



Arboricultural Report

50 Chestnut Road, Loggerheads, Market Drayton, Shropshire TF9 4BL
Tel: 01630 673216 Mob: 07813 808174 Web: www.oldoaktreecare.co.uk
email: oldoaktree@talktalk.net

Proposed alterations
Former HSBC Bank
High Street
Ruabon
Wrexham
LL14 6NH

*For the purpose of dealing with all tree issues in accordance with
BS5837:2012 Trees in Relation to design, demolition and
construction: Recommendations for a development at the site*

Commissioned by:

Christopher Hardacker
Architect

Surveyed and reported on by:

David Bailey
BSc (hons), M.Arbor.A, cert.Arb.(RFS)

Survey date:
3rd July 2018

Report date:
4th July 2018

Contents

	Page
1.0 Summary and summary Tree Protection Plan	1 + 2
2.0 Instruction	3
3.0 Extent of Survey	4
4.0 The Site	6
5.0 Trees Surveyed	6
6.0 Arboricultural Work Required	7
7.0 Tree Protection	7
8.0 Conclusion	9
9.0 Appendix A: Tree Constraints Plan (TCP)	
10.0 Appendix B: Tree Protection Plan (TPP)	
11.0 Appendix C: Survey Methodology	
12.0 Appendix D: Tree Categories (from BS5837:2012)	
13.0 Appendix E: RPA protective fencing (from BS5837:2012 Figures 2 and 3)	
14.0 Appendix F: Qualifications and experience.	
15.0 Appendix G: Raw Data	

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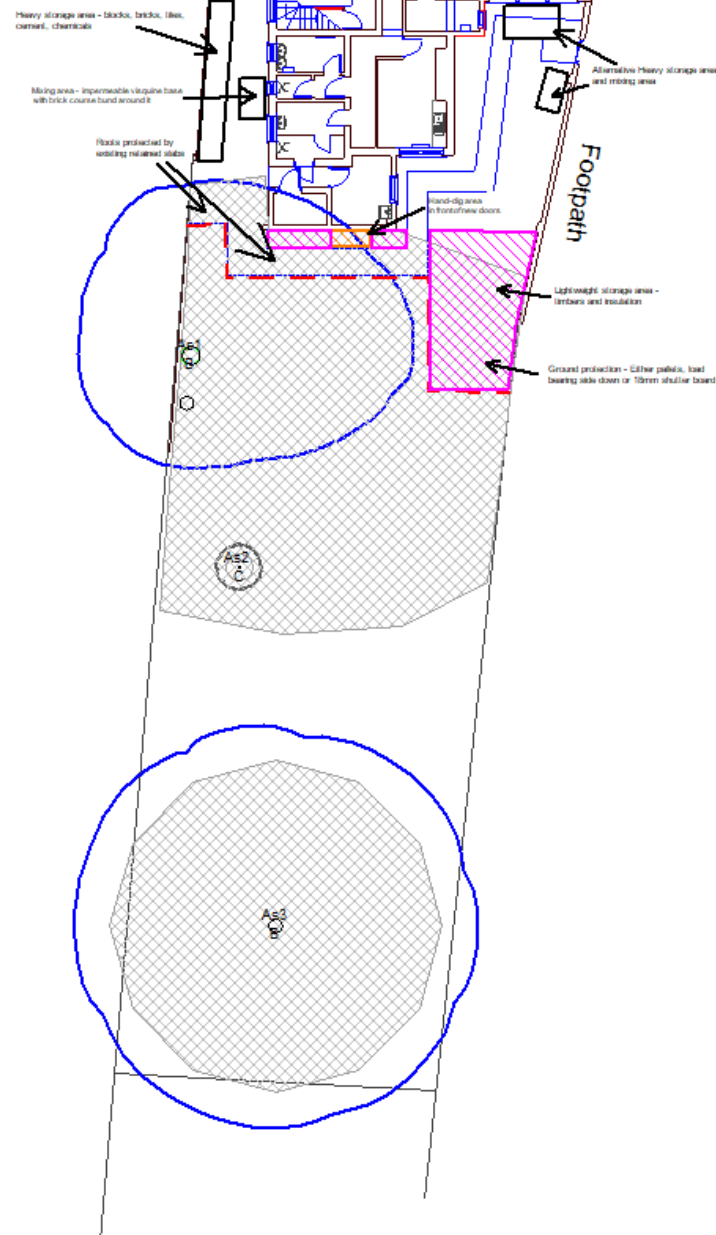
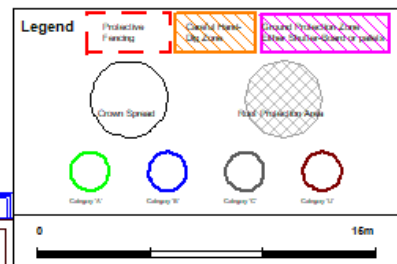
1.0 Summary

