



Arboricultural Report

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Village Bakery
Ash Road South
Wrexham Industrial Estate
Wrexham

*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:

Gareth Edwards
DPA

Survey date:
23rd November 2015

Surveyed by:

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

Report date:
26th November 2015

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1 Qualifications and Experience

- 1.1 My name is David Bailey. I am the owner of Old Oak Tree Care, an arboricultural consultancy business based on the Staffordshire/Shropshire border. I have run my business as a contractor since 2004 and progressed to work as a consultant since 2008.
- 1.2 I attained the honours degree in arboriculture at Myerscough College, Lancashire at an upper second level in 2011 after completing the foundation degree in arboriculture at merit level from Myerscough College, in 2008. I attained the certificate of arboriculture from the Royal Forestry Society in 2006.
- 1.3 I am a professional member of the Arboricultural Association and hold professional indemnity insurance to £1million.
- 1.4 Old Oak Tree Care is an approved contractor to Shropshire Council and carries out work for government agencies, county councils, town/parish councils, the Forestry Commission and private individuals.
- 1.5 In my work as a consultant, I have carried out surveys of trees in relation to construction, large scale health and safety tree surveys, private consultancy work, LPA appeals and work as an expert witness.

2.0 Instructions

- 2.1 I am instructed by Gareth Edwards of DPA to carry out a tree survey at land belonging to Village Bakery, Ash Road South, Wrexham Industrial Estate and produce a tree report to support a planning application to develop the site.
- 2.2 It is proposed to build a new bakery, access roads, parking and services as well as a roadway through to the company's current facility to the south-west.
- 2.3 I am therefore to visit the site, plot and survey all trees of importance, work with the developer to produce a viable design and then produce a tree report to support the planning application.
- 2.4 The survey is to be compliant with BS5837:2012 Trees in Relation to design, demolition and construction: *Recommendations*.

3.0 Summary

- 3.1 *The proposal is possible without causing significant harm to the amenity provided by trees to the area. One tree with significant amenity nature is to be removed, however this will be hidden by the proposed development in any case, losing its current value.*
- 3.2 *The development requires a group of category C crack willows and some smaller and younger hawthorn, elm and willow to be removed.*
- 3.3 *All trees can be sufficiently protected during development using standard tree protection methods.*
- 3.4 *A plating scheme at the front of the development is proposed that can mitigate the loss of trees and enhance the roadside character of the proposed building.*
- 3.5 *The proposal is arboriculturally sound.*

4.0 Extent of Survey

- 4.1 The survey covers only arboricultural matters on, or adjacent to the site.
- 4.2 Statutory protection (either Tree Preservation Orders or Conservation Area Status), has not been investigated.
- 4.3 Information was gathered to comply with British Standard 5837:2012 Trees in relation to design, demolition and construction – *Recommendations*.
- 4.4 Trees were surveyed to assess their health, structural condition, estimated remaining longevity and amenity value to the area.

- 4.5 The survey deals with identifying the constraints retained trees will impose on development of the site, what trees will need to be removed to allow development and how remaining trees can be protected to prevent significant damage to them.
- 4.6 Documents seen:
- i) Development plan, supplied in electronic format with proposed building shown.
 - ii) Topographical survey of the site, supplied in electronic format.
- 4.7 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.
- 4.8 Any tree work suggested or recommended in Section 8 is to comply with British Standard 3998:2010 Tree Work – Recommendations.
- 4.9 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.

5.0 Survey Method

- 5.1 I visited the site on 23rd November 2015. The weather was overcast with a light wind. The survey was carried out from ground level.
- 5.2 Where trees were not shown on the topographical survey their positions were plotted using triangulation from marked positions on the plan using a laser rangefinder.
- 5.3 Crown diameters and heights were estimated using a laser rangefinder.
- 5.4 I viewed each tree, or group, on the survey to assess structural integrity, health, presence of dysfunction and form.
- 5.5 Stem diameters were measured in millimetres, taking the circumference at approx 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.

