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Location:
**Calfthwaite Farm,
Staintondale**

Report Type:
Arboricultural Impact Assessment

Ref:
ARB/CP/1380

Date:
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1 Introduction

- 1.1 Acting upon the request of Amanda Brocklehurst Planning, on behalf of the client, a survey of trees directly north of Calthwaite Farm, Staintondale was carried out on the 1st of August 2016. The tree survey and report production were undertaken by Charles Prowse of Elliott Consultancy Ltd.
- 1.2 Scope of the report:
- This report provides arboricultural information and advice and has been used to inform re-development decisions for the site and has been informed by guidance in the NYMNPA 'Design Guide Supplementary Planning Document: Part 3 – Trees and Landscape (2011)'.
 - All trees within the site were assessed and categorised with regard to their quality and a retention value was assigned using criteria outlined in British Standard 5837:2012 – 'Trees in Relation to Design, Demolition & Construction' (BS5837:2012). Appendix 3 provides information regarding the categorisation.
 - Section 5, the Arboricultural Impact Assessment, evaluates the proposed alterations in context to the existing trees within, and where applicable, adjacent to the site.
 - This report refers only to the conditions prevailing on the date the site was surveyed.
 - Matters pertinent to tree retention and protection are set out briefly within Section 4. Following receipt of detailed engineering drawings providing service runs and ground level alterations all measures relating to tree removal, tree retention and protection should be finalised within an Arboricultural Method Statement.
- 1.3 This report should be read in conjunction with the Tree Constraints Plan (Appendix 2).

2 Site Information

- 2.1 The area surveyed is the historic farm yard and the area immediately to the north. Figure 1 shows the extent of the area.



Figure 1: Area Surveyed (highlighted)

- 2.2 Residential buildings are aligned north/south on the eastern side of the yard with agricultural barns in various states of disrepair aligned along the north and northwest.
- 2.3 The trees surveyed make up the woodland which skirts the northern edge of the farm. The woodland lines a beck located at the bottom of a small valley. The barns along the northern aspect are within 4-5 metres of the upper edge of the valley slope.
- 2.4 A public footpath runs between the woodland trees and the barns along the northern and western aspect.
- 2.5 On the day the site was surveyed the sky was clear presenting good levels of light. Any visibility issues encountered are noted within Appendix 1). A topographical survey of the site had not been undertaken and as such individual trees could not be surveyed, however, given the wooded nature and scope of the proposals this does not present an issue.

3 Tree Category Evaluation

- 3.1 The criteria used for evaluating how suitable each tree is for retention within a development is that suggested within BS5837:2012; a copy of the categorisation sheet can be found within Appendix 3.
- 3.2 BS5837:2012 notes that all trees apart from those with stem diameters <150mm or classified as Category U should be considered for retention and viewed as a potential site constraint. When inspected, each tree and or group feature is assigned one of four categories that signify how suitable that tree/group would be for retention within any development proposals, and therefore the degree to which it should constrain the site. The four categories are as follows:
- 3.2.1 **Category A** (coloured green) trees are those of high quality and value, and of a condition whereby they could make a substantial contribution to the site. The retention of Category A trees should be considered during the design phase and afforded adequate physical protection during the construction phase in accordance with BS 5837:2012 where retained. This means keeping proposed features and alterations to ground levels outside of root protection areas and crown spreads so as to ensure that the tree remains in an adequate condition post-development. Root protection areas and crown spreads are displayed upon the Tree Constraints Plan, Appendix 2. Group 1, a large mixed-deciduous woodland to the north of the farm yard was classified as Category A. The woodland contains trees of varying quality and if assessed individually many of the trees would be classified within lower Categories. However, as a collective woodland group the value of the overall feature is assessed in its entirety.
- 3.2.2 **Category B** (coloured blue) trees are those of moderate quality and value, and of a condition that they make a substantial contribution to the site. The retention of Category B trees should be considered during the design phase and afforded adequate physical protection during the construction phase in accordance with BS 5837:2012 where retained. None of the trees were classified as Category B.
- 3.2.3 **Category C** (coloured grey) trees are considered to be of low quality and value, but of an adequate condition to remain in the short-term. Trees with a

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stem diameter of less than 150mm (measured at 1.5m above ground level) are classified as Category C; these trees should also be retained where possible but where they form a significant constraint to development their removal should be permitted. Where they are to be retained they should be afforded adequate consideration during the design phase and physical protection during the construction phase in accordance with BS 5837:2012. None of the trees were classified as Category C.

