



LEVEL 6 CERTIFICATE AND DIPLOMA IN ARBORICULTURE

QUALIFICATION GUIDANCE

**Level 6 Certificate – [60025864]
Level 6 Diploma – [6002785X]**

About ABC Awards

ABC Awards (ABC) is one of the largest vocational awarding bodies in the United Kingdom with an established reputation for quality and customer service. ABC is recognised by the regulatory authorities. ABC is a Component Awarding Body (CAB) for 14-19 Diplomas

The ABC portfolio of qualifications includes National Vocational Qualifications (NVQs) and Vocationally Related Qualifications (VRQs)

ABC's VRQs may also be

- Technical Certificates
- Additional and/or Specialist Learning for the 14-19 Diplomas
- Included within Foundation Learning

ABC's national operation is supported through its regional offices which provide support to centres and a full range of assessment services. ABC has a team of dedicated staff who can offer advice and guidance on the full Portfolio, Examination and Moderation services including e-Assessment offered by ABC, as well as the full range of ABC training events and conferences. The team is committed to helping you in the way that suits your requirements and is available to visit you at your convenience

ABC encourages centres to use its on-line registration service. Registration facilities are available through our web site – <http://www.abcawards.co.uk/secure/register.php>

Sources of Additional Information

The ABC web site www.abcawards.co.uk provides access to a wide variety of information

Copyright

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers

Information in this publication is correct at time of going to press but may be subject to change. Any amendments will be published on our web site and centres are encouraged to check this site regularly

Contents

Qualification Summary	1
Introduction	4
Aims	4
Target Group	4
Progression Opportunities	4
Unit Details	5
Recognition of Prior Learning (RPL), Exemption and Credit Transfer	57
Certification	57

Qualification Summary

ABC Awards Level 6 Certificate and Diploma in Arboriculture

Qualifications	
Level 6 Certificate in Arboriculture Level 6 Diploma in Arboriculture	
Assessment	Internal assessment, internal and external moderation
Grading	Pass
Progression	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
Operational Start Date	01/08/2011
Review Date	31/08/2014
ABC Sector	Land Based / Environmental
SSA Sector	03.2 Horticulture and Forestry
Support from sector bodies	These qualifications are supported by Lantra, the Sector Skills Council for environmental and land-based industries
ABC Administering Office	Additional guidance and advice to support these qualifications and units is freely available to approved ABC centres See ABC web site for the contact details of the administering office

Level 6 Certificate in Arboriculture

Rules of Combination: Learners must achieve a minimum of 31 credits. This must include 25 credits from the mandatory units.

Unit	Level	Credit Value	GLH	Page No.
Mandatory Units				
Selection, planting and design with hardy nursery stock for amenity and landscape purposes [L/503/3330]	5	8	30	5
Tree and hedge management [R/503/4169]	6	8	30	23
Tree risk management [L/503/4168]	6	9	40	33
Optional Units				
Woodland management [Y/503/4173]	5	8	40	12
New native woodland planting [D/503/4174]	5	6	30	18
Planning and development in arboriculture [L/503/4171]	6	9	30	29
Arboricultural plant health [J/503/4170]	6	8	40	38
Independent research project in arboriculture [K/503/4176]	6	6	15	43
Management of special trees [H/503/4175]	6	6	30	47
Structural damage investigations for the arboriculturist [R/503/4205]	7	8	40	52

Numbers in box brackets indicate QCF unit Number

If learners achieve credits from units of the same title (or linked titles) at more than one level, they cannot count credits achieved from both units towards the credit target of a qualification

Entry Requirements	19+				
Section 96/97	Pre 16		16 – 18		19 + ✓
LAD Aim Reference	60025864				
Recommended GLH	Minimum 130 GLH				
Points Score	See ABC web site / Qualifications Directory				
Contribution to Threshold	See ABC Qualifications Directory				
ASL Option	N/A				
Foundation Learning	N/A				
Type of Funding Available	See LAD (Learning Aims Database)				
Minimum Qualification Fee	See ABC web site for current fees and charges				
Unit Fee	Unit fees are based upon a unit's individual credit value. Please see the ABC web site for the current fee charged per credit				
Additional Information	Please see ABC web site for qualifications that are eligible for Credit Transfer/RPL/Exemption				

Level 6 Diploma in Arboriculture

Rules of Combination: Learners must achieve a minimum of 60 credits. This must include 48 credits from the mandatory units.

Unit	Level	Credit Value	GLH	Page No.
Mandatory				
Selection, planting and design with hardy nursery stock for amenity and landscape purposes [L/503/3330]	5	8	30	5
Tree and hedge management [R/503/4169]	6	8	30	23
Planning and development in arboriculture [L/503/4171]	6	9	30	29
Tree risk management [L/503/4168]	6	9	40	33
Arboricultural plant health [J/503/4170]	6	8	40	38
Independent research project in arboriculture [K/503/4176]	6	6	15	43
Optional Units				
Woodland management [Y/503/4173]	5	8	40	12
New native woodland planting [D/503/4174]	5	6	30	18
Management of special trees [H/503/4175]	6	6	30	47
Structural damage investigations for the arboriculturist [R/503/4205]	7	8	40	52

Numbers in box brackets indicate QCF unit Number

If learners achieve credits from units of the same title (or linked titles) at more than one level, they cannot count credits achieved from both units towards the credit target of a qualification

Entry Requirements	19+				
Section 96/97	Pre 16		16 – 18		19 + ✓
LAD Aim Reference	6002785X				
Recommended GLH	Minimum 255 GLH				
Points Score	See ABC web site / Qualifications Directory				
Contribution to Threshold	See ABC Qualifications Directory				
ASL Option	N/A				
Foundation Learning	N/A				
Type of Funding Available	See LAD (Learning Aims Database)				
Minimum Qualification Fee	See ABC web site for current fees and charges				
Unit Fee	Unit fees are based upon a unit's individual credit value. Please see the ABC web site for the current fee charged per credit				
Additional Information	Please see ABC web site for qualifications that are eligible for Credit Transfer/RPL/Exemption				

Introduction

The Level 6 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

Aims

The ABC Level 6 Certificate and Diploma in Arboriculture aim to

- provide a stimulating and supportive environment for learners to develop their potential ability fully and to use their own ideas and research in response to complex problems and situations
- develop a high level of professional knowledge of arboriculture enabling learners to apply the essential skills, knowledge and understanding required for employment at senior level in arboriculture and related industries
- enable learners to progress to professional memberships
- enable learners to apply arboricultural research findings, new concepts and principles to the everyday practice of managing tree populations
- provide learners with the skills to analyse and critically review information and to exercise judgement within complex planning, design, technical and/or management functions
- demonstrate a high level of understanding and application of relevant technology to arboricultural matters
- develop, propose plans and supervise their implementation to secure the long term sustainability of tree cover in the urban and countryside environments

Target Group

This qualification is designed for learners currently working in arboriculture, both in the public and private sectors, either to provide opportunities for progression to senior positions or to complement their experience and provide evidence of their competence at a high level

ABC 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

Learners could progress to a Higher Degree or to membership of a chartered professional body.