- 5.6 The trees were assessed for longevity using survey data, experience gained in working with similar trees and likely management decisions.
- 5.7 Trees were placed into categories using the criteria set out in BS5837:2012 (Appendix D).
- 5.8 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.
- 5.9 No invasive testing was carried out.
- 5.10 No soil samples were taken.
- 5.11 Internal investigations and tissue samples were not taken.
- 5.12 Within the woodland to the west, only trees that have RPAs which may reach beyond the ditch have been surveyed. A line of young trees are found beyond the ditch but are very small and insignificant.
- 5.13 All tree information is tabulated in Appendix E and plotted in Appendix A and C, overlaid on top of a survey plan of the area.

6.0 The Site

- 6.1 The site is a development plot within Wrexham Industrial Estate.
- 6.2 To the north is Ash Road South, the access route to the site. In an easterly direction is an industrial unit. To the south is an area of woodland with a number of ponds which lie within the sites' boundary. Beyond these are further industrial units. In a westerly direction is a woodland, the prominent trees being of Oak, Ash and Elm.
- 6.3 The profile of the site slopes gently to the south-east. To the south are some sunken points which then rise to a wooded ridge.
- 6.4 The main grassed area is free of trees. The woodland to the west differs significantly to the wooded area to the south which mainly constitutes young secondary woodland of hawthorn, ash and willow. One or two larger and older oaks are found here. Of particular note is SK13 a very old over-mature oak. Evidence of large elms failing from Dutch Elm Disease is found within the woodland to the west, but there are elms within the wood of considerable size that appear healthy.
- 6.5 Viewing the Geology of Britain Viewer as supplied by the British Geological Survey (www.bgs.ac.uk), it appears that the bedrock is a Salop Formation consisting of Mudstone, Sandstone and Conglomerate. Soil on this kind of bedrock is generally free draining and provides a good medium for the



growth of trees. Vegetation sourced soil shrinkage and heave is not associated with this soil.

- 6.6 As long as there are no buried obstructions, a typical root distribution could be expected for all of the trees on site.

7.0 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
- Fence from... Distance from the tree bark a protective fence should be placed, measured at 1.5 metres height
- Prelim Man Rec Preliminary management recommendations
- Notes Notes of importance to the survey

Tree Number	El1	Species	Elm	Height	17 metres
Stem diameter	575mm	Age class	Mature	Est R Cont	10-20 years
Physiological cond.	Good	Structural cond.	Fair	Ret. Cat	C2
RPA radius	6.9m	Fence from bark distance	6.6m	RPA area	150m ²
Prelim Man Rec	Crown reduce tree on overhanging side to reduce stress on trunk				
Notes	Prominent tree with some basal injuries and decay.				

Tree Number	Ok2	Species	Oak	Height	17 metres
Stem diameter	750mm	Age class	Mature	Est R Cont	20-40 years
Physiological cond.	Good	Structural cond.	Fair	Ret. Cat	B2
RPA radius	9m	Fence from bark distance	8.6m	RPA area	254m ²
Prelim Man Rec	Crown reduce on overhanging side to reduce stress on included bark union.				
Notes	Good tree apart from included union at 1 metres height. Failure is unlikely due to compact crown. The prescribed work will make failure highly unlikely.				

Tree Number	Ok3	Species	Oak	Height	18 metres
Stem diameter	775mm	Age class	Mature	Est R Cont	20-40 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	B2
RPA radius	9.3m	Fence from bark distance	8.9m	RPA area	272m ²
Prelim Man Rec	none				
Notes					

Tree Number	Ok4	Species	Oak	Height	15 metres
Stem diameter	425mm	Age class	Mature	Est R Cont	20-40 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	C2
RPA radius	5.1m	Fence from bark distance	4.9m	RPA area	82m ²
Prelim Man Rec	None				
Notes	First significant tree of the woodland to the north				