3.2.4 **Category U** (coloured red) trees are of such a condition that any existing value would be lost within 10 years. As a result it is recommended that Category U trees are not considered a constraint for development and are removed prior to construction commencing. None of the trees were classified as Category U.

3.2.5 In addition to the four main categories explained above, each tree/group is assigned a sub-category which signifies its overriding value as determined by the surveyor, which is noted by adding a suffix of 1, 2 or 3 alongside the category letter. 1 signifies that the trees/groups main value is arboricultural e.g. it may be a particularly good example or may be rare. 2 signifies that the overriding factor was due to the landscape value that the tree/group provides e.g. it may be part of a group feature such as a screen. 3 indicates that a cultural factor was the overriding value e.g. it may have historical or commemorative importance.

Summary of Categories Awarded			
Category	Tree Numbers	Group Numbers	Hedgerow Numbers
A		1	
B			
C			
U			

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4 Constraints and Retention Considerations

- 4.1 As noted in the site details the trees inspected are all located north of the farm yard which eliminates arboricultural constraints within the interior areas.
- 4.2 Any tree retained within the design will require protection in accordance with *BS 5837 'Trees in relation to design, demolition and construction'* 2012 regardless of its initial retention category. This protection will usually require trees enclosed by a barrier in areas equal to the Root Protection Areas (As detailed within Appendix 2); this should be undertaken prior to any work beginning, including demolition and site preparation works. The specification for the fencing and for any other protection measures required must be provided within the **Arboricultural Method Statement** and approved by the Local Planning Authority. This can be secured by planning condition.
- 4.3 Root protection areas should be considered sacrosanct from any disturbance throughout the entire development process - with no ground disturbance, material storage, or physical encroachment allowed. Where possible trees should be protected with continuous barriers protecting trees as groups rather than individual specimens – this is of particular merit around the periphery of the site to protect boundary trees on and off-site.
- 4.4 Areas that have been identified for post-development tree planting should also be protected to ensure that the soil does not become compacted or contaminated. Where access within such areas is required then soil preparation prior to planting will need to be undertaken.
- 4.5 Where practical new utility runs should avoid the retained trees root protection areas. Any works to existing utilities will be undertaken with regard for the retained tree cover and will be in accordance with NJUG (National Joint Utility Groups) guidelines.

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5 Arboricultural Impact Assessment

- 5.1 This section concentrates on the proposed development and how it relates to the current tree population within the site. A number of conflict issues between the proposed layout and existing trees are discussed and remedial options, where possible, suggested.
- 5.2 As displayed within Figure 2 the proposal seeks permission for the conversion of 2 no. redundant agricultural buildings to 2 no. residential-related units (Please refer to accompanying Planning Statement for more details).