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

Unit Details

Unit Title	L/503/3330 Selection, planting and design with hardy nursery stock for amenity and landscape purposes
Level	5
Credit Value	8
Guided Learning Hours	40
Unit Summary	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
Learning Outcomes (1 to 8) <i>The learner will</i>	Assessment Criteria (1.1 to 6.3) <i>The learner can</i>
1. Understand nomenclature and how to use a botanical key and other sources to identify trees and shrubs	<p>1.1 Define the purpose of the International Code for Plant Nomenclature</p> <p>1.2 Explain the following terms and give two examples of each</p> <ul style="list-style-type: none"> • Family • Genus • Species • Variety • Cultivar • Clone • Common name • Interspecific hybrid • Intergeneric hybrid • Chimera <p>1.3 Present plants names used in 1.2 in accordance with the International code for plant naming</p> <p>1.4 Demonstrate the use of a botanical key and two other sources to identify a species</p> <p>1.5 Identify 100 trees or shrubs by their characteristics and features to include a minimum of 15 each from</p> <ul style="list-style-type: none"> • evergreen broadleaved • deciduous • conifer • shrubs

	<p>1.6 For each tree or shrub identified in 1.5 state their main arboricultural</p> <ul style="list-style-type: none"> • attributes • uses • limitations <p>in urban, rural and woodland landscapes</p>
<p>2. Know what species to select for any set of conditions or requirements</p>	<p>2.1 Prepare and present advice with justifications for clients on species choice related to three sets of different site conditions/use</p> <p>2.2 Critically evaluate a tree and shrub planting scheme preparing advice for a client in line with current professional practice</p>
<p>3. Know what woody plant stock size and type is available</p>	<p>3.1 Identify woody plant stock sizes in accordance with British Standards and describe the features of each</p> <p>3.2 Specify an appropriate stock size, type and appropriate protection of plant for each of the following sites, justifying the selection</p> <ul style="list-style-type: none"> • city street • amenity woodland • motorway embankment • public open space • prestigious development • shrubs for mass planting adjacent to a highway <p>3.3 Critically evaluate the selection of each of the following stock types for planting</p> <ul style="list-style-type: none"> • bare rooted • cell grown • one from air pot, spring ring or black pot <p>3.4 Evaluate the quality of one sample of purchased stock against British Standards and the HTA plant specification manual</p>
<p>4. Understand current methods of tree and shrub production</p>	<p>4.1 For each of the following outline a production method used by nursery growers to produce one named ornamental tree to a standard standard size</p> <ul style="list-style-type: none"> • worked (budded or grafted) tree • tree from seed <p>4.2 Outline a production method used by nursery growers to produce one named containerised shrub or conifer from a semi-ripe cutting to a 2 litre size</p> <p>4.3 Analyse current research work aimed at improving tree stock and draw conclusions in relation to disease resistance</p>

<p>5. Know how to select hardy nursery stock and have it delivered in good condition</p>	<p>5.1 Evaluate</p> <ul style="list-style-type: none"> • nursery supplier suitability as an approved supplier • stock type • stock quality at the time of selection • stock quality and condition on delivery <p>5.2 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</p> <p>5.3 Prepare a schedule of purchase using accepted standards and guidance as produced by the Horticultural Trades Association (HTA)</p>
<p>6. Know how to prepare site for planting</p>	<p>6.1 Conduct a preliminary site survey and undertake a basic soil analysis drawing conclusions</p> <p>6.2 Apply survey and analysis findings to the required preparation of a planting site or be able to identify further analysis requirements</p> <p>6.3 Describe site preparations or the need for tree pit ameliorants required pre-planting for</p> <ul style="list-style-type: none"> • whips in a large scale planting in grass • a standard tree in compacted ground conditions
<p>7. Know how to plant, protect and care for newly planted trees and shrubs</p>	<p>7.1 Describe an appropriate planting method for each of the following in a given situation</p> <ul style="list-style-type: none"> • 40-60 transplant • bare-rooted standard tree • container grown shrub • semi-mature tree <p>7.2 Evaluate four given methods/materials for each of the following practices drawing conclusions</p> <ul style="list-style-type: none"> • support systems • protection methods • moisture control methods • soil ameliorants <p>7.3 Describe the post planting aftercare requirements for each in a given situation</p> <ul style="list-style-type: none"> • 40-60 transplant • bare-rooted standard tree • container grown shrub • semi-mature tree <p>7.4 Cost the stock and materials for the following</p> <ul style="list-style-type: none"> • whip in a tree shelter • standard tree with stake requiring rabbit protection

	<ul style="list-style-type: none"> • 2 litre shrub with a strimmer/mower guard <p>7.5 Critically evaluate post-planting conditions on a newly planted site (more than ten trees), draw conclusions and make management recommendations</p> <p>7.6 Carry out an investigation where a newly planted tree has failed preparing advice for a client in line with current professional practice</p> <p>7.7 Critically evaluate and draw conclusions related to the nationally accepted poor establishment rates of amenity tree planting schemes in the UK</p>
<p>8. Understand the principles of designing a landscape with woody vegetation</p>	<p>8.1 Examine a given purposely designed tree/shrub landscape scheme and evaluate the following aspects</p> <ul style="list-style-type: none"> • spatial characteristics of the plants present • plant assemblages/structure • planting patterns/grouping • plant associations of those present • visual composition • unity and diversity <p>8.2 Identify any special values of the landscape evaluated and suggest any design improvements that could be made</p> <p>8.3 Specify an appropriate professional design procedure for a new landscape involving large scale urban tree planting</p>

SUPPORTING UNIT INFORMATION

L/503/3330 Selection, planting and design with hardy nursery stock for amenity and landscape purposes – Level 5

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Understand nomenclature and how to use a botanical key and other sources to identify trees and shrubs

Botanical key, botanical records, reference books, Royal Horticultural Society, Kew gardens. Family, Genus, Species, Variety, Cultivar, Clone, Common name, Interspecific hybrid, Intergeneric hybrid and Chimera.

Arboricultural significances, such as attractive flowers, good autumn colour, dappled shade, pollution resistance, tolerant of poor soil etc.

Learning Outcome 2. Know what species to select for any set of conditions or requirements

Urban paved, supermarket car park, wide or narrow city/town street/road, motorway embankment, industrial reclaimed, landfill, coastal exposed, transitional, wet, clay soil, acid soil, shallow over chalk soil, ornamental features, specimen, native, drought tolerant, avenue, screen, hedge.

Species requirements / tolerances – such as soil type, moisture availability, sun v. shade etc. Site usage – visual appeal, seasonal interest, sensory requirements, wildlife benefit etc.

Learning Outcome 3. Know what woody plant stock size and type is available

Seedling, cutting, transplant, undercut seedling / cutting, maiden, whip, feathered tree, standard trees, semi-mature tree, multi-stem trees, shrubs – container grown and containerised

Bare root, cell grown, pot, spring ring, air pot, root balled/wrapped, white bag BS3936, Horticultural Trades Association National Plant Specification (HTA NPS)

Learning Outcome 4. Understand current methods of tree and shrub production

Seed sowing, cuttings, grafting, budding, micro-propagation, genetic modification

Learning Outcome 5. Know how to select hardy nursery stock and have it delivered in good condition

BS3936, HTA NPS and 'Handling and Establishing Landscape Plants'. . Stock type – seedling to semi-mature. Bare root, containerised (cell grown, spring ring, air pots, Barcham white bag), root-balled.

Learning Outcome 6. Know how to prepare site for planting

Type, structure, texture, drainage, pH, organic matter, depth, micro-organism activity, species present, threats, exposure, on-site soil testing equipment, laboratory tests

Cultural operations such as soil replacement, herbicide application, drainage, decompaction etc.

Amelioration with organic material, artificial fertilisers, green manure, sugars etc.

Learning Outcome 7. Know how to plant, protect and care for newly planted trees and shrubs

Notch and pit planting techniques, over and underground support systems, BS4043, Protection from biotic and abiotic agents of damage including rabbits, deer, vandals, trimmers, mowers, vehicles, chemicals etc.

Aftercare operations including irrigation, weed control, formative pruning etc.

'Trees in Towns II'

Learning Outcome 8. Understand the principles of designing a landscape with woody vegetation

Plant communities and structure both vertical and horizontal. Planting patterns, spacing, grouping, single plants and drifts. Plant associations – growth requirements, relative competitiveness, mode of spread, habit, longevity, life cycle, light demanding/shade tolerant and maintenance. Visual composition – Harmony, contrast, balance, emphasis/accent, scale, sequence, symmetry/asymmetry, form, colour, texture, seasonal, taxonomic and natural.

Scent, sound and touch.

Professional design processes and surveys from initial contact with the client through brief, survey, landscape assessment, planning policies, design concept, outline planting proposals, detailed planting design to specifications.