- 1.1 *The proposal is to convert a disused bank into a number of residential units.*
- 1.2 *There are a number of trees on site, some being of high amenity value. No tree requires removal or work to it to allow the conversion.*
- 1.3 *All retained trees can be sufficiently protected during development using standard tree protection methods. **The prompt installation of immovable protective fencing before building work begins in the correct position, with its retention throughout the build, is the singularly most important tree protection measure.***
- 1.4 *The proposal is arboriculturally sound.*



 Summary TPP Former HSBC Bank, High Street, Ruabon, Wrexham, LL14 6NH	
Tree Protection Plan Showing all retained trees, crown dimensions, tree categories, RPAs, fencings, careful hand dig areas and storage areas	
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Map reference: PC18/248/TCP	

High Street



Do not scale from Summary TPP

2.0 Instruction

- 2.1 I am instructed by architect Christopher Hardacker, to carry out a tree survey at the former HSBC Bank at Ruabon and produce a tree report to support a planning application at the site.
- 2.2 It is proposed to carry out alterations to the property to turn it into a number of residential units.
- 2.3 The site, has a number of trees within it. Some of these trees are large and significant. These trees need to be surveyed and evaluated to ensure suitable justification can be given for those to be removed and suitable protection during construction is afforded to those that are retained.
- 2.4 I am therefore to visit the site, survey all trees of importance and produce a tree report to support the planning application.
- 2.5 The survey is to be compliant with BS5837:2012 Trees in Relation to design, demolition and construction: *Recommendations*.

3.0 Extent of Survey

- 3.1 A brief resume of my qualifications and experience as a professional arboriculturist is found in Appendix F.
- 3.2 I visited the site on 3rd July 2018. Weather conditions were bright, warm with a light breeze. The survey was not hampered by this.
- 3.3 The survey covers only arboricultural matters on, or adjacent to the site.
- 3.4 Statutory protection (either Tree Preservation Orders, Conservation Area Status or historical planning conditions), has not been officially investigated. It is understood that the surveyed trees are covered by a tree preservation order.
- 3.5 Information was gathered to comply with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations. Trees were surveyed to assess their health, structural condition, estimated remaining longevity and amenity value to the area. Appendix C gives a methodology for how the survey was carried out.
- 3.6 Trees were not surveyed specifically for risks they may pose to the general public or users of the site. Whilst clear faults, damage or disease of a significant degree will be commented upon, specialist diagnostic equipment or extensive investigations are not carried out.

3.7 The survey deals with identifying the constraints retained trees will impose on development of the site, if trees will need to be removed to allow development and how remaining trees can be protected to prevent significant damage to them. The survey is to recommend necessary tree work if required.

3.8 Documents seen:

- i) Proposed block plan supplied by architect Christopher Hardacker.

Documents supplied

- i) PC18/249/TCP Tree Constraints Plan – showing all surveyed trees
ii) PC18/249/TPP Tree Protection Plan – showing retained trees and tree protection

3.9 Documents referred to:

- BS5837:2012 Trees in Relation to design, demolition, and construction - *Recommendations*.
- BS3998:1010: Tree Work – *Recommendations*.
- The Body Language of Trees: Mattheck and Breloer. DofE Research for Amenity Trees no. 4, 1994.
- Tree roots in the built environment. TSO Research for Amenity Trees no. 6, 2006.
- BS8545:2014 Trees: from nursery to independence in the landscape.
- National House Building Council Standards Plus 2018. Chapter 4.2 Building Near Trees. <http://www.nhbc.co.uk>

3.10 Any tree work suggested or recommended in Section 6 is to comply with British Standard 3998:2010 Tree Work – Recommendations.

3.11 Any engineering solutions referred to are done so on the understanding that specifications will be required from a suitably qualified professional. Reference is made to them purely to show an end result is possible using the method prescribed.