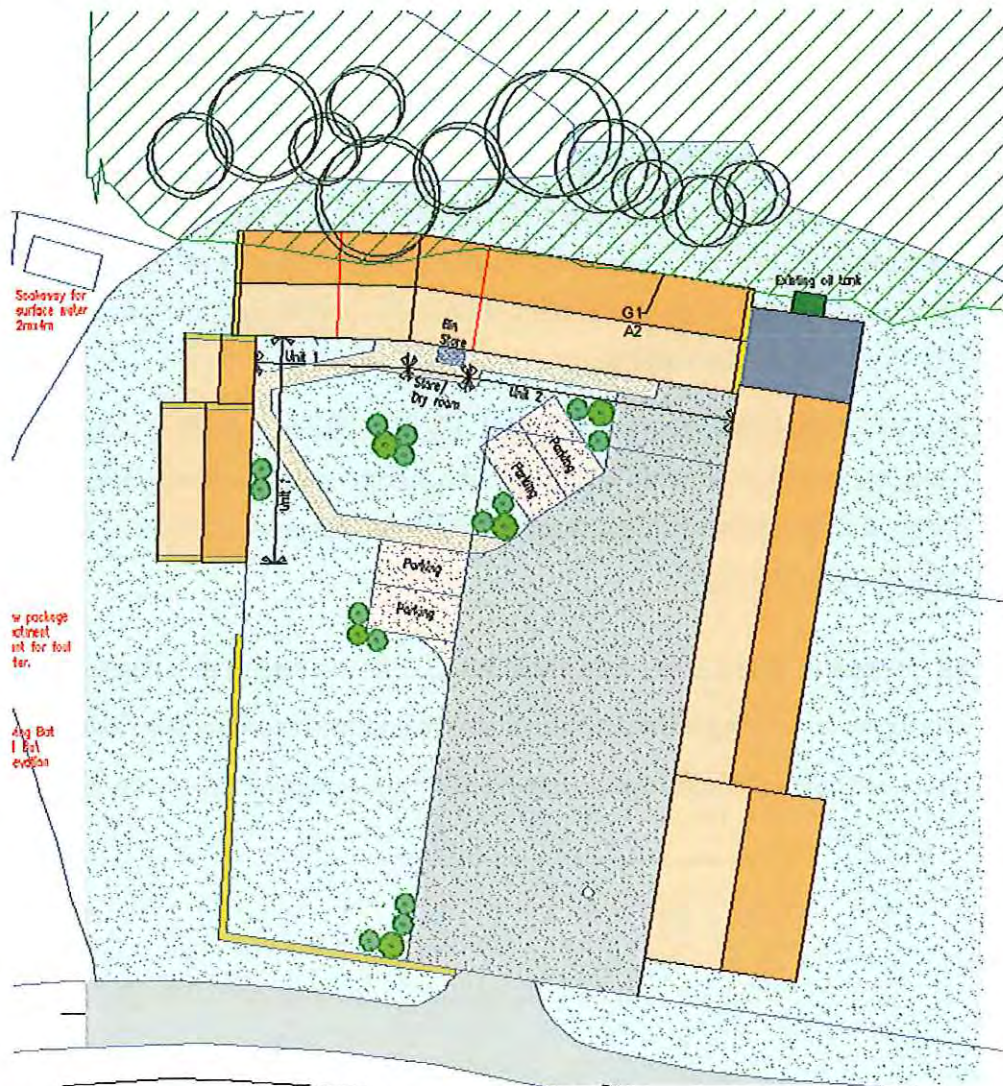


Figure 2: Proposed Alterations

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5.3 Conflict 1: Loss of trees to enable the proposed layout.

A number of small trees are recommended for removal to enable the renovation of the barns.

Mitigation / Justification: Whilst none of the large trees within the woodland would need to be removed there are a number of small, self-seeded trees within close proximity to the barns. These trees would need to be removed in order to allow for scaffolding to be erected and remedial works to the walls. The removal of these trees would be recommended regardless of the development proposals as they are in such close proximity to the building that their positions are unsustainable. All small trees within 3 metres of the barns should be removed. Due to their size and proximity to the buildings these trees would have been assessed as Category C if classified individually.

5.4 Potential Conflict 2: Damage to trees during construction.

Trees may be damaged due to a variety of reasons during a demolition and development process.

Mitigation / Justification: The proposed works are confined to the barns' original footprints and as such it is unlikely that the adjacent trees will be affected. That said, access for the building contractors will be required to the north aspect within the woodlands theoretical root protection area. Ordinarily a physical demarcation (often a fence) would be created between the retained trees and demolition/development areas to ensure that the trees and the medium within which they are rooting are protected from damage. However, the presence of the public footpath between the woodland and the barns presents an issue with erecting a fence. Access requirements within this area are likely to be limited and provided that the use of plant is precluded then there should be no need for any tree protection measures.

5.5 Potential Conflict 3: Damage to structures from trees.

Trees are capable causing damage to structures either directly, such as physical contact damage or indirectly given the right conditions, such as subsidence.

Mitigation / Justification: Some of the tree branches are in contact with the roof of the adjacent barn and have caused damaged. In order to create the necessary clearance for the future and to provide working room for the contractors all overhanging limbs within 2m of the finished roof height will need to be removed. All

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tree works should be in accordance with BS998: 2010 Tree Work Recommendations. With regards to the construction works Chapter 4.2 'Building near Trees' of the NHBC Standards should be consulted by those responsible regarding building design to ensure that proposed works take account of the adjacent trees.

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Appendix 1 Tree Details

Key for Tree & Group Data tables:

No.	Tree Number
Species	Tree Name (common)
Age	Y = Young; SM = Semi-mature; EM = Early-mature M = Mature; OM = Over-mature; V = Veteran; D = Dead
DBH	Diameter at Breast Height (measured at 1.5m above ground level to the nearest cm)
Stems	The number of stems the tree has
Height	Overall tree height measured in metres
Crown Spread	Measured along the four cardinal points in metres
CH	Canopy Height (height of crown above ground)
1st Branch	The height and aspect of the 1 st significant limb e.g. 2 NE = 1 st limb at 2m growing in a north-easterly direction.
EstD	Indication of whether any of the trees dimensions were estimated: Y=Yes, N=No.
General Observations	Appraisal of trees general condition
EstCont	Estimated remaining contribution (years)
BS Cat	British Standard 5837:2012 retention category
Recommendation	Remedial works that may be required should the tree be retained (Note: these recommendations do not relate to proposed development requirements – such recommendations should be covered within the Arboricultural Method Statement)