Tree Number	Gr5	Species	Group of Hawthorn	Height	6 metres
Stem diameter	100mm	Age class	Young	Est R Cont	10-20 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	C2
RPA radius	1.2m	Fence from bark distance	1.2m	RPA area	5m ²
Prelim Man Rec	None				
Notes					

Tree Number	Gr6	Species	Group of Oak	Height	6 metres
Stem diameter	200mm	Age class	Young	Est R Cont	20-40 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	C2
RPA radius	2.4m	Fence from bark distance	2.3m	RPA area	18m ²
Prelim Man Rec	none				
Notes					

Tree Number	Wi7	Species	Willow	Height	7 metres
Stem diameter	250mm	Age class	Young	Est R Cont	<10 years
Physiological cond.	Good	Structural cond.	Defects	Ret. Cat	U
RPA radius	3m	Fence from bark distance	2.9m	RPA area	28m ²
Prelim Man Rec	Remove				
Notes	weak included bark union at base. Failure is likely soon.				

Tree Number	Gr8	Species	Group of Hawthorn	Height	6 metres
Stem diameter	100mm	Age class	Young	Est R Cont	10-20 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	C2
RPA radius	1.2m	Fence from bark distance	1.2m	RPA area	5m ²
Prelim Man Rec	None				
Notes					

Tree Number	Ok9	Species	Oak	Height	12 metres
Stem diameter	575mm	Age class	Mature	Est R Cont	20-40 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	C2
RPA radius	6.9m	Fence from bark distance	6.6m	RPA area	150m ²
Prelim Man Rec	none				
Notes	Squat oak hidden within woodland				

Tree Number	Ok10	Species	Oak	Height	17 metres
Stem diameter	700mm	Age class	Mature	Est R Cont	20-40 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	B2
RPA radius	8.4m	Fence from bark distance	8m	RPA area	222m ²
Prelim Man Rec	None				
Notes	Well shaped oak standing out against the background of willows				

Tree Number	Gr11	Species	Group of Crack Willow	Height	15 metres
Stem diameter	250mm	Age class	Semi-mature	Est R Cont	10-20 years
Physiological cond.	Good	Structural cond.	Mostly Good	Ret. Cat	C2
RPA radius	3m	Fence from bark distance	2.9m	RPA area	28m ²
Prelim Man Rec	None				
Notes	Line of trees. Tall and weak with some overhanging site presenting a risk to users of the area below.				

Tree Number	Ok12	Species	Oak	Height	10 metres
Stem diameter	550mm	Age class	Mature	Est R Cont	20-40 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	C2
RPA radius	6.6m	Fence from bark distance	6.4M	RPA area	137m ²
Prelim Man Rec	none				
Notes	Suppressed oak. Most likely to be retarded by very wet growing conditions to south.				

Tree Number	Ok13	Species	Oak	Height	12 metres
Stem diameter	900mm	Age class	Over-Mature	Est R Cont	20-40 years
Physiological cond.	Poor	Structural cond.	Fair	Ret. Cat	B3
RPA radius	10.8m	Fence from bark distance	10.4	RPA area	366m ²
Prelim Man Rec	none				
Notes	Old oak in poor conditions due to challenging rooting environment and competition from younger trees. Large dead branches within crown.				

Tree Number	Gr14	Species	Group of Oak, Elm + Willow	Height	10 metres
Stem diameter	200mm	Age class	Mid-aged	Est R Cont	10-20 years
Physiological cond.	Good	Structural cond.	Good	Ret. Cat	C2
RPA radius	2.4m	Fence from bark distance	2.3m	RPA area	18m ²
Prelim Man Rec	None				
Notes	Developing trees on woodland edge. Poor growing conditions around water.				