3.12 Where buildings are constructed close to trees, reference should be made to the National House-Builders Council Standards Plus 2018, chapter 4.2, which will give appropriate foundation depths for the given situation.

4.0 The Site

- 4.1 The site is a disused bank of approximately 100 years age set on Ruabon High Street. There is a large walled garden behind it with a number of large trees within it.
- 4.2 To the north is a footpath with a residential property beyond. In an easterly direction is a playing field. To the south is another residential property and garden. To the east is the bank and Ruabon High Street beyond.
- 4.3 The profile of the site is flat. The entire rear garden is enclosed by a high wall. There are two entrances through locked doors of a standard width leading to a paved area around the rear of the bank..
- 4.4 There are a number of trees within the site, two large ashes and another ash which has been recently planted to replace a lost tree.
- 4.5 Viewing the Cranfield Soil and Agrifood Institute's Soilscales map (www.landis.org.uk) it appears that the soil is a freely draining slightly acid loamy soil. Fertility is registered as low. Soil of this kind provides a good medium for the growth of trees. The modified soil plasticity data has not been investigated.
- 4.6 As long as there are no buried obstructions, physical barriers, severe soil compaction or historical root damage, a typical root distribution could be expected for all of the trees on site.

5.0 Trees Surveyed

The schedule of trees surveyed is set out in the following section.

- Tree Number Tree identifier. Letter denotes species and number is sequential
- Species Using common names
- Height In metres
- Stem diameter Taken 1.5 m from the ground in accordance to Annex C of BS5837:2012
- Age class Either young, mid aged, early mature, mature, over mature or veteran
- Est R Cont Estimated Remaining Contribution. Trees useful life in years
- Physiological Assessment of the physiological condition of the tree
- Structural Assessment of the structural condition of the tree
- Ret. Cat. Retention Category. See Appendix C for details
- RPA radius Radius of the Root Protection Area (RPA) from the centre of the tree
- Prelim Man Rec Preliminary management recommendations
- Notes Notes of importance to the survey



Tree Number:	As1	Species:	Ash	Height:	20m
Stem diameter:	800mm	Age Cat.	mature	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	B
RPA radius if RPA is circular:	9.6m			RPA area:	290m2
Prelim Man. Rec.					
Notes: Large ash stretching to north-east due to influence of now removed similar ash beside it					

Tree Number:	As2	Species:	Ash	Height:	3m
Stem diameter:	50mm	Age Cat.	young	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	0.6m			RPA area:	1m2
Prelim Man. Rec.					
Notes: Newly planted replacement for lost tree					

Tree Number:	As3	Species:	Ash	Height:	17m
Stem diameter:	600mm	Age Cat.	mature	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	B
RPA radius if RPA is circular:	7.2m			RPA area:	163m2
Prelim Man. Rec.					
Notes: Open grown singular tree well away from development					

6.0 Arboricultural Work Required

- 6.1 No tree work is required to allow the build to be completed. It would be advisable to have a tree surgeon check the tree before occupancy to ensure they are healthy.
- 6.2 All tree work is to be carried out by a qualified and experienced contractor to BS3998:2010 Tree Work: Recommendations.

7.0 Tree Protection

- 7.1 Root Protection Areas (RPAs) do not show the total extent of a trees roots but is an area around a tree that contains the minimum amount of roots and rooting medium to maintain the viability of the tree. This area is prioritised for the tree. The RPA should contain the area of growing medium as set out in section 5 even if its shape needs to be adjusted to more accurately reflect the rooting architecture.