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

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 0-903505-17-7*
- 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'
- 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 2nd edition by Nick Robinson - *ISBN 0-7546-3035-8*

See ABC website for further information

Unit Title	Y/503/4173 Woodland management
Level	5
Credit Value	8
Guided Learning Hours	40
Unit Summary	This unit covers the planning and management of trees grown in woodlands and forests which are open to public access and where the main aims of management feature public enjoyment, conservation of wildlife and landscape value
Learning Outcomes (1 to 7) <i>The learner will</i>	Assessment Criteria (1.1 to 7.1) <i>The learner can</i>
1. Understand silvicultural principles and their application to the management of amenity woodlands	<p>1.1 Explain the silvicultural principles of the following continuous cover systems for managing amenity woodlands</p> <ul style="list-style-type: none"> • selection • shelter wood <p>1.2 Analyse the use of the above continuous cover systems in respect of the following primary and secondary management aims</p> <p>Primary aims</p> <ul style="list-style-type: none"> • conservation of wildlife • landscape value • recreation <p>Secondary aim</p> <ul style="list-style-type: none"> • timber or coppiced products <p>1.3 Analyse the main social roles that community woodlands/forests offer</p> <p>1.4 Summarise the application of the government's Strategy for England's Trees, Woods and Forests to community woodlands/forests</p> <p>1.5 Summarise the government's approach to sustainable forestry in the UK context and draw conclusions</p>
2. Be able to identify woodland communities and classify woodland types	<p>2.1 From species identification interpret the National Vegetation Classification and apply a classification to a woodland site</p> <p>2.2 Identify the difficulties that may be encountered when using vegetation data to classify a woodland type, outlining how these may be overcome</p>

	<p>2.3 Evaluate the following methods of vegetation identification</p> <ul style="list-style-type: none"> • keys • ecological Site Classification • simple comparative approach
<p>3. Be able to assess the environmental conditions of a site</p>	<p>3.1 Carry out the arboricultural aspects of an environmental assessment of a woodland site</p> <p>3.2 Identify, quantify and recommend solutions, where they exist, for current threats to a woodland site</p>
<p>4. Be able to carry out a site assessment as a prelude to forming a management plan</p>	<p>4.1 Carryout a woodland site assessment using broadscale (Level 1) and site survey (Level 2) methodologies</p> <p>4.2 Form conclusions for future management based on the following considerations</p> <ul style="list-style-type: none"> • importance of the woodland • importance of the site for conservation • threats to conservation • need for further surveys <p>4.3 Identify four possible 'stakeholders'</p> <p>4.4 State the possible contributions that each stakeholder can make to managing a woodland</p>
<p>5. Be able to select aims and objectives to deliver a woodland management plan</p>	<p>5.1 Select appropriate aims for the woodland surveyed in 3.1 and 4.1 and justify the decision</p> <p>5.2 Select objectives and prioritise them into short, medium and long term timescales necessary to achieve the set aim</p> <p>5.3 Devise indicators for each objective to show they are meeting minimum success thresholds</p> <p>5.4 Assess the compatibility of objectives that reflect the following two aspects, identifying any conflicts</p> <ul style="list-style-type: none"> • conservation of wildlife • recreation <p>5.5 Clarify with justification how the conflicts will be dealt with</p> <p>5.6 Select which woodland operations are required and over what timescales</p>
<p>6. Know how the effects of management are to be monitored</p>	<p>6.1 Devise a method of monitoring using both qualitative and quantitative data</p>

	<p>6.2 Analyse the results and revise a management plan as necessary</p> <p>6.3 Distinguish when legislation in the form of Acts, Regulations and action plans are applicable to a site</p> <p>6.4 Interpret and apply any legislation as necessary</p> <p>6.5 Determine what grants are available to support woodland management</p>
<p>7. Understand the values of reinstating traditional forms of woodland management</p>	<p>7.1 Critically evaluate the strengths and weaknesses of reinstating the following traditional forms of woodland management on a given site</p> <ul style="list-style-type: none"> • wood pasture • coppice with standards • coppice

SUPPORTING UNIT INFORMATION

Y/503/4173 Woodland management – Level 5

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Understand silvicultural principles and their application to the management of amenity woodlands

Selection and Shelter wood - Continuous cover in respect of Conservation of wildlife, Landscape value, Recreation, Timber or coppice products.

Government Strategy for England's Trees, Woods and Forests to include community woodlands/forests – Vision, principles and themes underlying the strategy. Aims and implementation

Learning Outcome 2. Be able to identify woodland communities and classify woodland types

National Vegetation Classification.

Learning Outcome 3. Be able to assess the environmental conditions of a site

Ecological position, climate, exposure, topography, soil type, moisture availability, air supply, fertility, ground flora present. Threats – climate change, storms, drought, flooding, landslides and soil erosion, fire, human activities, mammals, invasion by plant and insect pest species.

Learning Outcome 4. Be able to carry out a site assessment as a prelude to forming a management plan

Level 1 - habitat mapping, canopy cover, maps to show extent and shape, boundaries, stocking, summary statement of species, classification, designation. Level 2 – Maps to show the main features, list of the plant species, DAFOR scale, woodland structure, subsidiary habitats, adjacent land use, rare species, some assessment of other species present, diversity, naturalness, fragility, history, present uses, potential uses, threats, intrinsic appeal, ecological position, woodland edge/ecotone.

Learning Outcome 5. Be able to select aims and objectives to deliver a woodland management plan

Conservation, landscape value, recreation, timber products. Woodland edge and open space. SMART objectives.

Learning Outcome 6. Know how the effects of management are to be monitored

Wildlife & Countryside Act (as amended), Countryside Rights of Way Act, Protection of Badgers Act, Natural Environment and Rural Communities Act, European directives, Biodiversity Action Plans, Habitat Action Plans, Species Action Plans, Site of Special Scientific Interest, Ancient Woodland, Red data book spp – Critically endangered, endangered, vulnerable, and near threatened.

Learning Outcome 7. Understand the values of reinstating traditional forms of woodland management

Wood Pasture, Coppice with Standards, Coppice

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- www.forestry.gov.uk
- Silvicultural Systems Matthews, J D 1991
- Natural Management of woods: Continuous Cover Forestry Garfitt, J E 1995
- Health and Well-being: Trees, Woodlands and Natural Spaces P Tabbush & L O'Brien 2003
- Trees are Company: Social Science Research into woodlands and the Natural Environment
- L O'Brien & J Claridge 2002
- Restoration of Native Woodland in Ancient Woodland sites. FC 2003
- Woodland survey Handbook JNCC K Kirby 1988
- Continuous Cover Forestry Helliwell, R 1999
- Continuous Cover Silviculture. An Alternative to Clear Felling Yorke, M 1998
- Alternative Silvicultural Systems to Clear-Cutting in Britain: A Review FC Bulletin 115 Hart, C 1995
- Woodland Management a Practical Guide. Starr, C 2005
- Woodland Conservation and Management Peterken, G 1993 (2nd Ed.)
- NVC field Guide to Woodland. JNCC 2001
- Managing Rides, Roadsides and Edge Habitats in Lowland Forests: FC Bulletin 123 Ferris, R & Carter, C 2000
- Community Woodland Design Guidelines Forestry Commission 1991
- The Management of Semi-natural woodlands – Practice Guides – Nos. 1 to 8

