LAND OFF
SCALEGILL ROAD, MOOR ROW, WHITEHAVEN,
CUMBRIA

Pre-development Arboricultural Report

Prepared at the request of
Thomas Armstrong (Construction) Ltd.

Date 10/02/2025

By
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Treescapes Consultancy Ltd.

SUMMARY

Treescapes Consultancy Ltd. have been instructed by Thomas Armstrong (Construction) Ltd, to inspect significant trees growing within the grounds of the site know as Wildridge standing on land adjacent to Scalegill Road, Moor Row. The inspection relates to trees, groups of trees and hedges that are close to the site of a proposed development of 19 domestic dwellings and its associated features. We have been asked to provide a pre-development arboricultural report in which we assess whether important trees may be affected by the proposed development and, if so, the potential level of disturbance. We have also been asked, if necessary, to suggest ways the proposals could be implemented to limit potential disturbance to an acceptable level.

I visited the site on 02/02/2025 and inspected 23 trees/hedges/groups growing both within it and the adjacent properties property that are close to the proposed development. Currently, the site is a field.

The species, size and condition of the trees, and my management recommendations, are listed in the schedule included as Appendix 5. Plans 1 and 2 show the existing and proposed site layouts, the locations of the trees, their canopies and Root Protection Areas (RPAs) calculated using the guidance contained in the British Standard: *Trees in relation to design, demolition and construction – Recommendations* (BS 5837, 2012). I assessed trees 1, 3, 4 and 15 to be in Retention Category C and the rest to be in B.

Plan 2 shows the trees. None are growing within the footprint of structures within the proposed development. It indicates that overall development area will encroach into the RPAs of trees 1-23.

Plan 3 is a tree protection plan that shows suggested locations of tree protection barriers. The protective measures should be installed prior to any other development activity taking place and remain in place for the duration of the construction phase.

I have not recommend that any trees be felled or pruned as such is not necessary to allow the proposals to be implemented.

Although several trees growing in the neighbouring property overhang the proposed development no works have been found to be necessary due to either their current poor condition or proximity.

Should it be required, the guidance contained within the National Joint Utilities Group Volume 4 (*Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees* (Issue 2, 2007); (http://streetworks.org.uk/) should be followed when installing or maintaining underground services within the RPA of a retained tree. I recommend that suitable members of the project team, including the main contractor and arboricultural consultant, should review where underground services will be installed close to trees and prepare a method statement for their installation.

The proposed development does not encroach into the RPAs of trees. There is a degree of proximity to hedge 4 to the adjacent house structure. I recommend that the foundations be designed to account for any future indirect influence of hedge 4.

Based on the information discussed in this report, and provided all the technical recommendations it contains are followed, I consider the proposed development can be implemented in accordance with the guidance contained in BS 5837 (2012) with minimal impact to trees that will be retained.

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1 INTRODUCTION

1.1 Instruction

Treescapes Consultancy Ltd. have been instructed by Thomas Armstrong (Construction) Ltd, to inspect significant trees that may be affected by the construction of 19 domestic dwellings and associated features. We have been asked to provide a pre-development arboricultural report in which we assess whether important trees may be affected by the proposed development and, if so, the potential level of disturbance. We have also been asked, if necessary, to suggest ways the proposals could be implemented to limit potential disturbance to an acceptable level. Plan 1 shows the existing site layout and Plan 2 the proposals.

The trees have been inspected and this report prepared in accordance with the guidance contained in the British Standard: *Trees in relation to design, demolition and construction – Recommendations* (BS 5837, 2012).

1.2 Qualifications and experience

I have based this report on my site observations and information that was provided, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and list the details in Appendix 1.

1.3 Documents and provided information

Thomas Armstrong (Construction) Ltd. provided a topographic survey of the existing site layout and a plan showing the proposals as Autocad compatible computer files. I have not checked the accuracy of this/these plans or the locations of the trees plotted on it/them.

1.4 Relevant background information

I have been advised that planning permission has been granted subject to Conditions. Of relevance to trees is Condition 14, reproduced below.

14. No development must take place until an Arboricultural Impact Assessment and Method Statement, has been submitted to and approved in writing by the Local Planning Authority. The development must be carried out in accordance with these approved details at all times thereafter.

Reason

To adequately protect the existing trees on site which are considered worthy of retention in the interests of visual amenity.

This Arboricultural Impact Assessment seeks to address the above to support the approval in writing by the Local Planning Authority of proposed measures to adequately protect existing trees in site that are considered worthy of retention.

1.5 Report limitations

This report is only concerned with assessing the condition of the trees growing close to proposed development and whether or not they may be affected by its implementation. It includes an assessment based on the site visit and the provided plans. No decay detection equipment was used to obtain data presented in this report.

This report takes no account of whether trees could affect the soil in the area in such a way as to cause the proposed development, or other structures, to suffer tree related subsidence or heave damage.

This report does not contain work recommendations as noe were noted as being required. However, it should be noted that trees may still fail but they are unlikely to cause significant harm unless the weather conditions are extreme and/or there are major hidden defects.

This report does not take into account extreme weather events not normally expected in this locality. Such events could include, but are not restricted to, severe windstorms, floods or drought. This report also does not take into account potential outbreaks of tree pests or diseases.

Operations carried out in the vicinity of a tree, either in the past or future, could affect its health and/or stability. Such operations could include, but are not restricted to, trenches excavated for the installation or repair of underground utilities.

2 SITE VISIT AND OBSERVATIONS

2.1 Site visit

I visited the site and inspected the trees on 02/02/2025. All my observations were from ground level without detailed investigations and I estimated all dimensions unless otherwise indicated. While I was on site the weather was overcast, still and dry with good visibility.

2.2 Site location

The site is located approximately at Ordnance Survey grid reference: NY 00173 14415 (Detailed maps & routes to explore the great outdoors | OS Maps accessed 10/02/25).

2.3 Site description

The is presently improved grass land, within the Moor Row area. Further rural fields are located to the North and South beyond Scalegill Road.

To the immediate East is a residential development and there is a recreational field to the West. The site is positioned approximately 0.15km West of the main residences of Moor Row at Ordnance Survey grid reference NY 00173 14415.

The rectangular plot is generally flat, orientated with its major axis North to South and covers an area of approximately 1.5 ha.

To the Western and Northern boundaries is a public right of way designated as a footpath.

2.4 Basic soil assessment

I have not been provided with information relating to the general characteristics or classifications of the soils.

2.5 Identification and locations of the trees

The approximate locations of the significant trees are shown on plans included in this report. These plans are based on a topographic site survey that was produced/provided by Thomas Armstrong (Construction) Ltd. I did not check the accuracy of the topographic site survey or the locations of the trees marked on it. Significant trees have a stem diameter greater than 150mm, measured 1.5m above ground level. If necessary smaller trees that have not been included on the plans could be transplanted if of a suitable quality. Alternatively they could be replaced.