- 7.2 RPAs are usually drawn as a circle, its radius measuring 12 times the diameter of the tree trunk. Although tree roots are often found underneath roads, buildings and in inhospitable places, the tree would suffer if this area was 'set aside' for the roots, especially if there was better rooting mediums close by.
- 7.3 Where RPAs are not drawn as a circle, it has been estimated that the rooting architecture of the tree will not prosper in parts of its environment where rooting is difficult such as roads, buildings, underground obstructions or natural barriers such as rivers or embankments.
- 7.4 On this site, the large walls and poor rooting area beyond are likely to have significantly altered the root architecture. The RPAs have been altered to show the majority of rooting within the garden area where there is good rooting potential.
- 7.5 The Tree Protection Plan (TPP), Appendix B, shows all retained trees and how their RPAs are to be protected by a fence, similar to that shown in Appendix D.
- 7.6 All retained trees can be effectively protected by a fence as shown in the tree protection plan TPP, Appendix B.
- 7.7 The site's large walls will prevent plant entering the rear garden. An area is set aside for building materials to be stored.
- 7.8 RPAs are to be protected from infill, chemical incursion, fuel spillage, building material storage, solid waste disposal, liquid waste disposal or soil compaction of any kind, be it machinery, goods, foot traffic or vehicular.
- 7.9 Where specified, tree protection should be facilitated by a temporary fence during construction work. Examples of such a fence are given in Appendix D. It is essential these fences cannot be moved without tools and concerted effort.
- 7.10 A small area, at the rear of the building, where a new entrance is to be created will require some excavation to lay a patio at the same level as the existing slabs. Excavations will need to be made to approximately 100mm depth. It is not expected that significant roots above 50mm in diameter will be found here but it could happen. Should smaller roots be found they should be neatly cut using secateurs. Should larger roots be found, the opinion of an arboriculturist should be sought to ensure roots are not damaged, and a system of boxing them in is devised. The remaining area not excavated should be protected from compaction by laying 18mm thick shuttering board on it.
- 7.11 Space in the rear garden for storage of large construction items is limited. Appendix B shows where a part of the RPA of As1 is used as a storage area for lightweight products such as insulation and timbers. Heavy items such as packs of bricks will need to be dropped off at the front of the property and brought around by hand or wheelbarrow into the areas specified in Appendix B.

- 7.12 An area is also shown for mixing of cement and chemicals. To prevent contamination of the soil which can be of harm to nearby trees an impermeable base such as visquine should be used with a brick height bund around it to prevent loss of any liquids.
- 7.13 The entire base of the lightweight storage area over the RPA is to be constructed of either upturned pallets (pallets with flat face on the ground) or 18mm diameter shutter board. It is to remain in place throughout the build, whether used or not.
- 7.14 Underground services are not to enter RPAs. Should a service run be required within an RPA, a site-specific method statement will need to be prepared describing what measures will be taken to prevent significant root loss from installation of these runs. However, given the positioning of trees, service trenching is most likely to take place away from RPAs. The National Joint Utility Group guidelines Volume 4, gives essential guidelines for installing utilities in proximity to trees (NJUG 4).

8.0 Conclusion

- 8.1 The proposal is to convert a disused bank into a number of residential units.
- 8.2 In the rear garden are a number of large trees that will require protection during the construction work.
- 8.3 No tree requires removal or any work to allow the building to be converted. There will be no harm to amenity provided by trees.
- 8.4 All retained trees can be effectively protected using standard tree protection measures. It is essential that these measures are carefully put in place with fencing erected before any work begins, is fit for purpose and cannot be moved without tools and concerted effort.
- 8.5 The proposal is arboriculturally sound and complies with British Standard 5837:2012 Trees in relation to design, demolition, and construction – Recommendations.

The data, views and opinions of this report relate to the survey undertaken on the date shown and do not take into account effects of weather conditions, vandalism or accidental damage. Neither can the effects of tree surgery work, poorly executed or which does not comply with BS3998:2010, be predicted. Old Oak Tree Care cannot accept any liability in connection with any of these factors. This report becomes out of date and in need of renewal two years from the survey date. Data relating to tree health and condition will become out of date and in need of renewal six months from the survey date.



Appendix A
Former HSBC Bank, High Street, Ruabon,
Wrexham, LL14 6NH

Tree Constraints Plan
Showing all trees, crown dimensions, tree
categories and Root Protection Areas (RPAs)