See ABC website for further information

Unit Title	D/503/4174 New native woodland planting
Level	5
Credit Value	6
Guided Learning Hours	30
Unit Summary	This unit covers the planning, design, planting and maintenance of a new amenity native woodland on unimproved grassland or a reclaimed site
Learning Outcomes (1 to 6) The learner will	Assessment Criteria (1.1 to 6.1) The learner can
1. Be able to plan the planting of a new native woodland	<p>1.1 Carry out a site assessment and soil assessment of a site proposed for new planting on either improved grassland or a reclaimed site</p> <p>1.2 Identify the principal constraints posed by the site formulating realistic and cost effective solutions</p>
2. Know how to implement the principles of woodland design	<p>2.1 Design a proposed new woodland for a given site to show the principal design features</p> <p>2.2 Select appropriate percentages of canopy and shrub species taking account of the</p> <ul style="list-style-type: none"> • management aims • site evaluation data • compatibility of species • grant criteria <p>2.3 Select edge species taking account of the</p> <ul style="list-style-type: none"> • aims of management • relative mature size and growth rates <p>2.4 Justify the choice of species selected in 2.2 and 2.3</p> <p>2.5 Determine the stocking density and identify the strengths and weaknesses of the choice</p> <p>2.6 Explain how the design seeks to further biodiversity</p>
3. Understand stock and plant protection selection	3.1 Select and justify the source of plants for their design

	<p>3.2 Select the appropriate protection systems for each species and site conditions in their design taking into account the threats to establishment</p> <p>3.3 Justify the selection</p>
<p>4. Know the aftercare requirements of the young trees until the thicket stage is attained</p>	<p>4.1 Prepare a maintenance programme for the young trees</p>
<p>5. Understand the values of using seed or natural regeneration</p>	<p>5.1 Critically evaluate the following methods of establishing woodland</p> <ul style="list-style-type: none"> • natural regeneration • direct seeding • planting
<p>6. Know how to organise and manage a community tree planting day</p>	<p>6.1 Prepare a proposal for a meeting listing and providing a description of the factors involved in organising and managing a community tree planting day</p>

SUPPORTING UNIT INFORMATION

D/503/4174 New native woodland planting – Level 5

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Be able to plan the planting of a new native woodland

Ecological position, climate, exposure, topography, soil type, moisture availability, air supply, fertility, ground flora present. Threats – climate change, storms, drought, flooding, landslides and soil erosion, fire, human activities, mammals, invasion by plant and insect pest species, surrounding land use. Site condition or soil condition improvements, vegetation control, protection from animal pests.

Learning Outcome 2. Know how to implement the principles of woodland design

Size and shape, Canopy and shrub species mixture and distribution, distribution and size of open space, edge location and pattern, water features, pathways, disabled access, boundary lines, multi-use, aesthetics, Publically Available Specification (PAS) Planning to halt the loss of biodiversity.

Learning Outcome 3. Understand stock and plant protection selection

Provenance, origin, selection and location of nursery supplier

Learning Outcome 4. Know the aftercare requirements of the young trees until the thicket stage is attained

Moisture loss control, weeding, formative pruning, pest and disease control, beating up, protection maintenance

Learning Outcome 5. Understand the values of using seed or natural regeneration

Natural regeneration, direct seeding, planting.

Learning Outcome 6. Know how to organise and manage a community tree planting day

Health and Safety, stock ordering, tools procurement, supervision, insurance and public liability, planting co-ordination, publicity, first aid, contingency arrangements,

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- www.forestry.gov.uk
- Creating New Native Woodlands: FC Bulletin 112 Rodwell, J & Patterson, G. 1994
- Cultivation of Soils for Forestry FC Bulletin 119 Paterson, D B & Mason, W L 1999
- Creating and Managing Woodlands Around Towns: FC Handbook 11 Hodge, S J 1995
- Woodland Creation: Experience from the National Forest: FC Technical Paper 27 Kerr, G & Williams, H V 1999

See ABC website for further information

Unit Title	R/503/4169 Tree and hedge management
Level	6
Credit Value	8
Guided Learning Hours	30
Unit Summary	This unit covers strategic pro-active tree management and maintenance that facilitates sustained tree cover for future generations to enjoy
Learning Outcomes (1 to 8) <i>The learner will</i>	Assessment Criteria (1.1 to 8.1) <i>The learner can</i>
1. Understand the need for arboriculturists to participate in providing a sustainable treed landscape	<p>1.1 Summarise the principal conclusions from National tree condition and management survey data related to each of the following aspects</p> <ul style="list-style-type: none"> • species composition • age and maturity • canopy cover • resources and budgets • planned and systematic management • tree officer recruitment <p>1.2 Evaluate the relevance of trees and woodlands in planning urban environments in relation to 'Green Infrastructure' and draw conclusions</p> <p>1.3 Critically analyse the role of street trees today where society demands value for money</p> <p>1.4 Draw conclusions to include visions for providing sustainable tree cover</p> <p>1.5 Explain the values of urban trees to a local community presenting the information in a suitable format</p> <p>1.6 Clarify the contribution that can be made by an arboriculturist at a strategic level to the planning of 'green infrastructure'</p>
2. Be able to prepare publicity materials	2.1 Prepare materials to inform the public of aspects of tree management

<p>3. Know what data is required to be collected from a tree population to be used in the preparation of action plans</p>	<p>3.1 Identify the ground-based data required when undertaking a tree inventory from which management plans are to be formulated</p> <p>3.2 Explain the relevance of each item of data</p> <p>3.3 Critically compare the potential use of ‘sampling’ and aerial imagery over ground-based quantified data when preparing inventory information</p>
<p>4. Understand the processes of preparing proactive tree management policies</p>	<p>4.1 Prepare a proposal for the outline of a tree strategy that takes account of and interprets National, Regional and Local policies</p> <p>4.2 Identify the ‘stakeholders’ and the contribution and role that they can make to the preparation of a tree strategy</p> <p>4.3 Present examples of short, medium and long term objectives appropriate to the following aspects of tree management</p> <ul style="list-style-type: none"> • high proportion of mature/over mature aged population of trees • 70% single tree species present (use a typical large city species) • the opportunities for new planting in a very populated area are limited due to lack of space • no regular tree inspection programme is in place <p>4.4 Critically compare the policies of an owner of a large population of trees of re-active tree management to that of pro-active tree management drawing conclusions</p> <p>4.5 Describe the values of a pro-active tree strategy adopted at an executive level</p> <p>4.6 Critically evaluate a current tree strategy indicating its strengths and weaknesses</p> <p>4.7 Develop actions to address any weaknesses found in the strategy</p>
<p>5. Understand the purpose and processes of preparing a tree renewal programme</p>	<p>5.1 Produce a tree renewal programme incorporating four different options on a given complex scenario dealing with the following issues where appropriate</p> <ul style="list-style-type: none"> • property values • landscape • historic • tree health • age class

	<ul style="list-style-type: none"> • wildlife • public consultation • tree choice • climatic data • services • financial considerations <p>5.2 Evaluate the four options indicating their strengths and weaknesses</p> <p>5.3 Select one option from those identified in 4.2 and justify the decision taken</p>
6. Know what current best practice and legislation applies to the management of trees and hedges	<p>6.1 Produce a specification(s) for tree works and hedge management that includes interpretation of each of the following</p> <ul style="list-style-type: none"> • BS 3998 • three separate Acts • one set of Regulations • plant biological/phenological requirements
7. Understand how to apply common law precedent to commonly found scenarios	7.1 Draw conclusions for a client as to how five common law precedents may apply in a minimum of two given scenarios
8. Know what Health and Safety statutes and best practice applies and understand how it is implemented on a work site	<p>8.1 Clarify what statutes and best practice applies and how it is best implemented when dismantling a large tree with the use of a climber and a MEWP in a public place with a chipper and stump grinder in use</p> <p>8.2 Draw up a systematic methodology for assessing if the above work site conforms to statutes and best practice</p> <p>8.3 Critically evaluate a specific work site risk assessment and method statement for a tree surgery task and identify any weaknesses by indicating the improvements required</p>
9. Understand the application and implications of pruning methods to tree management	<p>9.1 Evaluate each of the following range of pruning methods available to manage trees identifying examples of tree species for each excluding risk</p> <ul style="list-style-type: none"> • formative pruning • crown reduction • crown thinning • selective branch removal • pollarding

SUPPORTING UNIT INFORMATION

R/503/4169 Tree and hedge management – Level 6

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Understand the need for arboriculturists to participate in providing a sustainable treed landscape

Trees in Towns II. Green Infrastructure and sustainability policies. Planning Policy Guidance and Statements.