The canopy outlines of the hedges and groups were generally plotted by Land Surveyor. This did not include stem locations.

I surveyed the locations of significant stems and groups of trees using a metal tape measure and a Nikon ForestryPro Laser rangefinder to triangulate them from features shown on the topographic site survey. I am not a professionally qualified Land Surveyor and therefore I cannot guarantee the accuracy of these trees on the plans included in this report. If greater assurance is required about the accuracy of tree locations on the plans included in this report I suggest that a professionally qualified Land Surveyor should be instructed to survey them onto the topographic survey.

The plans included in this report are for illustrative purposes only and should not be used for directly scaling measurements: all measurements should be checked on site. All relevant information is contained within this report, the topographic site survey and other documents submitted with the planning application.

2.6 Tree observations

I visually inspected the significant trees and information on their species, dimensions and condition, as well as my initial management recommendations, is included in Appendix 5.

I have shown the location of trees, hedges and groups of tree around the perimeter of the site.

Cohesive groups of trees with similar attributes, both aerodynamically and visually, often have greater value as a group rather than individuals. I have therefore recorded data on these as a single group in the schedule included as Appendix 5.

3 REFERENCES, PLANNING POLICY AND GUIDANCE

3.1 National policy – legislation

Section 197 in the Town and Country Planning Act 1990 makes it the duty of Local Planning Authorities (LPAs), '*in the interests of amenity*,' to protect trees, when granting planning permission, either by the imposition of conditions or serving Tree Preservation Orders (TPOs).

3.2 National policy – National Planning Policy Framework

The National Planning Policy Framework (NPPF) mentions trees and should be taken into account (National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) accessed 10/02/25).

> *136. Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.*

180. Planning policies and decisions should contribute to and enhance the natural and local environment by:

> *(b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;…*

183. *When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development [64] other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:*

> (a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
>
> (b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and

(c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

186. When determining planning applications, local planning authorities should apply the following principles:

(c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists;…

Annex 2: Glossary

Ancient or veteran tree: A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.

Ancient woodland: An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS).

Irreplaceable habitat: Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.

3.3 British Standard: Trees in relation to design, demolition and construction – Recommendations (BS 5837, 2012)

The British Standard: *Trees in relation to design, demolition and construction – Recommendations* (BS 5837, 2012) contains guidance on how to assess trees in or close to proposed development and information to include in pre-development arboricultural reports submitted with planning applications. Appendices 2 and 3 contain relevant extracts from BS 5837 (2012).

3.4 Cumberland Council - Copeland Local Plan: Policy N1 – Conserving and enhancing biodiversity and geodiversity

The Council is committed to conserving Copeland's biodiversity and geodiversity including protected species and habitats.

Potential harmful impacts of any development upon biodiversity and geodiversity must be identified and considered at the earliest stage.. Page

Proposals must demonstrate, to the satisfaction of the Council, that the following mitigation hierarchy must have been undertaken:

Avoidance – Biodiversity and geodiversity must be considered when drafting up proposals and any potential harmful effects on biodiversity and geodiversity must be identified along with appropriate measures that will be taken to avoid these effects.

Mitigation – Where harmful effects cannot be avoided, they must be appropriately mitigated in order to overcome or reduce negative impacts.

Compensation – Where mitigation is not possible or viable or in cases where residual harm would remain following mitigation, harmful effects should be compensated for. Where this is in the form of compensatory habitat an area of equivalent or greater biodiversity value should be provided. Compensation is a last resort and will only be accepted in exceptional circumstances.

Where harm remains to a National Site Network, Ramsar site, or functionally linked land, or Site of Special Scientific Interest, development will only be approved where it can be demonstrated that there are imperative reasons of overriding public interest. In such cases, compensatory measures must ensure the overall coherence of the network of European or National Sites as a whole is protected. Planning permission will be refused for any development if significant harm cannot be avoided, mitigated or compensated for. A Construction Environmental Management Plan should be submitted where appropriate and sustainable construction methods must be used where possible. Development proposals where the principal objective is to conserve or enhance biodiversity and geodiversity interests will be supported in principle.

3.5 Cumberland Council – Copeland Local Plan: Policy N3 – Biodiversity net gain

All development, with the exception of that listed in the Environment Act 2021 and any documents which may supersede it must provide at least 10% biodiversity net gain over and above existing site levels, following the application of the mitigation hierarchy set out in Policy N1 above. This is in addition to any compensatory habitat provided under Policy N1.

Net gain should be delivered on site where possible. Where on-site provision cannot be achieved in full, the remaining provision must be made elsewhere. This should be provided in order of the following preference:

1. Off site in an area identified as a Local Nature Recovery Network in the Plan area;

2. Off site on an alternative suitable site within Cumberland ;

3. Off-site on an alternative suitable site;

4. Through the purchase of off-site biodiversity units on the market;

5. Through the purchase of an appropriate amount of national biodiversity credits.

Sites where net gain is provided (on or off site) must be managed and monitored by the landowner for a minimum period of 30 years. Where appropriate applicants should supply a Habitat Creation Plan and a Habitat Management and Monitoring Plan (HMMP). Monitoring reports detailing the site's condition post-enhancement must be submitted to the Council each year over this period.

Where there is evidence of deliberate neglect or damage to any of the habitats on development sites in order to reduce its biodiversity value the biodiversity predevelopment value of the onsite habitat will be calculated as the biodiversity value of the habitat on the date immediately before the degradation took place.

3.6 Cumberland Council – Copeland Local Plan: Policy N9 – Green infrastructure

A comprehensive, high quality network of green infrastructure will be identified through a Green Infrastructure Strategy for the Copeland Local Plan Area. This network will connect our towns and villages to the more rural parts of Copeland and the coastline and will be formed of a variety of GI types including open countryside, green wedges, protected open spaces, local green spaces, playing fields, rivers, ponds, grass verges, woodlands and trees, private gardens, green walls and green roofs.

The amount of green infrastructure on the development site should be maximised and developers should take opportunities to create new connections, expand networks and enhance existing green infrastructure to support the movement of plants and animals. Green infrastructure should be multi-functional where possible and should be considered at the start of the design process.

3.7 Cumberland Council – Copeland Local Plan: Policy N14 – Woodlands, trees and hedgerows

Existing trees and hedgerows which contribute positively to the visual amenity and environmental value of their location will be protected. Developers should incorporate additional native tree planting and hedgerows into new developments where possible and appropriate.

Development proposals which are likely to affect any trees within the Plan area will be required to:

1) Include an arboricultural assessment as to whether any of those trees are worthy of retention and protection by means of a Tree Preservation Order

2) Submit proposals to replace or relocate any trees that are to be removed with net provision at a minimum ratio of 2:1. Replacement trees should be planted on site and native species should be used where possible. Where this is inappropriate or unviable, off site provision and/or alternative species would be considered.

Any proposed works to trees within Conservation Areas, or those with Tree Protection Orders, will be required to include an arboricultural survey to justify

why works are necessary and that the works proposed will, where possible, not adversely affect the amenity value of the area.