8.0 Arboricultural Work Required

- 8.1 El1 is a prominent category C elm which overhangs the site from the woodland. There is evidence of compartmentalised decay at the base of the stem indicating failure at this point may present a hazard to users of the new site. A two metre crown reduction of branches that overhang the site together with a one metre reduction of the top of the tree will significantly reduce stresses on the stem. This will allow for retention of the tree with minimal losses to its amenity value.
- 8.2 A line of young ash, elm and willow trees are found on the eastern edge of the ditch as they colonise the open area of the site. These trees should be cut back to the ditch which forms a natural boundary between the site and the woodland to the west.
- 8.3 Ok2 is a prominent category B oak which, similar to El1, overhangs the site. The tree is moderately weakened by an included bark union at the base. A two metre crown reduction of branches that overhang the site will reduce stresses on the union, dramatically reducing chances of a failure at this point. The work will do little to harm the amenable nature of the tree.
- 8.4 Two to three trees within Gr14 may require removal to allow the roadway to the existing site to be constructed. Any remaining trees should be at least 2.4 metres from the new road.
- 8.5 A few small trees belonging to Gr5, a category C group of hawthorn are found to the north of the ditch. This ditch forms a natural boundary between the trees and development area.

- 8.6 Wi7 is a category U willow with a pronounced included bark union at the base. This tree is likely to fail in the near future and should be removed.
- 8.7 It will be necessary to cut back some of Gr8, a category C group of hawthorns. At least 1.2 metres of clearance is necessary from the proposed roadway to this group of trees.
- 8.8 Ok10 is a category B oak tree whose amenable nature is derived from views to it from Ash Road South. The building of the new bakery is going to severely limit views to this tree from all publically viewable positions. Although currently a category B tree, one considered to be significant to the landscape, the building of the bakery would downgrade it to a category C tree, one considered insignificant. Effort has been made to redesign the site around the tree to retain it, however no suitable design could ensure retention of the tree. For these reasons Ok10 will need to be felled to allow the development.
- 8.9 Gr11 is a group of category C crack willows which follow the line of the ditch. These short-lived trees have grown in competition with one another forming tall and weakened stems which are often prone to failure. Many of these stems are rooted in where the access road is required and many more will be on the edge of it where they will cause a health and safety hazard in strong winds. As with Ok10, any amenity supplied by the trees will be drastically reduced by the building of the bakery. The removal of this entire group of crack willows will allow the development and prevent hazards to users of the development afterwards.

9.0 Tree Protection

- 9.1 Root Protection Areas (RPAs) do not show the total extent of a trees roots but are 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 7 even if the RPA shape needs to be adjusted to more accurately reflect the rooting architecture.
- 9.2 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.
- 9.3 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.

- 9.4 The Tree Protection Plan (TPP), Appendix B, shows all retained trees and how their RPAs are to be protected by a fence as set out in Appendix D.
- 9.5 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.
- 9.6 The RPA of OK2 and Ok3 are drawn as a circle and a very small incursion will be made by the service road to the site. It is likely that a significant amount of root spread in this direction will be prevented by the presence of the ditch. Therefore, these trees RPAs will not be encroached upon by the development as shown.
- 9.7 Where specified, tree protection should be facilitated by a fence. Examples of such a fence are given in Appendix D.

10.0 Tree Planting

- 10.1 The loss of trees at the south of the site together with the presence of the new industrial building will cause a loss of green space to the area. It is also recognised that the area is predominantly set aside for industrial purposes.
- 10.2 There is considerable space at the front of the development to plant a number of large trees to both replace those lost at the south of the development and to screen or enhance the frontage of the new building.
- 10.3 A number of mature oak trees have been retained around Wrexham Industrial Estate and at least one should be planted to mimic this. Some shorter-lived but quicker growing species such as silver birch could be used to break up lines of the new building.
- 10.4 Hedgerows, rather than fences can be used to reduce creep of the woodland into the industrial site and will also help to soften the aesthetics of the site.
- 10.4 It would be important to choose species that fit into a larger design plan for the whole industrial estate and I suggest a planning condition for a planting plan should be produced after consultation with the tree officer of the LPA.
- 10.5 All tree planting should comply with BS8545:2014 Trees: from nursery to independence in the landscape.