Learning Outcome 2. Be able to prepare publicity materials

Suggested form of interpretation board, leaflet, Supplementary Planning Guidance, letter

Learning Outcome 3. Know what data is required to be collected from a tree population to be used in the preparation of action plans

Tree inventory data – ground-based, aerial and sampling data collection.

Learning Outcome 4. Understand the processes of preparing proactive tree management policies

National, Regional and Local policies. Relevant Planning Policy Guidance and Planning Policy Statements. Identify stakeholders. Short, medium and long term 'SMART' objectives. Select a tree strategy or allow learner to evaluate their own.

Learning Outcome 5. Understand the purpose and processes of preparing a tree renewal programme

Options for tree renewal – example important avenue – options could be fell and replace, one side at a time, group or every other tree or as and when trees require – ad hoc.

Learning Outcome 6. Know what current best practice and legislation applies to the management of trees and hedges

British Standards, European standards, Highways Act, Local Government Miscellaneous Provisions Act, Wildlife & Countryside Act (as amended), Countryside Rights of Way Act, The Conservation of Habitats and Species Regulations, High Hedges Regulations. Specifications for works need to take account of notice of individual plant biology and phenological cycles.

Learning Outcome 7. Understand how to apply common law precedent to commonly found scenarios

Overhanging branches, trespassing roots, hazardous trees, dangerous trees as in thorny, poisonous etc, rights to light

Learning Outcome 8. Know what Health and Safety statutes and best practice applies and understand how it is implemented on a work site

Health and Safety at Work Act, The Environmental Protection Act, The Food and Environmental Act, New Roads and Street Works Act, Electricity Act - applicable Regulations for each Act, Applicable European Directives. Industry Lead Body best practice, Manufactures instructions.

Learning Outcome 9. Understand the application and implications of pruning methods to tree management

Formative pruning, Crown reduction, Crown thinning, Selective branch removal and Pollarding

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- Trees: their use, management, cultivation and biology Watson, B. 2006
- Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines (4th Ed.)
- Harris, R W; Clark, J R & Matheny, N P 2003
- An Illustrated Guide to Pruning: Trees for Urban and Suburban Landscapes Gilman, E F 1997
- Trees in the Urban Landscape Bradshaw, A, Hunt, B & Walmsley, T 1995
- Principles and Practise of Planting Trees and Shrubs Watson, G W & Himelick, E B 1997
- Urban Tree Strategies Watson and Neely, 1994
- Trees in Towns 11 2008
- A Survey of Urban Forestry In Britain Johnston, M & Rushton, B S 1999 Only available as a download
- Trees in the Urban Landscape P J Trowbridge & N L Bassuk 2004
- Statutory Instruments no. 1160: the Hedgerow Regulations 1997 1st of June 1999
- Amenity Valuation of Trees and Woodlands, D R Helliwell
- Council of Tree and Landscape Appraisers (CTLA)
- BS Recommendations for Tree Work. BS 3998
- 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.uk free downloads available for:
 - information relating to all health and safety legislation
 - industry best practice - AFAG leaflets
- The Law of Trees, Forests and Hedgerow – by Charles Mynors - ISBN 0-421-59040-8

See ABC website for further information

Unit Title	L/503/4171 Planning and development in arboriculture
Level	6
Credit Value	9
Guided Learning Hours	30
Unit Summary	This unit covers the integration of the planning system with woody vegetation and the management of site development that facilitates sustained tree cover for future generations to enjoy
Learning Outcomes (1 to 3) <i>The learner will</i>	Assessment Criteria (1.1 to 3.5) <i>The learner can</i>
1. Be able to prepare arboricultural information related to site development where trees are present	<p>1.1 Carry out a site development survey and prepare information for a client that fulfils the following criteria</p> <ul style="list-style-type: none"> • determine the value and quality of the woody vegetation on and around the site • identify the constraints posed by the vegetation to development with justifications • identify and quantify the impacts of development on the vegetation and vice versa • provide appropriate advice with justifications that aids the final design of the site • provide specific advice on how the retained vegetation and new planting sites shall be protected during the construction period • produce required information in a professionally acceptable format <p>1.2 Evaluate arboricultural information submitted as part of a planning application where trees are present and indicate its strengths and weaknesses</p> <p>1.3 Provide specific arboricultural information to cover the following situations</p> <ul style="list-style-type: none"> • driveway over tree roots • foundation construction within a tree rooting zone • sewage pipe construction within a tree rooting zone
2. Understand planning policy and guidance	2.1 Prepare information, either as a consultant or local authority officer, in response to a planning appeal to be conducted as a hearing in a professionally acceptable format

	<p>2.2 Prepare appeals information that demonstrates an understanding and interpretation of National, Regional, Local planning policies and planning policy guidance/statements in a professionally acceptable format</p>
<p>3. Understand the implications of planning policy related to tree protection and conservation</p>	<p>3.1 Prepare information in a suitable format to be used in the serving of a Tree Preservation Order</p> <p>3.2 Critically evaluate a current TPO document and indicate its possible validity or otherwise</p> <p>3.3 Give an example of each of the following in relation to managing TPOs</p> <ul style="list-style-type: none"> • an objection • a representation • an appeal • a challenge <p>3.4 Describe when each of the following are most appropriately used in relation to managing TPO's</p> <ul style="list-style-type: none"> • objections • representations • appeals • challenges <p>3.5 Explain how each of the following may be managed by all interested parties</p> <ul style="list-style-type: none"> • 211 notice • 106 agreement • tree replacement notice and enforcement • revoking of a TPO • potential breach of a TPO or Conservation Area designation <p>3.6 Review the current tree protection legislation in Home Nation indicating its strengths and weaknesses</p> <ul style="list-style-type: none"> • Town and Country Planning (Trees) Regulations • Planning (Listed Buildings and Conservation Areas) Act • Forestry Act

SUPPORTING UNIT INFORMATION

L/503/4171 Planning and development in arboriculture – Level 6

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Be able to prepare arboricultural information related to site development where trees are present

BS 5837, National Joint Utilities Group Volume 4 Installation of services, Arboricultural Practice Note 12. Best practice. Local planning policies.

Learning Outcome 2. Understand planning policy and guidance

National, Regional and Local planning policies, planning policy guidance and statements, Communities and Local Government Planning Appeals procedures.

Learning Outcome 3. Understand the implications of planning policy related to tree protection and conservation

Town & Country Planning (trees) Regulations, Planning (listed buildings and conservation areas) Act, Forestry Act
Home nation applicable

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- www.communities.gov.uk
- BS 5837 Trees in Relation to Construction - Recommendations
- Tree Preservation Orders A Guide to the Law and Good Practice
- Arboricultural Practice Note 12 Through the Trees to Development
- Guidelines for the Planning, Installations and Maintenance of Utility Services in Proximity to Trees NJUG Vol 4 2007
- Arboricultural Practice Note 4 – Root Barriers and Building Subsidence
- Arboricultural Practice Note 5 – Shaded by Trees
- Statutory Instrument no. 1892: the Town and County Planning (trees) Regulations

See ABC website for further information

Unit Title	L/503/4168 Tree risk management
Level	6
Credit Value	9
Guided Learning Hours	40
Unit Summary	This unit covers the strategic and proactive management of trees through systematic inspections in order to provide a sustainable tree population with minimum risk to people and property
Learning Outcomes (1 to 5) <i>The learner will</i>	Assessment Criteria (1.1 to 5.2) <i>The learner can</i>
1. Know the responsibilities that any tree owner has to maintain 'acceptable safe' trees	<p>1.1 Interpret the legislation and relevant court precedents that are applicable to owners or those responsible for the safety of trees, drawing conclusions</p> <p>1.2 Identify a tree owner's level of responsibilities and how they may dispense the Duty of Care in each of the following situations</p> <ul style="list-style-type: none"> • residential property and one large tree • local Government organisation • owner of woodland with an adjoining public right of way • large estate property with paying visitors
2. Understand the philosophy of risk assessment	<p>2.1 Summarise the development of the application of a risk-based approach to tree safety</p> <p>2.2 Analyse the main present day controversies of tree risk assessment in relation to risk management drawing conclusions</p> <p>2.3 Explain the concept of 'as low as reasonably practicable' in the context of industrial and occupational safety</p> <p>2.4 Summarise the main findings of government reviews on the operation of health and safety laws drawing conclusions in relation to tree safety</p> <p>2.5 Define the role of the</p> <ul style="list-style-type: none"> • Crown Prosecution Service • Health and Safety Executive <p>in relation to deaths or injury caused by complete or partial tree failure</p>