New development should not result in the loss of or damage to ancient woodland or veteran or aged trees outside woodland unless there are wholly exceptional reasons and a compensation strategy exists. This could include Nationally Significant Infrastructure Projects and Orders under the Transport and Works Act.

4 TREE CONSTRAINTS

4.1 Tree Retention Category – BS 5837 (2012)

I assessed the retention category of each tree or group of trees using the guidance contained in Table 1 of BS 5837 (2012). A copy of Table 1 of BS 5837 (2012) is included as Appendix 3. The retention category of each tree is listed in Appendix 5 and shown on the plans included in this report by the colour used to depict it:

Green: Category A – a high quality tree that should be retained where possible;

Blue: Category B – a moderate quality tree that could be retained;

Grey: Category C – a low quality tree that could be retained for a time but should not be considered to be a constraint to development; and

Red: Category U – a tree in such a poor condition that it cannot realistically be retained as a living tree in the context of the current land use for longer than 10 years unless it is in a little frequented area and it is desired to retain it for wildlife.

There are thirteen individual trees, five groups and six hedge lines growing in or close to the proposed residential building and associated features. I assessed none to be in Retention Categories A; Twenty are in Retention Category B; four in Retention Category C; and none in Retention Category U. These are all referred to as *"trees"* hereafter.

BS 5837 (2012) states, in Table 1, that trees with trunk diameters less than 150mm should be allocated to Retention Category C. Section 4.5.10 states:

'Particular care is needed when evaluating young trees, especially where they occur as individual specimens. Where these are less than 150 mm stem diameter at 1.5m above adjacent ground level, it might be acceptable and relatively straightforward to mitigate their loss, if necessary, with similar new tree planting. Alternatively, it might be practicable to relocate such trees within the site (e.g. using a tree spade). Whilst the presence of young trees of good form and vitality is generally desirable (i.e. those trees which have the potential to develop into quality mature specimens), they need not necessarily be a significant constraint on the site's potential.'

'NOTE It is sometimes possible to relocate mature trees. However, as this is a costly and complex operation with a variable chance of success, it is a viable option only in exceptional cases.'

I consider that none of the trees hold trunk diameters less than 150mm at 1.5m.

4.2 Tree constraints – above and below ground

Plans 1 and 2 show the existing and proposed site layouts, the locations of the trees, groups and hedges, their crowns and Root Protection Areas (RPAs) calculated using the guidance contained in BS 5837 (2012).

If a tree is retained, its canopy is a vertical constraint to development. Pruning trees can sometimes provide adequate clearance to implement development proposals but should be carried out in accordance with the guidance contained in the British Standard: *Tree work – Recommendations* (BS 3998, 2010).

The RPA of a tree is described to be the minimum area of soil required by its roots to maintain healthy growth and should be considered a constraint to development if it is to be retained.

5 ARBORICULTURAL IMPACT ASSESSMENT

5.1 Trees growing close to the proposed development

Plan 2 shows the proposed layout, the locations of the trees, their crowns and RPAs.

None of the trees listed in Appendix 5 are growing within the footprint of the proposed buildings. All fall within the peripheral areas of the garden areas associated with the proposed plots.

With the exception of H4, none of the trees have canopies and/or RPAs that are within 2m of the proposed buildings.

The canopies and RPAs of the individuals within H4 are approximately 1.8m to the Northwest corner of building within Plot 1 at the closet point. The stems of the individuals within H4 are approximately 4m from the Northwest corner of building within Plot 1. Note the position of individuals with H4 have been estimated by triangulation on site. Please refer to 2.5 above, for further commentary in this respect.

5.2 Shading from trees

Shading from trees, has been carefully considered. Plan 3 illustrates the shading arcs of the tree canopies showing there is no adverse influence.

5.3 Levels

Altering the ground level within the RPA of a retained tree may have a detrimental impact on its health and longevity. It is not considered that any level changes would be required and RPAs of retained trees may be adequately protected by measures outlined below and shown on Plan 3.

5.4 Ground surface materials

Altering the ground cover, such as by using impervious or semi-pervious surface materials to cover areas that were previously vegetated soil, will alter the moisture content and recharge of the soil and its oxygen and carbon dioxide content. This could have a detrimental effect on the health of tree roots growing in it.

The RPAs of retain trees are sufficiently remote from the proposed buildings and associated access/egress. It is not anticipated that introduction of impervious surfacing within the RPAs will be necessary. This may be reviewed further on receipt of landscaping proposals.

5.5 Site access

Vehicles and plant operating or parking on unprotected soil within the RPA of a retained tree could compact or contaminate it and this could be detrimental to the long-term condition and longevity of the tree.

Vehicle movements under the crown of a tree could damage its trunk and/or branches. This could potentially create a hazard and reduce its life expectancy.

It is not considered that site access requirement will impinge upon the RPAs of retained trees. The RPAs and tree canopies may be adequately protected by measures outlined below and shown on Plan 3.

Table 1
Trees with RPAs and canopies that encroach into the footprint of proposed structures or within 2m of them.

Tree ID	Species	Age Class	Retention Category	Height (m)	Growing in Footprint	Canopy	RPA	Canopy <2m	RPA <2m	Structure
The footprint of proposed structures will not encroach into the RPA of retained trees.										

5.6 Storing fuel, materials and equipment

Storing fuel, equipment and materials close to a tree increases the risk of damage to its trunk and branches, soil compaction and/or contamination with toxic substances.

There is sufficient space for storage to be located outside of the RPAs and away from the canopies of retain trees.

5.7 Activity under tree canopies

Activity under a tree canopy, such as mixing cement, lighting bonfires or storing equipment, plant and materials, may damage its branches and/or stem(s). It may also be detrimental to soil within its RPA that is utilised by its roots.

There is sufficient space to ensure activities are excluded from under tree canopies.

5.8 Poor quality trees – trees in Retention Category 'U'

I did not assess any of the trees to be in Retention Category U.

5.9 Poor quality trees – trees in Retention Category 'C'

Using the guidance contained in BS 5837 (2012), I assessed the trees listed in Table 2 to be in Retention Category C. I consider that these are poor trees that should not be constraints to development.

Table 2
Trees assessed to be in Retention Category C

Tree Number	Species	Age Class	Retention Category	Height
T1	Salix caprea (Goat Willow)	YM	C1	4
T3	Fraxinus excelsior (Ash)	M	C1	6.5
T4	Sambucus nigra (Elder)	M	C2	5
T15	Fraxinus excelsior (Ash)	YM	C1	9.5

5.10 Mitigation for tree loss

The proposal is such that it is not necessary to remove any trees.