11.0 Conclusion

- 11.1 The proposed scheme requires a small amount of tree work to significant trees within the woodland to the west. This work is minor and will have just a small impact on the amenity of these trees.

- 11.2 Some low quality category C trees at the south eastern corner of the site will need to be removed to create the road between old and new sites. A few hawthorns will need to be removed from Gr5 to push woodland beyond the ditch.
- 11.3 The removal of a category B oak, Ok10 is required to facilitate the rear HGV turning area. Although the loss of a category B tree, which has good amenity value, is usually something to be avoided, the building of the bakery will severely reduce its amenable nature in any case, meaning its removal will not be noticed should the development go ahead.
- 11.4 A similar situation is found for Gr11, a group of category C crack willow trees that will need to be removed to create the rear service area. These trees are also very short-lived and prone to failure.
- 11.5 All remaining trees can be fully protected by standard tree protection measures as shown in Appendix B.
- 11.6 Tree planting can help to minimize the visual impact of the new development. Once established, new planting will increase the quality of the local visual landscape.
- 11.7 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

Village Bakery site, Ash Road South,
Wrexham Industrial Estate

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

SCALE at A4 :
1 : 1250

DATE :
30/11/2015



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Legend



Crown Spread



Root Protection Area



Category 'A'



Category 'B'