<p>3. Be able to develop a tree risk management strategy for a tree owner</p>	<p>3.1 Develop a tree risk management strategy for either a public or private owner of a large number of trees</p> <p>3.2 Justify their-decision making for each stage of the process</p> <p>3.3 Critically evaluate a risk management strategy, recommending improvements</p>
<p>4. Be able to undertake a risk assessment of tree(s)</p>	<p>4.1 Undertake a preliminary tree risk assessment survey (numbering 8-10 trees) using a systematic methodology and draw conclusions, producing the results in an appropriate professional format</p> <p>4.2 Undertake a safety inspection of a single defective tree that potentially poses a risk, producing the results in an appropriate professional format</p> <p>4.3 Evaluate the requirements of quantifying the risk posed by a tree, identifying a suitable methodology</p> <p>4.4 Undertake a quantified risk assessment of a defective tree using a suitable methodology</p> <p>4.5 Critically evaluate two principal theories relating to the failure criteria of hollow trees</p>
<p>5. Know what treatments are required to reduce risk and understand their implications for future safety</p>	<p>5.1 Critically evaluate each of the following treatments used to prevent or reduce risk</p> <ul style="list-style-type: none"> • formative pruning • crown reduction • crown thinning • selective branch removal • pollarding • monolithing • treatment of significant decay/cavities • treatment of weak structures <p>5.2 Determine appropriate treatment options of the tree identified in 4.4</p> <p>5.3 Select one option and justify your decision</p>

SUPPORTING UNIT INFORMATION

L/503/4168 Tree risk management – Level 6

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Know the responsibilities that any tree owner has to maintain 'acceptable safe' trees

Common Law Duty of Care, The Occupiers Liability Act, Health and Safety at Work Act, Management of Health & Safety at Work regulations. Court case precedent. Best practice – arboricultural and government advice. Bench marking with similar organisations.

Learning Outcome 2. Understand the philosophy of risk assessment

Health and Safety Executive (HSE), Roben's Committee, HM treasury green book and orange book, Cabinet Office, BS 8800, Common law precedent, centre for Decision Analysis Risk Management (DARM), (ALARP) As Low As Reasonably Practicable, National Tree Safety Group report, Lord Young's report-Common Sense Common Safety.

Learning Outcome 3. Be able to develop a tree risk management strategy for a tree owner

Zoning, tree inspection requirements, inspectors and level of training, frequency, treatments, record keeping, performance indicators, review strategy.

Learning Outcome 4. Be able to undertake a risk assessment of tree(s)

Risk assessment methodologies

Learning Outcome 5. Know what treatments are required to reduce risk and understand their implications for future safety

Formative pruning, crown reduction, crown thinning, selective branch removal, pollarding, monolith, non-invasive restraint system, invasive restraint system, rigid braces, propping and guying – BS 3998.

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- The Body Language of Trees: Research for Amenity Trees 4 Mattheck, C and Breloer, 1994
- Tree Mechanics explained by Pauli the Bear. Claus Mattheck. 2002
- Secret Design Rules of Nature Claus Mattheck 2007
- Stupsi explains the tree. Claus Mattheck. 1997.
- Manual of wood decays in trees. K Weber & C Mattheck. 2003
- Updated Field Guide for VTA. Mattheck 2007
- Wood- The Internal Optimization of Trees Mattheck, C & Kubler, H 1995
- Principles of Tree Hazard Assessment and Management: Research for Amenity Trees 7 Lonsdale, D. 1999
- Hazards from Trees: FC Practise Guide 13 Lonsdale, D 2000
- A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas Matheny, N P & Clark, J R 1994 (2nd Ed)
- National Tree Safety Group Report

See ABC website for further information

Unit Title	J/503/4170 Arboricultural plant health
Level	6
Credit Value	8
Guided Learning Hours	40
Unit Summary	This unit covers the identification, diagnosis, understanding, implications and treatment of both present and future pests, diseases and disorders that are a threat to woody vegetation populations in the UK to include International, European and UK protection procedures through to local deployment of treatments
Learning Outcomes (1 to 6) <i>The learner will</i>	Assessment Criteria (1.1 to 6.3) <i>The learner can</i>
1. Understand the world-wide procedures in place that help pest and disease control	1.1 Identify the main pathways for arrival of new pests and diseases into Great Britain (GB) 1.2 Critically evaluate the risk posed by each identified pathway 1.3 Identify the agreements and organisations that contribute significantly to pest and disease control world-wide and in GB 1.4 Illustrate how the mechanisms of the above agreements and organisations operate for a named pest or disease in the following circumstances <ul style="list-style-type: none"> • international pest or disease of significance not yet established in GB • a GB established pest or disease of significance to an important tree population
2. Be able to undertake an investigation to establish the presence of a pest, disease or disorder	2.1 Identify in the field, with the aid of available resources, the presence of one each of a pest, disease and disorder from signs and symptoms present on woody vegetation 2.2 Specify which pathology or analysis service may be utilised to confirm the presence of each of a named pest, disease or disorder
3. Know how to collect samples and prepare them for specialist analysis	3.1 Describe the appropriate preparations required for a named sample of a pest, disease or disorder to be sent to a specialist laboratory to confirm identification

<p>4. Be able to undertake diagnosis of ill health in trees with the aid of specialist equipment</p>	<p>4.1 Compare and contrast the use of specialist equipment within one of the following categories</p> <ul style="list-style-type: none"> • sonic or ultrasonic • computerised tomography • drills • fractometer 1 and 11 <p>4.2 Critically evaluate the strengths and weaknesses of one specialist item of equipment from 4.1 for use within a given scenario to include</p> <ul style="list-style-type: none"> • the environmental conditions • tree species • pest or disease species <p>4.3 Undertake an investigation of symptoms or signs of ill health using specialist equipment</p> <p>4.4 Interpret one of the following results</p> <ul style="list-style-type: none"> • drill recording • tomograph • thermal image • chlorophyll activity test result
<p>5. Know what preventative or remedial treatments are available</p>	<p>5.1 Prescribe appropriate treatment options for a given pest, disease or disorder</p> <p>5.2 Critically evaluate the options and state a preferred option with justifications</p> <p>5.3 Review the implications of the treatment prescribed above</p>
<p>6. Understand the interaction of host and fungi within woody tissues</p>	<p>6.1 Describe living tree wood degradation and how it is influenced by the characteristics of the wood substrate</p> <p>6.2 Describe the mechanism of reaction zone penetration for one of the following examples</p> <ul style="list-style-type: none"> • <i>Inonotus hispidus</i> • <i>Ganoderma adspersum</i> • <i>Ustulina (Kretzschmaria) deusta</i> <p>6.3 Explain the importance of recognising the different abilities of fungi invasiveness and their relationship with hosts</p> <p>6.4 Describe how this relationship relates to tree risk assessment</p>

SUPPORTING UNIT INFORMATION

J/503/4170 Arboricultural plant health – Level 6

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Understand the world-wide procedures in place that help pest and disease control

World Trade Organisation (WTO), International Plant Protection Convention (IPPO), European Plant Protection Organisation (EPPO), European instruments and GB national legislation. Seeds, rootless cuttings, bonsai, bare root stock with or without medium, large root-balled stock, manufactured and processed wood, sawn timber without bark, sawn plus bark, manufactured wood package material and wood package 'dunnage'. Plant passports, phytosanitary certificates, EPPO lists, Plant Health Orders. Abiotic and biotic disorders present in GB and those that threaten GB.

