-natural woodland</li> <li>○ recent semi-natural woodland</li> <li>○ new native woodland</li> <li>○ pasture woodland</li> <li>○ coppice with standards</li> <li>○ coppice</li> </ul>
<p>3. Know what sources and types of funding are available to assist woodland management and establishment</p>	<p>3.1 Summarise the main sources of funding for establishing and managing woodland</p> <p>3.2 Provide details of one type of funding</p>
<p>4. Understand the processes of forming a woodland management plan</p>	<p>4.1 Identify the significant information to be collected as part of an existing woodland site assessment and justify how that information contributes to the formation of a management plan</p>

	<p>4.2 Explain the purpose of the following when written in to a plan</p> <ul style="list-style-type: none"> <li>○ aims</li> <li>○ objectives</li> <li>○ operation statements</li> </ul> <p>4.3 Analyse three given objectives and three given operational statements that cover the following two aims</p> <ul style="list-style-type: none"> <li>○ wildlife conservation</li> <li>○ recreation</li> </ul>
<p>5. Understand the processes involved in establishing a new woodland</p>	<p>5.1 Identify the significant information to be collected as part of a site assessment, prior to woodland creation and justify how each item of information contributes to the formation of a plan of operations</p> <p>5.2 Provide and justify realistic and economic solutions for the following site constraints:</p> <ul style="list-style-type: none"> <li>○ low nutrient levels particularly nitrogen</li> <li>○ compacted slopes of 40 year old mining spoil</li> <li>○ improved grassland</li> </ul> <p>5.3 Provide solutions to the threats to tree establishment posed by one named example from each of the following groups</p> <ul style="list-style-type: none"> <li>○ mammals</li> <li>○ mechanical damage</li> <li>○ excessive weed growth</li> <li>○ lack of moisture</li> </ul> <p>5.4 Select and justify the following to be used in the establishment of a new amenity woodland on a given site</p> <ul style="list-style-type: none"> <li>○ 5 main canopy trees</li> <li>○ 3 understory shrub species</li> </ul>

	<ul style="list-style-type: none"> <li>○ 5 woodland edge species</li> </ul>
<p>6. Understand the concept of woodland ecology</p>	<p>6.1 Describe a basic food chain related to trees that covers the four levels of the recognized pyramid of trophic levels</p> <p>6.2 Define the terms ecosystem and ecotone</p> <p>6.3 Describe each of the following and explain their ecological inter-relationship:</p> <ul style="list-style-type: none"> <li>○ plant subsystem</li> <li>○ herbivore/carnivore subsystem</li> <li>○ decomposition subsystem</li> </ul> <p>6.4 Define each of the following and explain their importance to woodland ecology:</p> <ul style="list-style-type: none"> <li>○ saproxylic invertebrate</li> <li>○ red data book species</li> <li>○ wood decay fungi</li> <li>○ deadwood</li> <li>○ phoenix regeneration</li> </ul>
<p>7. Understand plant survival or 'ecological' strategies</p>	<p>7.1 Define the terms Competition, Stress Tolerance and Disturbance in relation to life-strategies within plant communities</p> <p>7.2 Describe the impact of competition, stress and disturbance upon the diversity of plant communities</p> <p>7.3 Exemplify and explain the evolutionary adaptations of named woodland species as life-strategies for survival in mature climax-woodland</p> <p>7.4 Define the term biodiversity and explain why it is important to the success and survival of a woodland community</p>

## Supporting Unit Information

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Principles of Woodland Establishment and Management – F/503/3325 - Level 3

### Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. The principles of silvicultural systems - clear fell, selection and shelterwood. Principles of continuous cover forestry which is not a system but an approach to forest management. Strengths and weaknesses of the application of the continuous cover approach where the primary aims are wildlife conservation, recreation and landscape value.
2. The different types and characteristics of woodland present in GB – ancient woodland, ancient semi-natural woodland, plantation on an ancient woodland site, semi-natural woodland, recent semi-natural woodland, new native woodland, pasture woodland, coppice with standards and coppice. The main principles of managing the woodland types.
3. What sources and types of grant are available to assist woodland management and establishment, what the money can be used for and likely amounts.
4. The processes of forming a woodland management plan, typical contents. Examine the difference between aims, objectives and operational statements. Know what SMART (specific, measurable, achievable, realistic and time bound) objectives are and be able to analyse them. Survey information to be collected in order to form a plan of operations.
5. The processes involved in establishing a new woodland – Site assessment information and how this contributes to the formation of a plan. Provide solutions to any problems encountered – low nutrient levels, compaction of old mining spoil, improved grassland, weed control, moisture availability, mammal damage, mechanical damage. Identify and justify choices of species

applicable to a woodland - main canopy trees, understory shrub species and woodland edge species.