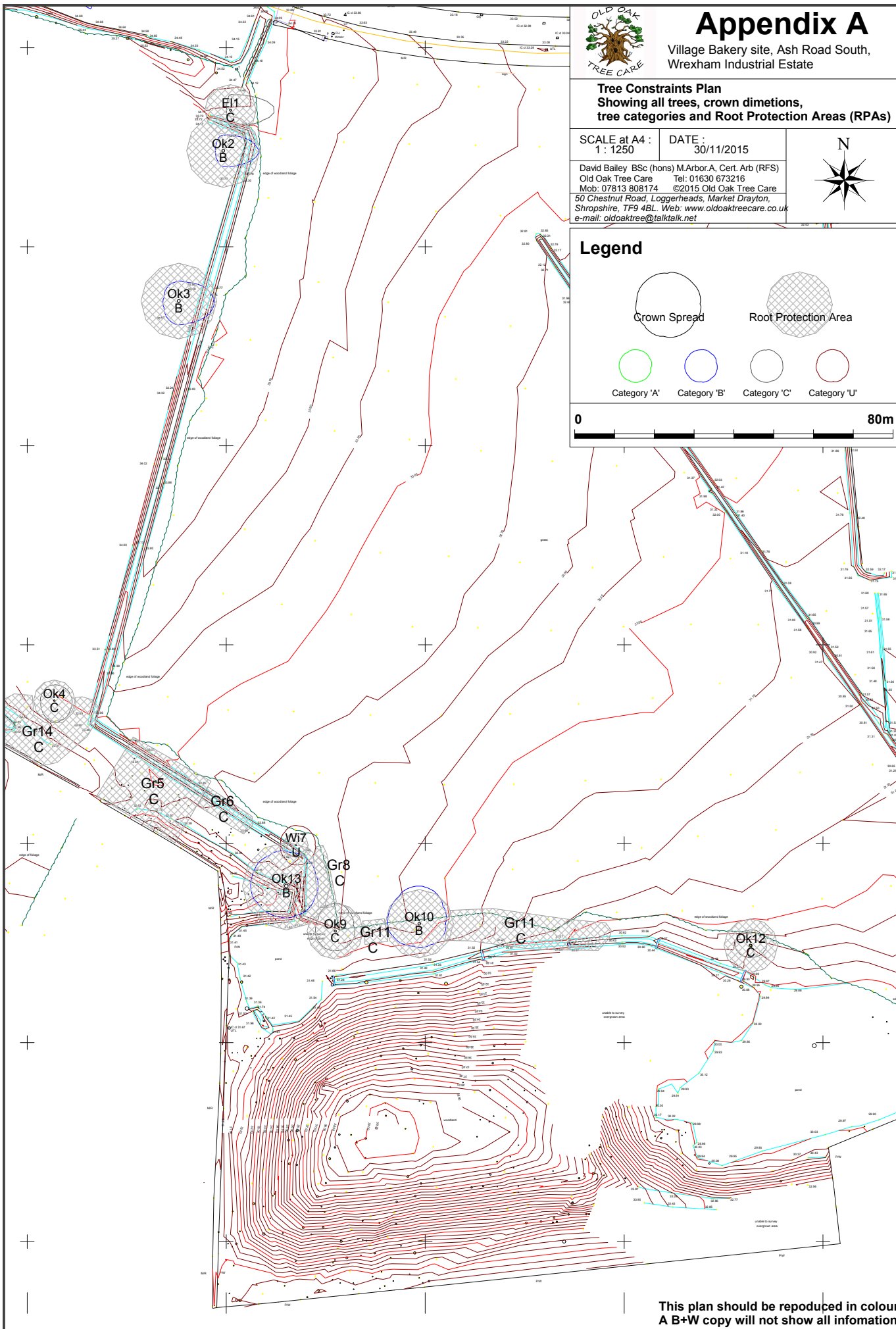


Category 'C'



Category 'U'

0 80m



This plan should be reproduced in colour
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Appendix B

Village Bakery site, Ash Road South,
Wrexham Industrial Estate

Tree Protection Plan with Proposed Development
Showing all retained trees, crown dimetions,
tree categories, RPAs and protective fencing

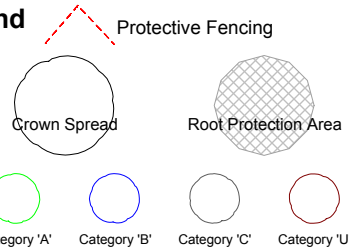
SCALE at A4 :
1 : 1250

DATE :
30/11/2015

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Legend



0 80m

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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 unstable 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 with material conservation or other cultural value
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