SCALE :
1 : 200 @ A3 DATE :
05/07/2018

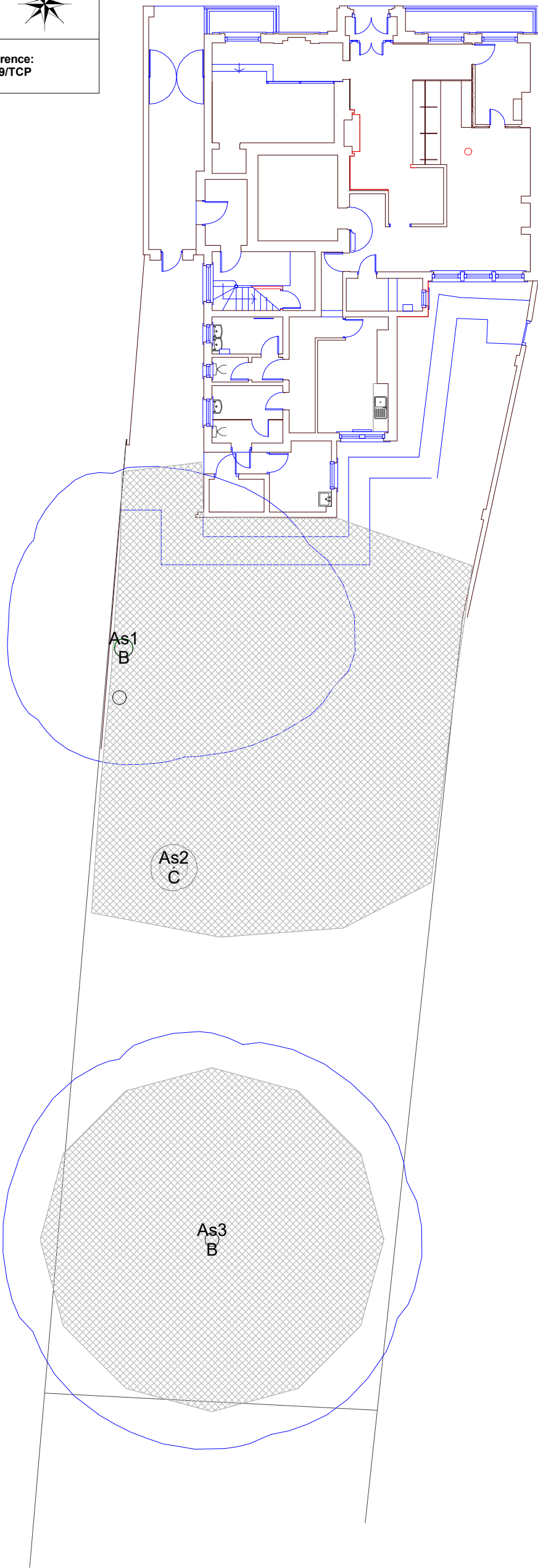
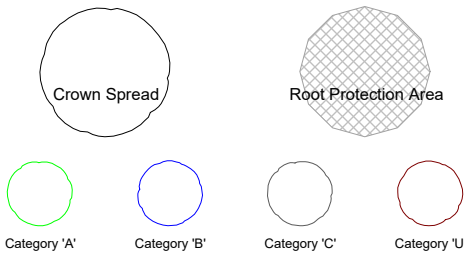
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Map reference:
PC18/249/TCP

Legend





Appendix B

Former HSBC Bank, High Street, Ruabon, Wrexham, LL14 6NH

Tree Protection Plan
Showing all retained trees, crown dimensions, tree categories, RPAs, fencing, careful hand dig areas and storage area

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Map reference:
PC18/249/TCP

High Street

Legend

Protective Fencing

Careful Hand-Dig Zone

Ground Protection Zone
Either Shutter-Board or pallets

Crown Spread

Root Protection Area

Category 'A'

Category 'B'

Category 'C'

Category 'U'

0

15m

Heavy storage area - blocks, bricks, tiles, cement, chemicals

Mixing area - impermeable visquine base with brick course bund around it

Roots protected by existing retained slabs

Hand-dig area in front of new doors

Alternative Heavy storage area and mixing area

Footpath

Lightweight storage area - timbers and insulation

Ground protection - Either pallets, load bearing side down or 18mm shutter board

As1
B

As2
C

As3
B

Appendix C

Survey Methodology, describing how tree survey was conducted

- 1.1 Where trees are not shown on a topographical survey their positions were plotted using triangulation from marked positions on the plan using a laser rangefinder.
- 1.2 Crown diameters and heights were estimated using a laser rangefinder.
- 1.3 I viewed each tree, or group, on the survey to assess structural integrity, health, presence of dysfunction and form. The basis of the survey was undertaken using VTA (visual tree assessment method) as expounded by Mattheck and Breloer in *The body language of trees, A handbook for failure analysis*, TSO 1994.
- 1.4 Stem diameters were measured in millimetres, taking the circumference at approximately 1.5 metres above the ground and dividing by π (Pi), in accordance with Annex C of BS5837:2012. Where ivy or any other material would give an incorrect measurement, a suitable correction was made before recording. Results were rounded up or down to the nearest 25mm. Where trees could not be reached, their diameters were estimated.
- 1.5 The trees were assessed for longevity using survey data, experience gained in working with similar trees and likely management decisions.
- 1.6 Trees were placed into categories using the criteria set out in BS5837:2012 (Appendix D).
- 1.7 All trees that will be affected by the entire development were surveyed, excluding those due to distance from the development, those of insignificant nature or unremarkable trees that fall within the RPAs of more significant trees.
- 1.8 No invasive testing was carried out.
- 1.9 No soil samples were taken.
- 1.10 Internal investigations and tissue samples were not taken.
- 1.11 All tree information is tabulated in Appendix F and plotted in Appendix A, overlaid on top of a survey plan of the area.