6 RECOMMENDATIONS

6.1 BS 5837 (2012) Heads of Terms

Section 6 in BS 5837 (2012) provides guidance about measures to be implemented to ensure that retained trees do not suffer unexpected harm. Commentary on clause 6 states:

> *'Technical design includes information sufficient to provide a high level of confidence in the outcome for trees retained on development sites. Where planning permission or other statutory controls apply, details might need to be submitted in **draft form** or **heads of terms** to allow for changes to the design that might occur after permission has been granted. In these cases, it will be necessary for the project arboriculturist to set out a series of parameters for construction activity (e.g. where service routes and/or construction activity should occur), based on the RPA and the physical needs of the tree, to which the finalized specifications and statements will apply.'*

Conditions listed on the planning consent notice can ensure that items listed in the tree report in 'draft form' or as 'heads or terms' are finalised and implemented appropriately.

The following recommendations are 'draft' or 'heads of terms'.

6.2 General precautions

The following general precautions should ensure the health and longevity of retained trees. They should be enforced within their RPAs and under their canopies during the construction phase and in locations where new trees will be established unless the soil will be suitably remediated.

- No storing materials, equipment, plant or fuel.
- No refuelling mechanical equipment.
- No storing or mixing cement.
- No washing cement mixers within or uphill of the RPA.
- No bonfires within 10m of the outer edge of the crown or RPA.
- No raising the soil level without prior discussion with Treescapes Consultancy Ltd. and agreement of the Local Planning Authority (LPA).
- No excavations without prior discussion with Treescapes Consultancy Ltd. and agreement of the LPA.
- No redirection of surface water runoff, either into or out of the RPA.
- No temporary buildings, sheds, or offices without prior discussion with Treescapes Consultancy Ltd. and agreement of the LPA.
- No dumping or storing materials or waste, whether in a skip or on the ground.

- No vehicles and plant unless the soil is suitably protected as recommended by Treescapes Consultancy Ltd. and agreed by the LPA.
- Only operate or park vehicles and plant in areas where new trees will be established after the soil is suitably protected, as recommended by Treescapes Consultancy Ltd. and agreed by the LPA. Alternatively, soil compaction should be relieved prior to the establishment of the trees once the construction phase has been completed.
- No underground utilities unless there are no alternatives. If underground utilities have to pass through the RPA of a tree, follow the guidance contained within the National Joint Utilities Group Volume 4 (*Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees* (Issue 2, 2007); Home Page - Streetworks (accessed 28/09/23).

If necessary Treescapes Consultancy Ltd. can monitor the implementation and adequacy of tree protection measures at critical stages of the project to ensure they are in accordance with BS 5837 (2012) and conditions listed on the planning consent notice.

6.3 Poor quality trees – trees in Retention Category 'U'

I consider that there are no trees of Poor quality present within the site.

6.4 Poor quality trees – trees in Retention Category 'C'

Using the guidance contained in BS 5837 (2012), I assessed tree T1, T3, T4 and T15 to be in Retention Category C. I consider that these are poor trees that have a limited life expectancy/ies and therefore should not be constraints to development.

6.5 Trees 2, 5-14 and 16-23

Trees 2, 5-14 and 16-23 have been assessed to be in Retention Category B, primarily because I consider that they have the potential to survive for at least 20 years. All except 14-23 are, however, not very large and are unlikely to grow larger. I consider that the amenity provided by these trees could easily be replaced by others if they were to be felled. If they are replaced with trees that could grow larger, the replacements may become larger landscape features than trees 1-13 will ever be.

6.6 Tree work required to implement the proposals

I have not recommended that any trees be removed or be pruned, as given the sizes and relative positions to the proposed development this is not necessary. No tree removals are required to allow the proposals to be implemented.

6.7 Recommended tree work

It is not considered that any works are required to abate risk from falling trees of branches.

6.8 Implementing the tree work

Whilst recommended tree work should be carried out by a suitably qualified, competent, experienced and insured contractor. It is not considered that any works are required to enable the proposed development.

6.9 Design and construction considerations

Construction work can adversely affect trees in many ways. Consequently, I suggest that it would be beneficial for all members of the project team to be aware of tree protection recommendations contained within this report and tree protection conditions listed on the planning consent notice, and make provision for them throughout the project. To avoid unnecessary damage to retained trees I recommend that Treescapes Consultancy Ltd. should be involved throughout the project at all stages, from pre-planning to hand-over.

We are able to provide feedback at each stage of the project and carry out a supervisory role to ensure that retained trees are adequately protected.

6.10 Temporary tree protection barriers

Plan 3 is a Tree Protection Plan that shows suggested locations of temporary tree protection barriers. These barriers must be robust enough to withstand impacts from machinery and plant that will operate close to them (a suggested specification is given in Appendix 6). In areas where lighter plant and machinery (typically <2t) are operating, I recommend using one or a combination of the following designs.

- 2 m tall welded mesh panels on rubber or concrete feet secured with pins driven 0.5m into the ground. The panels should be joined together using a least two anti-tamper couplers, installed so that they can only be removed from this side of the barrier on which the trees are growing. Support the panels on the inner side with stabilizer struts, secured with ground pins driven 0.5m into the ground. There should be one stabiliser strut between each pair of panels and one at each end of a line of panels. Where a barrier is erected on hard surfacing or it is otherwise unfeasible to use ground pins, mount the stabilizer struts on a block tray.
- Wooden posts (Ø75-100mm x 1.8m) driven securely into the ground (300-500mm) every 2m, with top and bottom wooden rails (2m x 25mm x 100mm) attached securely to the posts to create a rigid structure. Chestnut

paling fencing (1.25-1.5m high) should be attached securely to the rails every 300-400mm.

- Metal road-pins (1.2m) securely driven into the ground (200-300mm) at 2m centres, supporting orange mesh barrier fencing (1m high) securely attached to the pins using strong cable ties (4.8mm x 300mm).

The protective barriers should be erected prior to any demolition and development activity taking place and remain in-situ for the duration of the project. They should not be moved without the written consent of the LPA or until construction activity has finished.

I recommend that suitable members of the project team, including the main contractor and arboricultural consultant, should prepare a definitive Tree Protection Plan showing the locations of temporary tree protection measures to be installed during the construction phase and prepare a method statement for their installation and removal.

6.11 Temporary ground protection

The ground within the RPAs of retained trees should be protected throughout the project from compaction and contamination. If construction activity is to take place within the RPA of a retained tree the following suggestions may be appropriate.

- For heavy construction vehicles (>2t), use reinforced concrete slabs, the three dimensional cellular confinement system described in section 6.9, or an alternative engineered solution capable of supporting the likely loading without deforming and compacting the underlying soil.
- For lighter machinery (<2t), use inter-linked ground protection boards placed on a 150 mm deep layer of woodchip laid on a geotextile membrane.
- For pedestrian traffic, use a single thickness of scaffold boards placed either on a driven scaffold frame, so as to form a suspended walkway, or placed on top of a 100 mm deep layer of woodchip laid on a geotextile membrane.

Arboraft may also be a suitable solution (https://infragreen-solutions.com/arborraft/ accessed 10/02/25).