6. The concept of woodland ecology, its origins and meaning. Ecosystem and ecotone. Trophic levels, subsystems – plant, herbivore and decomposition, transfer of energy. Basic food chain -producers (green plants), primary consumers (herbivores), secondary consumers (carnivores[omnivores]) , tertiary consumers (carnivores [omnivores]). Know about saproxylic invertebrates, red data book species, phoenix regeneration, dead wood and wood decay fungi and their importance to woodland ecology.

7. Plant survival or 'ecological' strategies - Competition, Stress Tolerance and Disturbance in relation to life-strategies – Grime's triangle. What is Biodiversity.

## **Teaching Strategies and Learning Activities**

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Centres should adopt a delivery approach which supports the development of their particular learners. The aims and aspirations of all learners, including those with identified special needs, including learning difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

## **Methods of Assessment**

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This unit will be internally assessed, internally and externally moderated via a learner's portfolio and other related evidence, against the unit outcomes and assessment criteria.

The assessment of some knowledge and understanding may take place in a non-work based environment e.g. training centre, however it must link directly to workplace performance and include performance evidence.

All learners must complete a portfolio of evidence that shows achievement of all the relevant learning outcomes and assessment criteria

### **Minimum requirements when assessing this unit**

ABC expects that staff will be appropriately qualified to assess learners against the outcomes and criteria within the units. Generally teaching staff

should be qualified and/or vocationally experienced to at least a level above that which they are teaching

**It is important that practical assessment activities are supervised appropriately**

### **Evidence of Achievement**

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Evidence presented to support achievement is not prescribed for each learning outcome. It **could** typically include:

- Product evidence
- Observation reports
- Oral/written questions and answers
- Reports/notes
- Worksheets/job sheets/workbooks
- Witness statements
- Taped evidence (video or audio)
- Photographic evidence
- Case studies/assignments/projects
- Interview/professional discussion
- Site risk assessment
- Tool / equipment inventory lists / maintenance schedules
- Pictorial identifications
- Letters / emails seeking clarification / confirmation of understanding
- Internet research / copies of items with relevant knowledge highlighted

This is not an exhaustive list and learners should be encouraged to develop the most appropriate evidence to demonstrate their achievement of the learning outcomes and assessment criteria.

All evidence must be clearly signposted and made available for the external moderator upon request.

All internal assessments must be accompanied by a signed Declaration of Authenticity (this document is available on the ABC web site).

### **Additional Information**

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#### **Useful sources of reference**

- "Woodland Management – A Practical Guide" by Chris Starr - *ISBN 1 86126 789-4*
- "Urban Forestry Practice" – Forestry Commission Handbook 5 - *ISBN 011-710273-3*
- "Creating and Managing Woodlands Around Towns" - Forestry Commission Handbook 11 - *ISBN 0-11-710328-4*
- "Wildlife Conservation in Managed Woodlands and Forests" E. and J. Harris - *ISBN 0 86380 206 0*
- "Woodland Conservation and Management" by George Peterken - *ISBN 0-412-55730-4*
- [www.forestry.gov](http://www.forestry.gov) for a multitude of useful downloads, including:
  - 'The Management of Semi-natural woodlands – Practice Guides' – Nos. 1 to 8
  - "Managing Native Broadleaved Woodland" by Harmer, Kerr and Thompson ISBN 978-0 11 497344-5
  - "Silvicultural Systems" by John D Matthews ISBN 0-19-854670-X
  - "Europe's Changing Woods and Forests – From Wildwood to Managed Landscapes" – edited by Keith J. Kirby and Charles Watkins ISBN 978-1-78064-337-3

**See ABC website for further information**



## Tree Related Damage to Build Structures

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<b>Unit Reference</b>	L/503/3327
<b>Level</b>	4
<b>Credit Value</b>	4
<b>Guided Learning Hours</b>	20
<b>Unit Summary</b>	Learners will gain a theoretical knowledge of how trees can cause damage to built structures by direct and indirect means and what possible solutions are available to reduce, mitigate or remediate the problem
<b>Learning Outcomes (1 to 3)</b> <b>The learner will:</b>	<b>Assessment Criteria</b> (is to be assessed by a method as deemed appropriate by the training provider in order to achieve this unit) <b>(1.1 to 3.3)</b> <b>The learner can:</b>
1. Understand the interaction and relationship between roots, clay soils and built structures	<p>1.1 Describe the following:</p> <ul style="list-style-type: none"> <li>○ a shrinkable clay soil</li> <li>○ modified plasticity index</li> <li>○ plastic limit</li> <li>○ liquid limit</li> <li>○ a desiccated clay soil</li> </ul> <p>1.2 Explain how woody vegetation causes the following types of damage to built structures</p> <ul style="list-style-type: none"> <li>○ by contact</li> <li>○ blockage of drainage pipes</li> <li>○ subsidence</li> <li>○ heave</li> </ul> <p>1.3 Briefly describe eight other possible causes of damage to built structures that are not woody vegetation related</p>