Learning Outcome 2. Be able to undertake an investigation to establish the presence of a pest, disease or disorder

Abiotic and biotic disorders present in GB.

Learning Outcome 3. Know how to collect samples and prepare them for specialist analysis

Abiotic and biotic disorders present in GB.

Learning Outcome 4. Be able to undertake diagnosis of ill health in trees with the aid of specialist equipment

Sonic and Ultrasonic – arbosonic, stress wave timer, micro hammer. Tomography – picus and arbotom, Drills – sibtec, IML resistograph, Rinntech resistograph. Fractometer 1 & II. Thermal Imagery and Chlorophyll activity testing devices. New devices as developed.

Learning Outcome 5. Know what preventative or remedial treatments are available

Abiotic and biotic disorders present in GB.

Learning Outcome 6. Understand the interaction of host and fungi within woody tissues

Enzymes. Cellulose, hemicellulose, lignin, pectin, parenchyma cell contents, resins and accessory compounds. White rot – simultaneous and selective, Brown rot, soft rot type 1 and 2. *Inonotus hispidus*, *Ganoderma adspersum*, *Ustilina (kretzschmaria) deusta*. *Ganoderma*. Spp and *Inonotus hispidus*.

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- www.fera.defra.gov.uk
- www.forestry.gov.uk
- Diagnosis of Ill Health in Trees: Research for Amenity Trees 2 (2nd Ed.) Strouts, R G & Winter, T G 2000
- A New Tree Biology Shigo, A L 1989
- The Encyclopaedia of Fungi Of Britain and Europe Jordan, M. 2004
- Fungal Strategies of Wood Decay in Trees Schwarze, F W M R, Engels, J & Mattheck, C 2000
- Modern Arboriculture. Shigo, A. 1991
- Mushrooms Phillips, R. 2006
- Wood and Tree Fungi: Biology, Damage, Protection and Use. Schmidt, O. 2006
- Tree Doctor CD-Rom CD-Rom and Handbook 2001
- De-icing Salt Damage to Trees and Shrubs: FC Bulletin 101 Dobson, M C 1991
- Honey Fungus: FC Bulletin 100 Greig, B J W, Gregory, S c & Strouts, R G 1991
- Tree Diseases and Disorders Butin, H 1995
- Armillaria Root Rot. Roland Fox. 2000
- Biotic Disorders of Landscape plants: A Diagnostic Guide L R Costello, E J Perry 2003
- Diseases and Disorders of Forest Trees: FC Field Book 16 Gregory, S C & Redfern, D B 1998
- Fungi on Trees Arboricultural Association

See ABC website for further information

Unit Title	K/503/4176 Independent research project in arboriculture
Level	6
Credit Value	6
Guided Learning Hours	15
Unit Summary	This unit covers an aspect of interest to the candidate that reflects current research and development in the field of arboriculture allowing the learning to carryout research, apply the learning to arboriculture, drawing conclusions and critically evaluating their findings
Learning Outcomes (1 to 6) <i>The learner will</i>	Assessment Criteria (1.1 to 6.2) <i>The learner can</i>
1. Be able to select and justify a research project	1.1 Identify the area for the research project 1.2 Explain the factors that contribute to the process of successful research question selection 1.3 Provide a statement justifying the choice of research area
2. Be able to plan the research project	2.1 Provide a brief overview of the proposal to include <ul style="list-style-type: none"> • an introduction • background of the study area • references to existing literature • research questions or concepts to be answered • methodology and research methods • an anticipated conclusion
3. Be able to choose the appropriate methodologies to research the project	3.1 Evaluate research methodologies applicable to the chosen area 3.2 Select appropriate methodologies, justifying their selection 3.3 Apply chosen methodologies
4. Be able to present the findings of a research project	4.1 Critically analyse the findings 4.2 Present the findings, conclusions and any recommendations of the research in a professionally accepted format

	4.3 Produce an executive summary of the findings
5. Be able to evaluate the project outcome	5.1 Evaluate the project outcome against the original project specification 5.2 Make recommendations and justify areas for further consideration
6. Be able to critically evaluate reference sources	6.1 Undertake a critical review of the key reference materials used 6.2 Explain the importance of validity and reliability of the data used in the research

SUPPORTING UNIT INFORMATION

K/503/4176 Independent research project in arboriculture – Level 6

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Be able to select and justify a research project

Research project of arboricultural value and interest to the learner. Identify specific topic/s to select from; this/these should be of arboricultural value and interest to the learner. Research chosen topic/s in articles/books/magazines/journals/websites to inform final decision. Topic should be realistic in scope and scale. Justify topic by defining and explaining the choice.

Learning Outcome 2. Be able to plan the research project

Overview to be produced by learner and approved by tutor prior to commencement

Learning Outcome 3. Be able to choose the appropriate methodologies to research the project

Evaluate appropriate methodologies prior to selection and application e.g. Qualitative / quantitative research; Primary/secondary research; interviews, questionnaires, surveys, focus groups, observations, case studies, experiments.

Learning Outcome 4. Be able to present the findings of a research project

Accepted format with an executive summary e.g. summary, method, results, references, appendixes, tables, footnotes etc.

Learning Outcome 5. Be able to evaluate the project outcome

Keep a record of the original project specification for the purposes of comparison. Gather evidence e.g. project's outcomes, effectiveness, difficulties etc. Analyse evidence and compare to expected results.

Learning Outcome 6. Be able to critically evaluate reference sources

Identify the key reference sources for critical review. Validity and reliability of data.

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

See ABC website for further information

Unit Title	H/503/4175 Management of special trees
Level	6
Credit Value	6
Guided Learning Hours	30
Unit Summary	This unit covers the recognition and management of trees or woodlands or sites that are recognised as 'special' and warrant retention or specific management
Learning Outcomes (1 to 8) <i>The learner will</i>	Assessment Criteria (1.1 to 8.1) <i>The learner can</i>
1. Understand the positive and negative issues that affect special trees or sites	<p>1.1 Identify the characteristics which determine the following as special</p> <ul style="list-style-type: none"> • ancient tree • veteran tree • notable tree • champion tree • heritage tree • ancient woodland site • SSSI with trees <p>1.2 Identify significant issues that impact on</p> <ul style="list-style-type: none"> • special trees • ancient woodland sites • trees on a SSSI
2. Be able to collect data when undertaking a survey and assess the threats	<p>2.1 Compile suitable formats and headings for collecting data related to the following</p> <ul style="list-style-type: none"> • an ancient tree • a veteran tree • a notable tree • a champion tree • a heritage tree • an ancient woodland site <p>2.2 Undertake a survey of each of the trees/sites listed in 2.1</p> <p>2.3 Identify the current and future threats for each tree/site listed above assessing the level of threat in a prioritised manner</p>

<p>3. Understand the solutions available to problems identified in surveys</p>	<p>3.1 Recommend solutions to the threats identified in 2.3</p> <p>3.2 Critically evaluate the implications of the solutions recommended above</p>
<p>4. Understand how to plan and prioritise management actions</p>	<p>4.1 Plan and prioritise management actions arising from the surveys conducted in relation to</p> <ul style="list-style-type: none"> • an ancient tree • a veteran tree • a notable tree • a champion tree • a heritage tree • an ancient woodland site
<p>5. Understand the importance of monitoring and recording changes in special trees and sites</p>	<p>5.1 Explain the importance of monitoring and recording changes in special trees and sites</p> <p>5.2 Prepare a system for monitoring and recording changes for</p> <ul style="list-style-type: none"> • an ancient tree • a veteran tree • an ancient woodland site
<p>6. Know what assistance other specialists can provide</p>	<p>6.1 Identify the information that can be provided by other specialists when preparing management plans for either a veteran tree or an ancient woodland site</p>
<p>7. Understand the special requirements of managing an ancient woodland for flora or fauna</p>	<p>7.1 Summarise the main special requirements of managing a woodland containing protected, rare and endangered flora and fauna species including</p> <ul style="list-style-type: none"> • a named protected herbaceous plant species • important tree lichen species • a named red data book endangered saproxylic insect species • a named woodland dwelling bird species • a named woodland dwelling bat species • a named protected woodland mammal species (excluding bats)

SUPPORTING UNIT INFORMATION

H/503/4175 Management of special trees – Level 6

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Understand the positive and negative issues that affect special trees or sites

Ancient, Veteran, Champion, Notable and Heritage. Ancient woodland sites, Plantation on Ancient Woodland Sites, Sites of Special Scientific Interest.