BS 5837 (2012) recommends using a three-dimensional cellular confinement system, such as:

- Protectaweb - https://www.wrekinproducts.com/protectaweb-tree-root-protection/ (accessed 10/02/25)
- Cellweb – http://www.geosyn.co.uk/product/cellweb-tree-root-protection (accessed 10/02/25);

- Geocell – http://www.terram.com/products/geocells/tree-root-protection-geocell.html (accessed 10/02/25);
- Treeguard – http://www.buildbasecivils.co.uk/products/geotechnical-ground-engineering/treeguard/ (accessed 10/02/25); or
- http://infragreen-solutions.com/tree-root-protection-2/ (accessed 10/02/25).

The cells of these products should be filled with an inert, 'no-fines', angular stone gravel and covered with a porous wearing course.

I recommend that suitable members of the project team, including the main contractor and arboricultural consultant, should prepare a definitive Tree Protection Plan showing the locations of temporary tree protection measures to be installed during the construction phase and prepare a method statement for their installation and removal.

The cells of these products should be filled with an inert, 'no-fines', angular stone gravel and covered with a porous wearing course.

I recommend that suitable members of the project team, including the main contractor and arboricultural consultant, should prepare a definitive Tree Protection Plan showing the locations of temporary tree protection measures to be installed during the construction phase and prepare a method statement for their installation.

6.12 Foundations

The proposed development does not encroach into the RPAs of trees.

However there is a degree of proximity to H4. I recommend that suitable members of the project team, including the main contractor, engineer and if necessary arboricultural consultant, should design the foundations to account for any future indirect influence of H4.

6.13 Working within tree RPAs

In the event any working is required within trees RPAs I recommend that suitable members of the project team, including the main contractor and arboricultural consultant, should prepare a definitive method statement for working within the RPA of a retained tree. This will include the design of all features to be constructed within tree RPAs and how the soil and above ground parts of the tree will be protected.

6.14 Shallow excavations within RPAs of retained trees

In areas where shallow excavations are required within the RPA of a retained tree – less than 300mm deep – they should be carried out with hand tools and a pneumatic excavation lance such as an:

- 'Air-spade' – https://www.airspade.com/ (accessed 10/02/25); or
- 'Soil pick' – http://www.mbw-europe.com/utility-division/excavate/soil-pick (accessed 10/02/25).

I recommend that suitable members of the project team, including the main contractor and arboricultural consultant, should assess where shallow excavations are required close to trees and prepare a method statement for carrying them out.

Treescapes Consultancy Ltd. have a Soil Pick and are able to assist with this work if required.

6.15 Tree establishment

A number of trees of suitable species could be established in appropriate locations to enhance the visual character of the site and ensure that trees remain part of the landscape for decades to come.

Areas where trees are to be established should be protected from soil compaction and contamination during the construction phase by the same design of temporary barriers and/or ground protection used to protect existing trees and the soil within their RPAs. Alternatively, if compacted or contaminated, the soil will have to be suitably remediated or replaced to enable the trees to grow.

If required Treescapes Consultancy Ltd. are able to draw up a tree and shrub planting plan for the property.

7 LEGAL CONSIDERATIONS

7.1 Protected trees

I have not made enquiries with the Local Planning Authority (LPA) to find out whether any of the trees discussed in this report are legally protected.

If these trees are protected by a Tree Preservation Order (TPO), located in a conservation area or protected by planning conditions, it will be necessary to obtain permission from the LPA before any work, other than certain exempted operations, can be carried out to them. The work specified in this report is necessary for their reasonable management and should be acceptable to the LPA but tree owners should appreciate that they may take an alternative point of view and have the option to refuse to grant consent.

I understand that full planning consent allows the minimum amount of work to protected trees necessary to implement the consented development without requiring permission under tree protection legislation – this should be checked with a solicitor or planning consultant.

7.2 Wildlife conservation legislation

The nests of most birds are legally protected while they are in use. Bats are also legally protected and their roosts are protected whether or not they are in use. Contractors should be aware of their duties under legislation enacted to protect wildlife and carry out their site assessment and work accordingly. If bats are suspected Natural England should be consulted. The Forestry Commission and others produced a leaflet called: *Woodland Management for Bats* (2005) which contains some useful advice and is freely available to download from:

Woodland management for bats - Forest Research (accessed 10/02/2025).

On page 14 this publications states:

> *'The Wildlife and Countryside Act 1981 makes it an offence to disturb, damage or destroy bats or their roosts (even if bats are not present in the roost at the time of any incident). The Act applies in both England and Wales, and requires consultations with the appropriate Statutory Nature Conservation Organisation [Natural England] before carrying out activities which might harm or disturb bats or their roosts (even if unoccupied).'*
>
> *'The Act is amended by the Countryside and Rights of Way Act 2000 in England and Wales. This adds 'reckless' to the offence of damaging or destroying a place a bat uses for shelter or rest, or disturbing a bat while using a roost. Under EU Regulations damaging or destroying a breeding site or resting place is an absolute offence, regardless of whether the act of doing so may be considered reckless or deliberate.'*

7.3 Neighbouring trees

I understand that under common law branches from a tree growing in an adjacent property that extend over a boundary, and roots that extend under it, can be pruned back to the boundary line without first gaining permission from the owner of the land where the tree is growing. However, the material belongs to the tree owner and the same guidance on statutory controls apply as discussed in Section 7.1.

I also understand that people who carry out work to trees growing in neighbouring properties may be held liable for harm caused if they subsequently fail as a consequence of that work.

Owners of trees growing in adjacent properties have a duty, in so far as is possible, to prevent them causing harm.

I suggest that the rights and responsibilities concerning trees and neighbouring properties should be confirmed by a solicitor.

8 CONCLUSIONS

Based on the information discussed in this report, and provided all the technical recommendations it contains are followed, I consider the proposed development can be implemented in accordance with the guidance contained in BS 5837 (2012) with minimal impact on trees to be retained.

Nigel Chopping BSc.(Hons), M.Arbor.A. mICFor(Assoc.)

9 REFERENCES

Anon, 2005. *Woodland Management for Bats*. Forestry Commission. 15 pp.

BS 5837, 2012. Trees in relation to design, demolition and construction – Recommendations

BS 3998, 2010. Tree work - Recommendations

Plan 1Tree constraints plan of the existing site layout

General Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
No liability of any kind Is accepted for any omissions or inaccuracies in respect of this plan.
The original of this drawing was produced in colour; a monochrome copy should not be relied upon.

Area of mainly self set Hawthorn with some Willow located beyond stone wall structure. Suitably distant from proposed development.