<p>2. Know what investigations are appropriate to inform actions</p>	<p>2.1 Identify the information required and the sources of that information in order to carry out an investigation into:</p> <ul style="list-style-type: none"> <li>○ direct damage</li> <li>○ subsidence damage</li> </ul>
<p>3. Know what solutions are available related to structural damage</p>	<p>3.1 Evaluate the following four arboricultural options as solutions for direct and indirect damage:</p> <ul style="list-style-type: none"> <li>○ Tree removal</li> <li>○ Crown reduction as per BS 3998</li> <li>○ Crown thinning as per BS 3998</li> <li>○ Root pruning</li> </ul> <p>3.2 Describe one engineering solution for each of the following:</p> <ul style="list-style-type: none"> <li>○ house subsidence damage</li> <li>○ pavement damage</li> <li>○ a pushed up brick wall</li> <li>○ a blocked underground drainage pipe</li> </ul> <p>3.3 Identify two strengths and two weaknesses for each engineering solution</p>

## Supporting Unit Information

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Tree Related Damage to Built Structures – L/502/3327 - Level 4

### Indicative Content

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**Note:** Indicative content provides an indication of the scope for the Learning Outcomes and Assessment Criteria. It is intended as a resource to help guide the delivery and assessment of the unit. Indicative content is NOT a statement of material which must be covered and evidenced for assessment.

1. The interaction and relationship between roots, clay soils and built structures, what is a shrinkable clay soil, modified plasticity index, plastic limit, liquid limit, a desiccated soil. How trees cause direct damage to built structures – walls, pavements, kerbstones and drains. How trees cause subsidence and heave. Other causes of damage other than subsidence.
2. What investigations are required for direct damage and indirect damage and how the information is obtained.
3. What solutions are available related to structural damage and how effective - tree removal, crown reduction as per 3998, crown thinning as per 3998, root pruning, Underpinning - house, Pavement - bridges or ramps, stronger and thicker materials, flexible surfaces, reinforced concrete, raised surface, use of break out zones, Wall – lintel with a void to allow for increment growth, rebuild and curve around root, Pipe – replace or insertion of a sleeve.

### Teaching Strategies and Learning Activities

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Centres should adopt a delivery approach which supports the development of their particular learners. The aims and aspirations of all learners, including those with identified special needs, including learning difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

### Methods of Assessment

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This unit will be internally assessed, internally and externally moderated via a learner's portfolio and other related evidence, against the unit outcomes and

assessment criteria. The assessment of some knowledge and understanding may take place in a non-work based environment e.g. training centre, however it must link directly to workplace performance and include performance evidence.

All learners must complete a portfolio of evidence that shows achievement of all the relevant learning outcomes and assessment criteria

### **Minimum requirements when assessing this unit**

ABC expects that staff will be appropriately qualified to assess learners against the outcomes and criteria within the units. Generally teaching staff should be qualified and/or vocationally experienced to at least a level above that which they are teaching

**It is important that practical assessment activities are supervised appropriately**

### **Evidence of Achievement**

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Evidence presented to support achievement is not prescribed for each learning outcome. It **could** typically include:

- Product evidence
- Observation reports
- Oral/written questions and answers
- Reports/notes
- Worksheets/job sheets/workbooks
- Witness statements
- Taped evidence (video or audio)
- Photographic evidence
- Case studies/assignments/projects
- Interview/professional discussion
- Site risk assessment
- Tool / equipment inventory lists / maintenance schedules
- Pictorial identifications
- Letters / emails seeking clarification / confirmation of understanding
- Internet research / copies of items with relevant knowledge highlighted

This is not an exhaustive list and learners should be encouraged to develop the most appropriate evidence to demonstrate their achievement of the learning outcomes and assessment criteria.

All evidence must be clearly signposted and made available for the external moderator upon request.

All internal assessments must be accompanied by a signed Declaration of Authenticity (this document is available on the ABC web site).