Learning Outcome 2. Be able to collect data when undertaking a survey and assess the threats

Location, ownership, species, dimensions, form and vitality, condition, site conditions, features, tree associates, tree management and threats.

Physical damage – fire, mechanical, soil compaction. Climatic, competition, shade, scorching, mammals, vandalism, safety concerns, removal of deadwood, harvesting, herbicides, invasive plants, poor management.

Learning Outcome 3. Understand the solutions available to problems identified in surveys

Appropriate solutions

Learning Outcome 4. Understand how to plan and prioritise management actions

Produce a management plan in an acceptable professional format

Learning Outcome 5. Understand the importance of monitoring and recording changes in special trees and sites

Ancient tree, Veteran tree and Ancient woodland site

Learning Outcome 6. Know what assistance other specialists can provide

Ecologists, animal and plant specialists, archaeologists, conservation officers, geologists.

Learning Outcome 7. Understand the special requirements of managing an ancient woodland for flora or fauna

Requirements specific to one example in each category.

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- www.english-nature.org.uk
- www.woodland-trust.org.uk
- www.ancient-tree-forum.org.uk
- Dead Wood Matters: EN Science 7 Kirby, K & Drake, M (Eds.) 1993
- Veteran Trees: A Guide to Good Management Read, H. 2000 Out of Print
- Pollard and Veteran Tree Management Corporation of London

See ABC website for further information

Unit Title	R/503/4205 Structural damage investigations for the arboriculturist
Level	7
Credit Value	8
Guided Learning Hours	40
Unit Summary	Learners will develop, through both a theoretical and a practical approach, sufficient working knowledge to be able to undertake an investigation where it is alleged woody vegetation roots are the cause or contributory to damage to built structures and to produce their findings and recommendations in a structured format
Learning Outcomes (1 to 6) <i>The learner will</i>	Assessment Criteria (1.1 to 6.2) <i>The learner can</i>
1. Understand the likely indirect damage potential of different species to built structures	1.1 Evaluate water usage by amenity trees and draw conclusions 1.2 Distinguish the relative risk posed by different species of causing indirect damage to built structures
2. Be able to conduct an investigation	2.1 Obtain and analyse data from a wide range of sources in order to determine if woody vegetation is contributing to damage caused to built structures by <ul style="list-style-type: none"> • one case of direct means - contact • one case of indirect means – subsidence 2.2 Interpret crack or level monitoring information and form a conclusion 2.3 Identify any gaps in data and the sources of any further information required 2.4 Determine whether to proceed, based on the value of the woody vegetation versus the costs of the investigation, justifying the decision 2.5 Extrapolate key evidential information and explain why it is key 2.6 Prepare information for a discussion with at least one other specialist in a subsidence case

<p>3. Understand the strengths and weaknesses of available solutions and their implementation</p>	<p>3.1 Evaluate the various arboricultural options for</p> <ul style="list-style-type: none"> • subsidence damage by woody vegetation being the most probable cause • the risk of subsidence damage occurring is rated as high • direct damage caused by tree roots <p>3.2 Form judgements based on the value of the woody vegetation versus the costs of the solution</p> <p>3.3 Identify realistic and practical engineering solutions where</p> <ul style="list-style-type: none"> • subsidence damage by woody vegetation is the most probable cause • direct damage has been caused by tree roots <p>3.4 Critically appraise current developments and research in the area of study, drawing conclusions</p>
<p>4. Know what actions are required at the completion of an investigation</p>	<p>4.1 Select the most appropriate option/options from the investigation, justifying the selection/s</p> <p>4.2 Compile clearly identified findings, conclusions and recommendations for a client, in line with current professional practice</p>
<p>5. Know what information is available to provide support for other professions or organisations</p>	<p>5.1 Identify the arboricultural guidance and recommendations related to indirect and direct damage that support associated professions and industries</p> <p>5.2 Critically evaluate the accuracy of the guidance and recommendations</p> <p>5.3 Summarise applicable case law and how this may influence the following</p> <ul style="list-style-type: none"> • extent of investigations required by all parties • vegetation management
<p>6. Understand the needs of tree planting and street infrastructure for avoiding damage in the future</p>	<p>6.1 Evaluate four options that may be employed to prevent or reduce the likelihood of direct damage caused by tree roots to new footpath</p> <p>6.2 Evaluate two options that may be employed to prevent or reduce the likelihood of indirect damage caused by new tree planting to buildings</p>

SUPPORTING UNIT INFORMATION

R/503/4205 Structural damage investigations for the arboriculturist – Level 7

INDICATIVE CONTENT

To successfully achieve this unit, learners need to provide evidence that they have met the learning outcomes and assessment criteria for the unit.

Indicative content is offered as guidance to aid delivery of the unit and to set the learning outcomes and assessment criteria in context.

Learning Outcome 1. Understand the likely indirect damage potential of different species

Research tree species with examples from distinct categories of water use

Learning Outcome 2. Be able to conduct an investigation

Soil analysis, structural engineers report, root identification analysis, site analysis, tree data analysis, crack or level monitoring data, amenity tree evaluation methods – Helliwell, Capital Asset Valuation for Amenity Trees (CAVAT), Council of Tree and Landscape Appraisers (CTLA). Costs of investigations and testing. Key evidential tests – trespassing roots and foreseeable damage.

Learning Outcome 3. Understand the strengths and weaknesses of available solutions and their implementation

Vegetation management, root barriers, engineering solutions, combinations

Learning Outcome 4. Know what actions are required at the completion of an investigation

Vegetation management, root barriers, engineering solutions and combinations. Tree value, cost of solution, practicality of implementation and longevity of solution

Learning Outcome 5. Know what information is available to provide support to other professions or organisations

House surveyors, structural engineers, house builders, highway engineers, utility companies Evaluate the arboricultural guidance available. Applicable case law.

Learning Outcome 6. Understand the needs of tree planting and street infrastructure for avoiding damage in the future

Planting geometry, design, species, life spans, climate change, material types, directed root growth. London Tree Officers Association Joint mitigation protocol.

TEACHING STRATEGIES AND LEARNING ACTIVITIES

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

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

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

Useful sources of reference

- www.theclayresearchgroup.org
- Tree Roots in the Built Environment: The Centre for Ecology and Hydrology. The Stationary Office. 2006
- Tree Root Damage to Buildings. Biddle, P G 1998
- The Subsidence handbook 3rd edition 2005 The Subsidence Forum (BSI)
- Subsidence Damage to Domestic Buildings R Driscoll and H Skinner BRE 2007
- Reducing Infrastructure Damage by Tree Roots: A Compendium of Strategies. Costello, LR & Jones, K S.
- Building Near Trees, Chapter 4.2, NHBC Standards
- Has Your House Got Cracks? Freeman, T.J, 2002 2nd edition
- Damage to Buildings Caused by Trees. BRE Good Repair guide 1 & 2 1996
- The Landscape below Ground III: Proceedings of an International Workshop on Tree Root Development in Urban Soils Watson, G W & Neely, D (Eds.) 2008
- Tree Roots and Buildings Cutler, D.F & Richardson 1997, (Out of print)
- London Tree Officers Association

See ABC website for further information

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

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

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

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