T1-C1
T3-C1
T4-C2
T5-B2
T6-B2
T7-B2
T8-B2
T9-B2
T10-B2
T11-B2
T12-B2
T13-B1
T14-B2
T15-C1
T17-B2
T18-B2
T19-B2
T21-B2
T22-B2
G10-B2
G12-B2
G16-B2
G20-B2
G23-B2
H2-B2
H4-B2
H5-B2
H6-B2
H9-B2
H11-B2
X-H2-B2

8.116
5.477
30.494
13.047

Key

- **Trees** — Showing Canopy extents, category colour and tag number (with category) with optional FSB direction arrow.
- **Category A** — Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- **Category B** — Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- **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.
- **Category U** — Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- **Tree Groups** — Shown as dashed centre/boundary line. Colour represents category (see above)
- **BS 5837:2012 Root Protection Area**
- **Tree Shadow Arc.** — Segment with a radius from the centre of the stem equal to the height of the tree drawn from due North West to due East indicating the shadow pattern through the main part of the day.

N

1:250
0 5 10m

Drawing Title
Tree Constraints Plan

Client
Thomas Armstrong (Construction) Ltd.

Site/Project
Wildridge, land off Scalegill Road, Moor Row, Whitehaven, Cumbria, CA24 3JN

Scale/Sheet	Date		
1:250 - A0	04/02/2025		
Drawing No	**Rev**	**Drawn By**	**Chked By**
TTCS_TCP_4_2_25	1	CS	NC

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Plan 2Tree constraints plan of the proposed site layout

General Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
No liability of any kind Is accepted for any omissions or inaccuracies in respect of this plan.
The original of this drawing was produced in colour; a monochrome copy should not be relied upon.

Key

- Trees — Showing Canopy extents, category colour and tag number (with category) with optional FSB direction arrow.
- Category A — Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B — Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- 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.
- Category U — Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Groups — Shown as dashed centre/boundary line. Colour represents category (see above)
- BS 5837:2012 Root Protection Area
- Tree Shadow Arc. — Segment with a radius from the centre of the stem equal to the height of the tree drawn from due North West to due East indicating the shadow pattern through the main part of the day.

N

1:250
0 5 10m

Drawing Title
Tree Assessment Plan

Client
Thomas Armstrong (Construction) Ltd.

Site/Project
Wildridge, land off Scalegill Road, Moor Row, Whitehaven, Cumbria, CA24 3JN

Scale/Sheet	Date
1:250 - A0	04/02/2025

Drawing No	Rev	Drawn By	Chked By
TTCS_TAP_4_2_25	1	CS	NC

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Plan 3Tree removal and protection plan of the proposed site layout

General Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
No liability of any kind Is accepted for any omissions or inaccuracies in respect of this plan.
The original of this drawing was produced in colour; a monochrome copy should not be relied upon.

Area of mainly self set Hawthorn with some Willow located beyond stone wall structure. Suitably distant from proposed development.

Tree protection fencing as 6.2.2.2 of BS5837:2012 Figure 2 "Default specification"

PLOT 9
PLOT 8
PLOT 7
PLOT 6
PLOT 5
PLOT 4
PLOT 3
PLOT 10
PLOT 11
PLOT 12
PLOT 13
PLOT 14
PLOT 15
PLOT 16
PLOT 17
PLOT 18
PLOT 19
The Bluebell
sub station
VP
ASHP
T1-C1
T3-C1
T4-C2
T6-B2
T7-B2
T8-B2
T9-B2
T10-B2
T11-B2
T12-B2
T13-B1
T14-B2
T15-C1
T17-B2
T18-B2
T19-B2
T21-B2
T22-B2
G10-B2
G12-B2
G16-B2
G20-B2
G23-B2
H2-B2
H4-B2
H5-B2
H8-B2
H9-B2
H11-B2
5.477

Key

- Trees — Showing Canopy extents, category colour and tag number (with category) with optional FSB direction arrow.
- Category A — Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B — Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- 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.
- Category U — Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Groups — Shown as dashed centre/boundary line. Colour represents category (see above)
- BS 5837:2012 Root Protection Area
- Tree Shadow Arc. — Segment with a radius from the centre of the stem equal to the height of the tree drawn from due North West to due East indicating the shadow pattern through the main part of the day.
- Tree protection fencing as 6.2.2.2 of BS5837:2012 Figure 2 "Default specification"

N

1:250
0 5 10m

Drawing Title
Tree Protection Plan

Client
Thomas Armstrong (Construction) Ltd.

Site/Project
Wildridge, land off Scalegill Road, Moor Row, Whitehaven, Cumbria, CA24 3JN

Scale/Sheet	Date
1:250 - A0	04/02/2025

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Appendix 1

The Experience and Qualifications of Nigel Chopping

1. Qualifications

- Nigel Chopping was awarded a Higher National Diploma in Environmental Management in 1993.
- In 1999 he graduated with an honours degree in Arboriculture and Amenity Forestry from the Forestry Department of the University of Aberdeen.
- In 2006 he obtained a Level 4 Certificate in Further education and Training, Stage 1 & 2.
- In 2007 his application to become a professional Member of the Arboricultural Association was approved.
- In 2010 he obtained a level 4 Diploma in Occupational Safety and Health.
- In 2016 he passed the examinations in respect of City and Guilds Certificate for Construction health and safety
- In 2022 Nigel met the criteria and was awarded the Lantra Professional Tree Inspector qualification

2. Practical experience

Nigel is an experienced arboricultural consultant working throughout the UK. Following graduation in Forestry, Nigel has worked in a number of commercial sectors initially working as a climbing arborist then progressing to manage tree works contractors throughout the UK which lead to further Level 4 qualification and experience in the area of health and safety. Nigel's arboricultural experience has run continuously throughout working for various organisations covering a wide range of disciplines relating to tree and woodland management. Nigel routinely undertaken large scale tree safety inspections for large rural estates including both agricultural holdings and woodland owners. He provides consultancy advice and reports to support planning applications in respect of trees. Advice and reports have been regularly provided in cases of tree related subsidence to buildings. He retains a practical working knowledge of issues relating to statutory protection and has undertaken numerous tree work applications. Nigel retains experience as working as an Expert Witness and participating in Tree Preservation Order appeals.

3. Continuing professional development

Nigel Chopping attends many conferences, seminars and workshops run by forestry and arboricultural organisations, colleges or universities.

4. Relevant experience

During his career Nigel Chopping has worked a lot with trees that were thought to be dangerous, firstly by judging how much of a risk the trees may pose, then how to make a tree safe, and lastly by either carrying out the work or instructing others to carry it.

5. Membership of professional organisations

Nigel is a member of the Arboricultural Association and the Institute of Chartered Foresters. He is a member of the Royal Forestry Society of England, Wales and Northern Ireland.

Appendix 2

Extracts from the British Standard: Trees In Relation To Design, Demolition and Construction – Recommendations (BS 5837, 2012)

TREE CATEGORISATION

The trees have been categorised as recommended in Section 4.5, Tree categorization method and Table 1 of the standard (BS 5837, 2012). A copy of Table 1 is included as Appendix 3.

TREE CONSTRAINTS

Section 5 of BS 5837 recommends producing a tree constraints plan (TCP) showing the trees and an area around them referred to as the root protection area (RPA). The RPA is a calculated area of soil sufficient to provide enough water and nutrients for the tree to remain in a healthy condition. The RPA is equal to the area of a circle with a radius 12 times the diameter of the trunk measured 1.5m above the ground. Alternatively, for multi-stemmed trees with more than five stems, the RPA is equal to the area of a circle with a radius equal to 12 times their mean trunk diameter measured at 1.5m above the ground level.