### **Additional Information**

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#### **Useful sources of reference**

- National House Building Council (NHBC) Chapter 4.2 – ‘Building near Trees’
- “Has Your House Got Cracks?” by Freeman, Driscoll and Littlejohn - *ISBN 0-7277-3089-4*
- “Subsidence Damage to Domestic Buildings” by Driscoll and Skinner - *ISBN 978-1-86081-977-3*
- “The Subsidence Handbook – A Practical Guide to Subsidence in Domestic Property” by The Subsidence Forum - no ISBN

**See ABC website for further information**

## Appendices

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### Recognition of Prior Learning (RPL), Exemption and Credit Transfer

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ABC Awards policy enables learners to avoid duplication of learning and assessment in a number of ways:

- Recognition of Prior Learning (RPL) – a method of assessment that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning.
- Exemption - Exemption applies to any certificated achievement which is deemed to be of equivalent value to a unit within ABC qualification but which does not necessarily share the exact learning outcomes and assessment criteria. It is the assessor's responsibility, in conjunction with the Internal Moderator, to map this previous achievement against the assessment requirements of the ABC qualification to be achieved in order to determine its equivalence.

Any queries about the relevance of any certificated evidence, should be referred in the first instance to your centre's internal moderator and then to ABC.

It is important to note that there may be restrictions upon a learner's ability to claim exemption or credit transfer which will be dependent upon the currency of the unit/qualification and a learner's existing levels of skill or knowledge.

Where past certification only provides evidence that could be considered for exemption of part of a unit, learners must be able to offer additional evidence of previous or recent learning to supplement their evidence of achievement.

- Credit Transfer – ABC may attach credit to a qualification, a unit or a component. Credit transfer is the process of using certificated credits achieved in one qualification and transferring that achievement as a valid contribution to the award of another qualification.

Units/Components transferred must share the same learning outcomes and assessment criteria along with the same unit number. Assessors must ensure that they review and verify the evidence through sight of:

- original certificates OR

- copies of certificates that have been signed and dated by the internal moderator confirming the photocopy is a real copy and make these available for scrutiny by the External Moderator
- Equivalencies – opportunities to count credits from the unit(s) from other qualifications or from unit(s) submitted by other recognised organisations towards the place of mandatory or optional unit(s) specified in the rule of combination. The unit must have the same credit value or greater than the unit(s) in question and be at the same level or higher.

For this qualification achievement of equivalent units is identified in the table below.

<b>Unit title</b>	<b>Equivalent unit URN</b>
The interaction of soil environments and woody plants	T/602/3921
Woody plant physiology	A/602/3922
The supply, planting and aftercare of woody plants	A/602/3936
Principles of tree surgery operations	L/602/3956
Tree inspections and statute and common law applied to trees	Y/602/3958
The principles of aerial tree surgery and ground based arboricultural operation	R/602/3960
Basic principles of woodlands, forestry and ecology	H/602/3963
The principles of managing special trees	T/602/3966
Principles of tree surgery equipment use and maintenance	A/602/3967

ABC encourages its centres to recognise the previous achievements of learners through Recognition of Prior Learning (RPL), Exemption and Credit Transfer. Prior achievements may have resulted from past or present employment, previous study or voluntary activities. Centres should provide advice and guidance to the learner on what is appropriate evidence and present that evidence to the external moderator in the usual way.

## Certification

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Learners will be certificated for all units and qualifications that are claimed.

ABC's policies and procedures are available on the ABC web site in the Examination Officers' Guide.

## Glossary of Terms

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### **GLH (Guided Learning Hours)**

GLH is where the learner participates in education or training under the immediate guidance or supervision of a tutor (or other appropriate provider of education or training). It may be helpful to think – 'Would I need to plan for a member of staff to be present to give guidance or supervision?'

GLH is calculated at qualification level and not unit/component level.

Examples of Guided Learning include:

- Face-to-face meeting with a tutor
- Telephone conversation with a tutor
- Instant messaging with a tutor
- Taking part in a live webinar
- Classroom-based instruction
- Supervised work
- Taking part in a supervised or invigilated assessment
- The learner is being observed.

### **TQT (Total Qualification Time)**

'The number of notional hours which represents an estimate of the total amount of time that could reasonably be expected to be required, in order for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.' The size of a qualification is determined by the TQT.

TQT is made up of the Guided Learning Hours (GLH) plus all other time taken in preparation, study or any other form of participation in education or training but not under the direct supervision of a lecturer, supervisor or tutor.



TQT is calculated at qualification level and not unit/component level.

Examples of unsupervised activities that could contribute to TQT include:

- Researching a topic and writing a report
- Watching an instructional online video at home/e-learning
- Watching a recorded webinar
- Compiling a portfolio in preparation for assessment
- Completing an unsupervised practical activity or work
- Rehearsing a presentation away from the classroom
- Practicing skills unsupervised
- Requesting guidance via email – will not guarantee an immediate response.