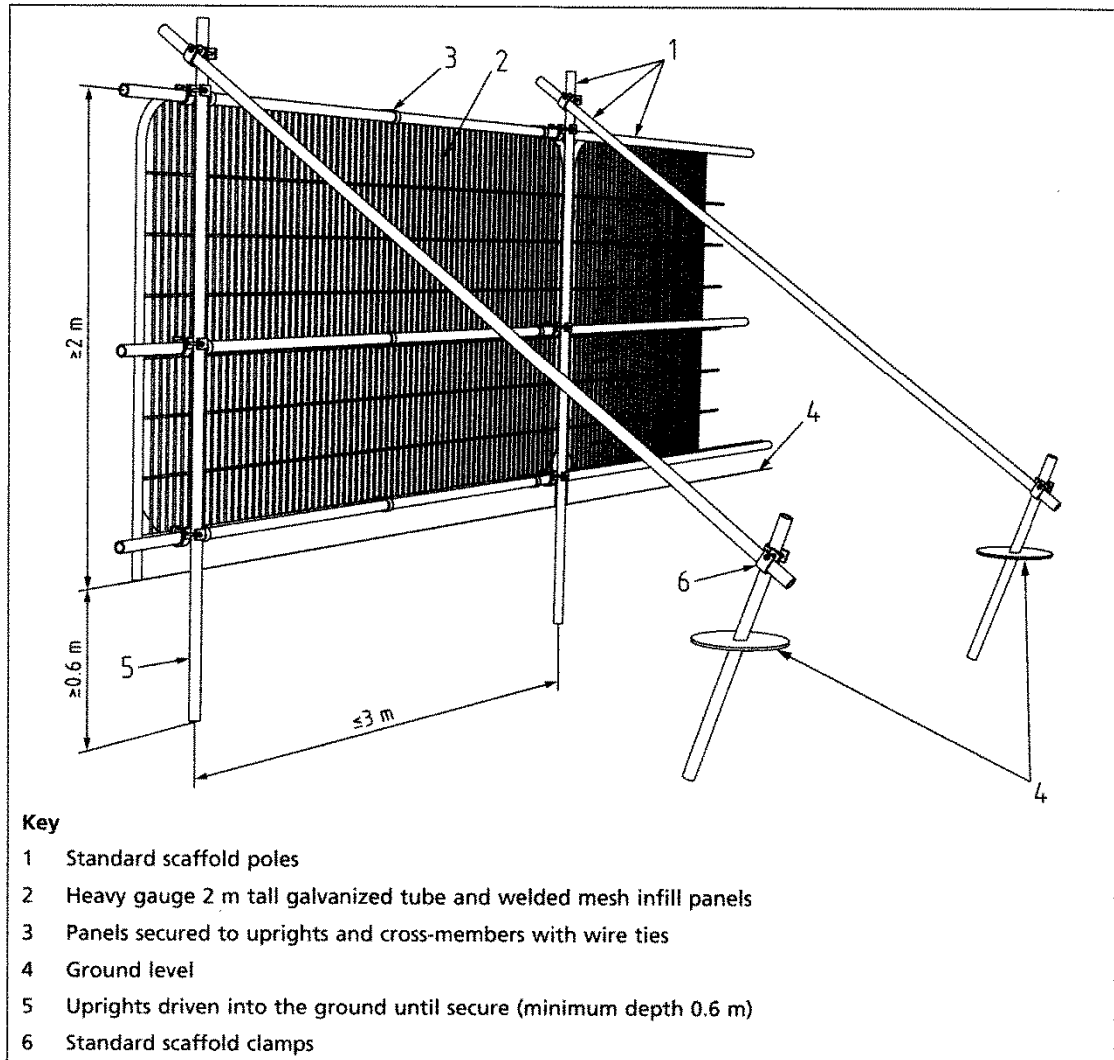
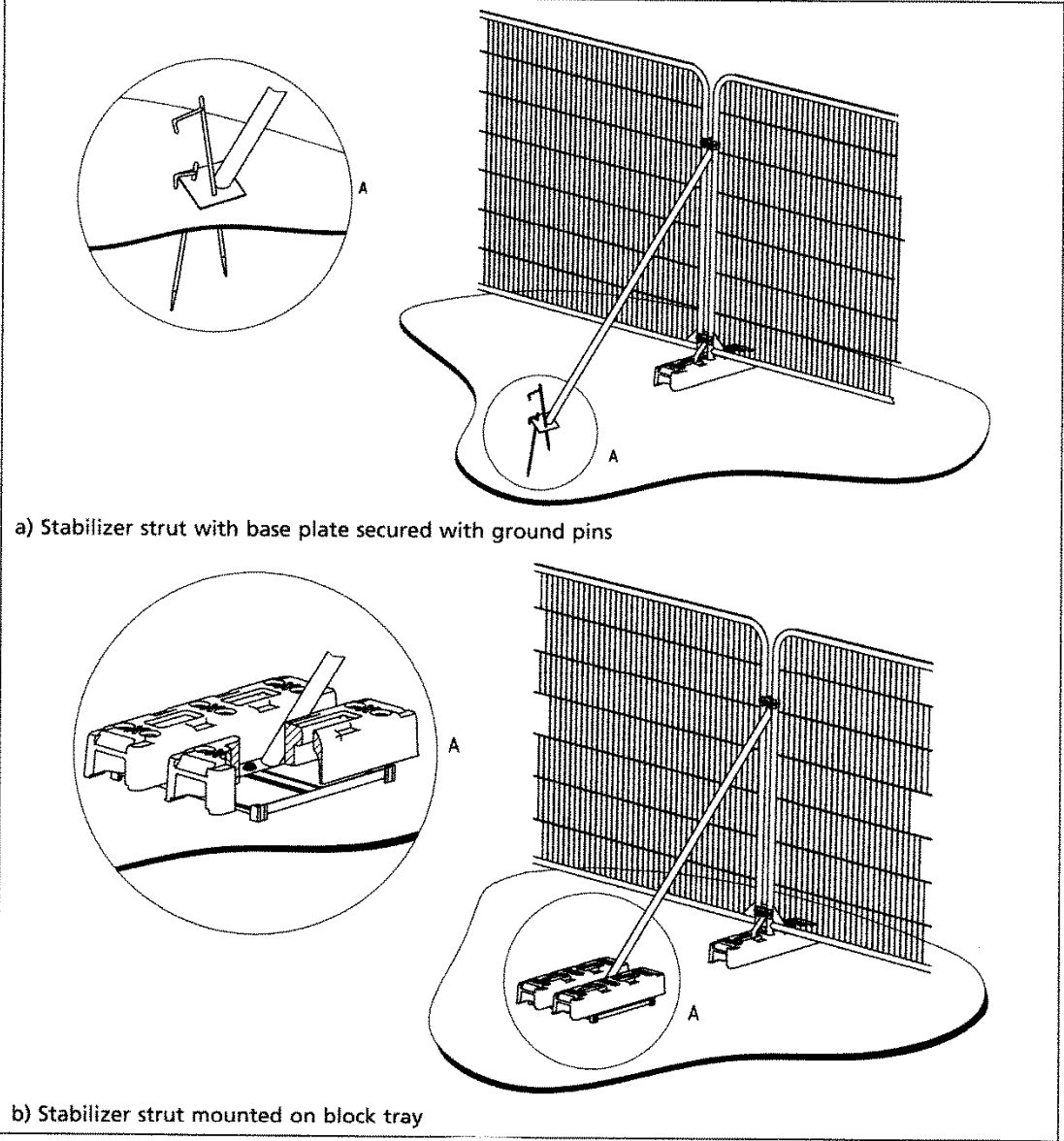