In Section 5.2.3, the Standard states:

'The following factors should also be taken into account during the design process:

a) the presence of tree preservation orders, conservation areas or other regulatory protection;

b) potential incompatibilities between the layout and trees proposed for retention;

c) the working and access space needed for the construction of the proposed development;

NOTE This might involve access facilitation pruning, or the use of a height restriction bar to prohibit tall vehicles accessing a site containing trees with low canopies.

d) the effect that construction requirements might have on the amenity value of trees, both on and near the site, including the effects of pruning to facilitate access and working space;

e) the requirement to protect the overhanging canopies of trees where they could be damaged by machinery, vehicles, barriers or scaffolding, where it will be necessary to increase the extent of the tree protection barriers to contain the canopy;

f) infrastructure requirements in relation to trees, e.g. easements for underground or above-ground apparatus; highway safety and visibility splays; and other infrastructural provisions, such as substations, refuse stores, lighting, signage, solar collectors, satellite dishes and CCTV sightlines;

g) the proposed end use of the space adjacent to retained trees;

h) the potential for new planting to provide mitigation for any losses.'

TREE PROTECTION

The RPA forms the basis for a construction exclusion zone (CEZ) and requires protection during the development by means of barriers and/or ground protection fit

for ensuring the successful long-term retention of the trees. Section 6.2.1.1 of the standard states:

'All trees that are being retained on site should be protected by barriers and/or ground protection (see 5.5) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection should be installed.'

TREE PROTECTION BARRIERS

With regard to barriers erected to protect the retained trees, Section 6.2.2.1 of the standard states:

'Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.'

In addition, Section 6.2.2.2 states:

'The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in Figure 2. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.'

GROUND PROTECTION

With regard to protecting the soil within the RPA from compaction, Section 6.2.3.3 of BS 5837 (2012) states:

'New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;

b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;

c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.'

CONSTRUCTION WITHIN THE RPA

Section 7.5.1

‘The use of traditional strip footings can result in extensive root loss and should be avoided. The insertion of specially engineered structures within RPAs may be justified if this enables the retention of a good quality tree that would otherwise be lost (usually categories A or B). Designs for foundations that would minimize adverse impact on trees should include particular attention to existing levels, proposed finished levels and cross-sectional details. In order to arrive at a suitable solution, site-specific and specialist advice regarding foundation design should be sought from the project arboriculturist and an engineer. In shrinkable soils, the foundation design should take account of the risk of indirect damage’

Section 7.5.2

‘Root damage can be minimized by using:

- piles, with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600 mm;
- beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.’

Section 7.5.3

‘Where a slab for a minor structure (e.g. shed base) is to be formed within the RPA, it should bear on existing ground level, and should not exceed an area greater than 20% of the existing unsurfaced ground.’

Section 7.5.4

Slabs for larger structures (e.g. dwellings) should be constructed with a ventilated air space between the underside of the slab and the existing soil surface (to enable gas exchange and venting through the soil surface). In such cases, a specialist irrigation system should also be employed (e.g. roof run-off redirected under the slab). The design of the foundation should take account of any effect on the load-bearing properties of underlying soil from the redirected roof run-off. Approval in principle for a foundation that relies on topsoil retention and roof run-off under the slab should be sought from the building control authority prior to this approach being relied on.

Section 7.5.5

‘Where piling is to be installed near to trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles. If a piling mat is required, this should conform to the parameters for temporary ground protection given in 6.2.3. Use of the smallest practical piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored pile or screw pile.’

HARD SURFACES WITHIN THE RPA OF RETAINED TREES

Section 7.4.2 of BS 5837 (2012) states:

‘7.4.2.1 The design should not require excavation into the soil, including through lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation. If it is intended to use the new surface for construction access, it is essential that the extra loading and wear arising from this are taken into account during the design process.

7.4.2.2 The structure of the hard surface should be designed to avoid localized compaction by evenly distributing the loading over the track width and wheelbase of any vehicles expected to use the access.

7.4.2.3 New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.

7.4.2.4 If the new surface is likely to be subject to de-icing salt application, an impermeable barrier should be incorporated to prevent contamination of the rooting area. Run-off should be directed away from the RPA (see also 8.6.5).

7.4.2.5 Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below.

7.4.2.6 Permeable hard surfacing can result in soil volume moisture content remaining at or near field capacity for long periods. Where there is a risk of waterlogging, the design should incorporate appropriate land drainage (see also 4.3 and 8.6.5). Land drainage within the RPA should be designed to avoid damage to the tree and the soil structure, e.g. sand slitting formed by compressed air soil displacement with the slits set radially to the tree.

7.4.2.7 The hard surface should be resistant to or tolerant of deformation by tree roots, and should be set back from the stem of the tree and its above-ground root buttressing by a minimum of 500 mm to allow for growth and movement. Resulting gaps may be filled using appropriate inert granular material.

NOTE 1 Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems. Alternatively, piles, pads or elevated beams can be used to support surfaces to bridge over the RPA or, following exploratory investigations to determine location, to provide support within the RPA while allowing the retention of roots greater than 25 mm in diameter.

NOTE 2 The use of two-dimensional load suspension systems is not recommended for surfaces intended for use by vehicles.’

Appendix 3

Table 1 from the British Standard: *Trees In Relation To Design, Demolition and Construction – Recommendations* (BS 5837, 2012)

Table 1 – Cascade Chart for Tree Quality Assessment

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 NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7 below.		
TREES TO BE CONSIDERED FOR RETENTION			
Category and Definition	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 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)
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
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

BS 5837 (2012) Section 4.5.7 states:

'Where trees would otherwise be categorized as U, but have identifiable conservation, heritage or landscape value, even though only for the short term, they may be upgraded, although they might be suitable for retention only where issues concerning their safety can be appropriately managed.'

Appendix 4

Explanatory notes for some of the terms used in Appendix 5 Table 1

Mathematical abbreviations: > = Greater than: < = Less than.

Compass Bearing: N = north; S = south; E = east; W = west; NE = north-east; NW = north-west; SE = south-east; SW = south-west; NNE = north, north-east; NNW = north, north-west; ENE = east, north-east; WNW = west, north-west; SSE = south, south-east; SSW = south, south-west; ESE = east, south-east; WSW = west, south-west.

Estimated measurements: The symbol '#' will be used to indicate when measurements have been estimated.

Tree Number: This is the number used to indicate the trees approximate position on the plans. This number is also used in Appendix 5.