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Group Data - Calthwaite Farm, Staintondale

Group Number	Dominant Species	Lesser Species	DBH	Average Height	Age	Average Spread	Condition/Comments	Recommendations	EstCont	BS Cat
1	Sycamore Ash Elder Holly	Elm spp Hazel	Varied	9	Y-M	4	Mixed-deciduous woodland lining valley side down to beck. Limbs from large sycamore are in contact with the barn roof and have caused damage. Numerous young trees in close proximity to the barns (generally of low quality). Footpath between barns and trees.	Crown lift over the barns to create a clearance of at least 2m. Remove young trees within 3m of the barns.	40+	A2



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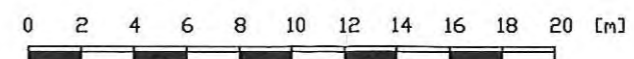


Woodland Position Showing Crown & Root Protection Area Extents, and BS5837 Category A

1/G1 Tree/Group

A1/B1/
C1/U BS5837 Retention Category

Photo Number, Position and Aspect



APPENDIX 2

Drawing Title: Tree Constraints Plan

Project: Calthwaite Farm, Staintondale

Drawing Number: ARB/CP/1380/TCP

Date: August 2016

Scale: 1:200 @ A2

Appendix 3 BS 5837 Tree Quality Assessment Chart

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	<ul style="list-style-type: none"> • 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 <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
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 particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
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	Trees with material conservation or other cultural value	See Table 2
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 present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Table excerpt from BS5837:2012

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Appendix 4 Arboricultural Glossary

Abiotic Factors – Nonliving factors of the environment, including temperature & wind.

Age-class – A general classification of the tree into either - young, semi-mature, early-mature, mature, over-mature, or senescent.

Amenity Value – A general classification based on the trees contribution to local amenity. Factors such as location and visibility from public spaces, size, maturity and species are taken into account.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Biotic factors - Living factors. For example, animals and pathogens.

Bottle Butt – Term used to describe shape of stem base, usually associated with an internal defect – refer to 'Reaction Wood' below.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Cambium - A lateral meristem (see below) in vascular plants located just beneath the bark responsible for secondary growth, e.g. production of annual growth rings.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Chlorosis/Chlorotic – Abnormal yellow or yellow-green coloration of usually green leaves. Essentially a reduction of chlorophyll levels often as a result disease or nutrient deficiency.

Co-dominant stems - A growth characteristic, where two or more stems of similar size grow from the same point. Can create an inherent weakness.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a trees branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

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- D.B.H.** - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.
- Dieback** - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.
- Epicormic/adventitious growth** - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.
- Hanger** – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.
- Hazard Beam** – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.
- Hyphae** – Fine branching tubes that make up the body (or mycelium) of a multi-cellular fungus.
- Included bark** – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a potential structural weakness. Some trees are able to strengthen such 'weakened' unions with adaptive growth.
- Meristem** - The undifferentiated plant tissue from which new cells are formed, such as that at the tip of a stem or root.
- Meristematic Disorder** – A growth disorder caused by a disruption of the meristem (see above) from any of a number of biotic factors (see above). Manifests as growths such as 'Witches Brooms' & 'Galls'.
- Mycelium** – Mass of hyphae that constitutes the vegetative part of a fungus.
- Necrosis/Necrotic** – Death of tissues usually characterised by a blackening in colour.
- Occlusion/Occluded** – Normally used to describe the overgrowth of a wound. Also, immovable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.
- Pathogen** - An agent that causes disease, especially a living micro-organism such as a bacterium or fungus.
- Pollard** – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.
- PSULE** – Potential Safe Useful Life Expectancy. A general classification as to the trees life expectancy.

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Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as a cavities.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Rhizomorphs – Dense bundles of mycelium, blackened by melanin for protection, that aid in the spread of the fungus.

Root Protection Area – An area, usually represented as a circle, around each tree which should remain free from disturbance during a development in order to protect the roots of a tree.

Saprophyte – An organism which exists on dead plant material.

Scaffold branches - The main structural branches within the crown.

Veteran tree – Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species.