Figure 3 Examples of above-ground stabilizing systems



Appendix E		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
El1	Elm	17	575	4	11	4	1	9	7	9	9	mature	good	fair	10 to 20	C2	6.9	150	
Ok2	Oak	17	750	4	9	4	2	6	6	6	9	mature	good	fair	20 to 40	B2	9	254	
Ok3	Oak	18	775	5	9	6	4	6	4	6	9	mature	good	good	20 to 40	B2	9.3	272	
Ok4	Oak	15	425	4	4.5	5.5	3.5	8	4	6	9	mature	good	good	20 to 40	C2	5.1	82	
Gr5	Gr of Hawthorn	6	100	2	2	2	2	1	1	1	1	young	good	good	10 to 20	C2	1.2	5	
Gr6	Gr of Oaks	6	200	2	2	2	2	1	1	1	1	young	good	good	20 to 40	C2	2.4	18	
Wi7	Willow	15	250	5	5	5	4	0	0	2	2	young	good	defects	<10	C2	3	28	
Gr8	Gr of Hawthorn	6	100	1	1	1	1	0	0	0	0	young	good	good	10 to 20	C2	1.2	5	
Ok9	Oak	12	575	7	5	5	5	4	4	5	5	mature	good	good	20 to 40	C2	6.9	150	
Ok10	Oak	17	700	9.5	7	6	8	9	9	10	9	mature	good	good	20 to 40	B2	8.4	222	
Gr11	Gr of Crack Will	15	250	10	5	5	5	5	5	5	5	early mature	goof	fair	10 to 20	C2	3	28	
Ok12	Oak	10	550	4	4	3	4	2	3	4	3	mature	good	good	20 to 40	C2	6.6	137	
Ok 13	Oak	12	900	9	8	8	9	7	7	7	7	over-mature	poor	fair	20 to 40	B3	10.8	366	
Gr14	Gr of oak, elm	10	200	4	4	4	4	4	4	4	4	mid-aged	good	good	10 to 20	C2	2.4	18	