BRITISH STANDARD

BS 5837:2012

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>	See Table 2
Trees to be considered for retention		
1 Mainly arboricultural qualities 2 Mainly landscape qualities 3 Mainly cultural values, including conservation		
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees with no material conservation or other cultural value

Figure 2 Default specification for protective barrier

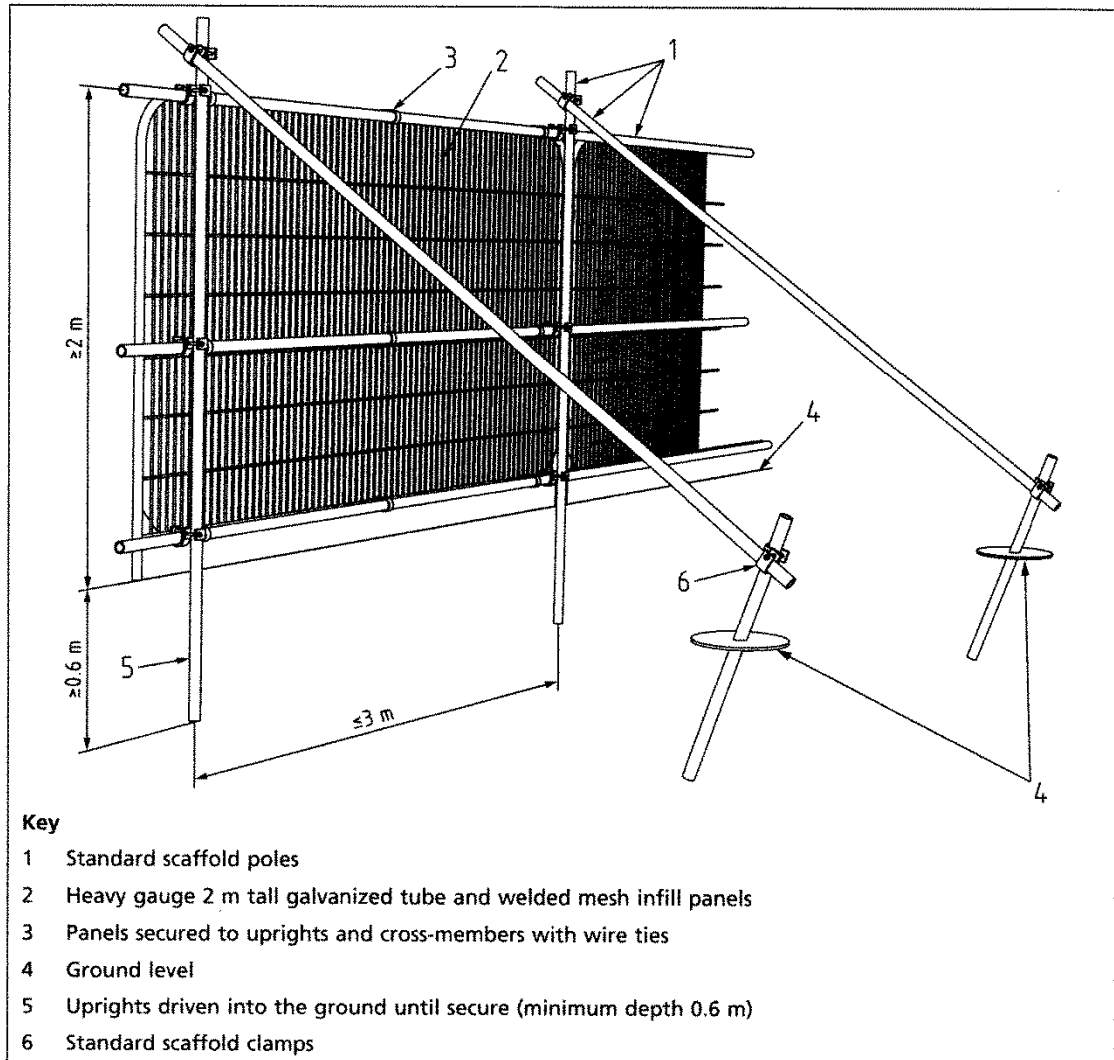
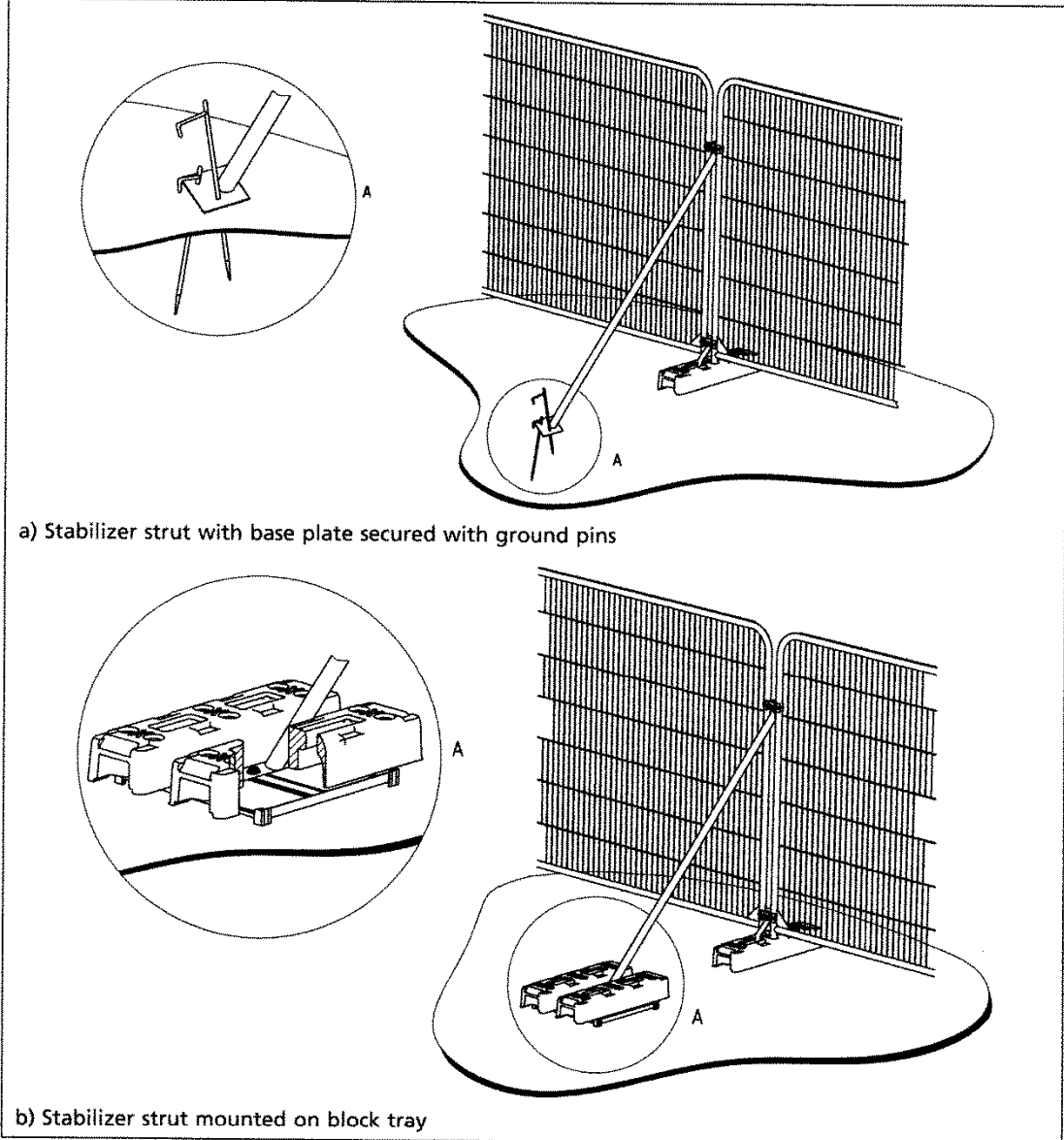


Figure 3 Examples of above-ground stabilizing systems



Appendix F: Qualifications and Experience

- 1.1 Old Oak Tree Care is solely an independent arboricultural consultancy business, wholly owned and run by David Bailey *BSc(hons), M.Arbor.A, cert.Arb(RFS)*.
- 1.2 Old Oak Tree Care was established as a Tree Surgery business in 2004. In 2008 the business began engaging in consultancy work. In 2014 Old Oak Tree Care ceased contracting work to concentrate solely on consultancy.
- 1.3 A broad range of skills were developed during the ten years as a contractor and lead climber of the business. Specialised areas worked in were wetland bog and moss management, use of pesticides in sensitive environments, large scale planting and thinning on urban forest schemes, deadwood management in standing trees and sectional removal of trees in confined spaces.
- 1.4 David Bailey achieved the Royal Forestry Societies Certificate of Arboriculture in 2006, fusing a level 2 academic qualification with 7 certificates of competence for practical work, including felling of trees with chainsaw, use of chainsaws in trees, planting and pesticide use.
- 1.5 In 2008, a Foundation Degree in Arboriculture was achieved at Merit level, from a 3 year part time course at Myerscough College, Preston. In 2012 an Honours Degree in Arboriculture at and upper second was achieved from the same establishment. The dissertation for this degree looked at the spread of alder phytophthora disease in the south Shropshire AONB and factors which influenced infection rates.
- 1.6 Since completing the honours degree, David Bailey has remained committed to continued professional development by attending courses, reading books, attending conferences and being part of arboricultural group discussion forums with similar professionals.
- 1.7 Work undertaken includes development surveys to BS5837:2012, large and small scale health and safety inspections, tree health and disorder identification, applications for work to trees covered by preservation orders (TPO) or within conservation area, appeals for refusal for work to trees and working as an expert witness giving both written and oral evidence to CPR35 and PD35.
- 1.8 Customers requiring consultancy work have ranged from both large and small developers, planning consultants, architects, schools, The Forestry Commission, Town and Parish Councils, solicitors, NGOs and private individuals.

Appendix G Raw data - Key

Where measurements are estimated due to lack of access or vegetation, a * denotes this.

Tree Number -	Identification for specific tree. Using a couple of letters to help with species identification together with a number. Groups or hedges will be identified as Gr.
Species-	Tree species, using common name.
Height-	Taken using angular triangulation function of a laser rangefinder.
Diameter-	Taken by measuring circumference with a tape measure and applying π equation or by measuring circumference by eye if entire circumference is not available (in this case denoted by *).
Crown spread-	Radius of crown at four cardinal points, north, east, south and west measured by laser rangefinder. (Estimates denoted with a *).
Crown height-	Height of lowest branch at each cardinal point. Measured by laser rangefinder. (Estimates denoted with a *).
Age bracket-	Estimated life stage of tree ranging from young, mid-aged, early-mature, mature and over-mature.
Physiological condition-	Assessment of health and vitality of the tree. Good, fair, poor or dead. Fair or poor will have more details attached.
Structural condition-	Assessment of physical structure of tree. Good, fair, poor or dead. Fair or poor will have more details attached.
Years remaining-	Estimate of likely useful life of tree taking into account age, species character, situation and likely management requirements.
Quality assessment-	Subjective assessment. Either A- very good, B-good, C-reasonable or U- unsuitable for retention. See appendix C for more details.
RPA radius-	Positioning of root protection area (RPA) measured from centre of the tree to the radius. This is for a circular RPAs. Where RPAs have been adjusted for site conditions and are no longer circular this value will not be correct. (Non-circular RPA will be denoted with a *).
RPA area-	Area of RPA irrespective of its shape.
Notes:	Any notable comments on group make up, physiological, structural condition or notable features.

Appendix G		Tree survey raw data																																					
Tree number		Species		Height (m)		Diameter (mm)		N Crown spread (m)		E		S		W		N Crown Height (m)		E		S		W		Age bracket		Physiological Condition		Structural Condition		Years remaining		Quality assessment		RPA radius(m)		RPA Area (m2)		Notes	
As1	Ash	20	800	10	5	5	8	4	5	5	3	mature	good	good	10 to 20	B	9.6	290																					
As2	Ash	3	50	1	1	1	1	1	1	1	1	young	good	good	10 to 20	C	0.6	1																					
As3	Ash	17	600	9	9	9	9	3	3	3	3	mature	good	good	10 to 20	B	7.2	163																					