Species: The species identification is based on visual observations and the common English name of what the tree appeared to be

Trunk Ø: Trunk diameter 1.5m above ground level recorded in millimetres measured with a diameter tape. If branches below 1.5m the trunk diameter will be measured just above ground level and 'base' will appear after the figure. If, for whatever reason, the diameter was measured at a different height above the ground the height will be mentioned. More than one figure indicates that the individual is has a number of stems. Many stems are indicated with a 'M'. If the DBH has been estimated '#' will appear in the column.

Height: The height of the tree measured with a Truepulse laser rangefinder.

Age Class: Assessed as either:

- Sapling or newly established = a size which could be easily transplanted;
- Semi-mature = prior to seed bearing age and could be transplanted with care;
- Juvenile Mature = young and if healthy growing rapidly, not yet achieved full mature height;
- Young Mature = early maturity, not fully grown but of seed bearing age and may have achieved mature height;
- Mature = fully grown, annual growth is much reduced;
- Old Mature = old for the species, possibly starting to decline;
- Ancient = exceptionally old for the species, the crown may be retrenching, provides many opportunities for wildlife and is likely to be an important habitat.

Health:

- Normal Vitality = normal growth and twig extension;
- Moderate Vitality = reduced twig extension but other than that few signs of ill-health;
- Early Decline = reduced twig extension and some dead twigs in the outer canopy;

- Mid-decline = small internodes, the canopy may be thinning and contain dead twigs and/or branches in the outer canopy, older branch wounds that haven't occluded may be decaying and forming cavities;
- Severe Decline = sparse crown, numerous dead twigs and branches in the outer canopy, older branch wounds likely to be decaying and forming cavities;
- Dead.

Retention category: The retention category assessed using the guidance in Table 1 of BS 5837, 2005 [see Appendix 3].

A) (light green) Trees of high quality and value: in such condition as to be able to make a substantial contribution (a minimum of 40 years is suggested);

B) (mid blue) Trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested);

C) (grey) Trees of low quality and value: currently in adequate condition to remain until a new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm.;

U) (dark red) Trees in such a condition that any existing value would be lost within 10 years and which should, in the current context be removed for reasons of sound arboricultural management.

Crown Radius: The distance from the tree trunk to the cardinal points of the compass measured in metres.

Radius of the RPA: The radius of a circular Root Protection Area (RPA) in metres as specified using the guidance contained in BS 5837 (2012).

Area of the RPA: The area of the Root Protection Area (RPA) in square metres as specified using the guidance contained in BS 5837 (2012).

Location of defect: The part of the tree with a significant defect.

Type of defect: The general type of defect.

Description of defect: If required a description of the size, location or cause of the defect.

Significance: A subjective assessment of a combination of the likelihood of failure occurring or the defect leading to the death of the tree. Defects are categorised as either: Observation, no significance; Minor, little significance; Moderate, some significance; or Major, a major defect that could cause the tree to fail at any time.

Remedial action: General description of recommended work.

Details: Elaboration of the Remedial action

Work Priority:

- High priority work should be carried out as soon as possible;
- Medium priority work need not be carried out straight away but the trees should be inspected every two to three years – in leaf and out of leaf – and after strong winds. If this work is not carried out straight away I recommend that provision is made in future budgets to have it carried out at a later date.

- Low priority work need not be carried out straight away but defects have been noted that could develop over time. These trees should be inspected every two to three years – in leaf and out of leaf – and after strong winds.

Work Category:

- Category 1 work is required to establish acceptable levels of safety for the site and should be carried out in the time scale indicated by the priority attached to the recommendation;
- Category 2 work is advisory to establish high levels of arboricultural and silvicultural management of the existing trees and is not necessary for safety reasons.

Appendix 5

Schedule of trees with notes on their size and condition as well as management recommendations

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
T1	Salix caprea (Goat Willow)	4	283	8	3	2	2.5	2.5	YM	Isolated individual tree. Self set. No significant past management. Average form typical species and setting. Existing hard standing covering approximately 75-100% of RPA. Multiple stems below 1.5m. Average vitality. Unremarkable tree/group of very limited merit. Provides low or only temporary/transient benefits.	No works.	10+	C1	3.4	36.3
H2	Crataegus monogyna (Hawthorn)	4.5	200	1	2	2	2	2	YM	Linear boundary hedge. Located outside of the site. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	2.4	18.1

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
T3	Fraxinus excelsior (Ash)	6.5	384	4	3.5	3	3	2.5	M	Field boundary tree. Stands in hedge. Large or medium tree/s clearly visible to public. Average form typical species and setting. Stem divides below 1.5m. Ash Dieback, Class 1: 100%–76% remaining canopy. Low vitality. Impaired condition so not qualifying in higher BS category.	No works.	<10	C1	4.61	66.8
H4	Crataegus monogyna (Hawthorn)	4.5	200	1	2	2	2	2	YM	Linear boundary hedge. Located outside of the site. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	2.4	18.1

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
H5	Crataegus monogyna (Hawthorn)	4.5	200	1	2	2	2	2	YM	Linear boundary hedge. Located outside of the site.. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	2.4	18.1
T6	Crataegus monogyna (Hawthorn)	4	100	1	1.5	1.5	1.5	1.5	YM	Part of linear group. Located outside of the site. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years.	No works.	20+	B2	1.2	4.52
T7	Crataegus monogyna (Hawthorn)	4	100	1	1.5	1.5	1.5	1.5	YM	Part of linear group. Located outside of the site. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years.	No works.	20+	B2	1.2	4.52

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
H8	Crataegus monogyna (Hawthorn)	4.5	200	1	2	2	2	2	YM	Linear boundary hedge. Located outside of the site. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	2.4	18.1
H9	Crataegus monogyna (Hawthorn)	4.5	200	1	2	2	2	2	YM	Linear boundary hedge. Located outside of the site. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	2.4	18.1

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
G10	Crataegus monogyna (Hawthorn)	5	300	1	3	3	3	3	M	Linear boundary hedge. Located outside of the site. Large or medium tree/s clearly visible to public. No significant past management. Average form typical species and setting. Ivy on stems. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3.6	40.7
T4	Sambucus nigra (Elder)	5	300	1	3	3	3	3	M	Located outside of the site. Large or medium tree/s clearly visible to public. No significant past management. Average form typical species and setting. Ivy on tree. Average vitality.	No works.	10+	C2	3.6	40.7
H11	Crataegus monogyna (Hawthorn)	3.5	200	1	1.5	1.5	1.5	1.5	YM	Linear boundary hedge. Located outside of the site.. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	2.4	18.1

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
G12	Crataegus monogyna (Hawthorn)	5.5	300	1	3	3	3	3	M	Linear boundary hedge. Located outside of the site. Large or medium tree/s clearly visible to public. No significant past management. Average form typical species and setting. Ivy on tree. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3.6	40.7
T13	Crataegus monogyna (Hawthorn)	4	300	1	1.5	2	1.5	2	M	Isolated individual tree. No significant past management. Average form typical species and setting. Average vitality. Unlikely to be suitable for retention for >40 years.	No works.	20+	B1	3.6	40.7

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
T14	Fraxinus excelsior (Ash)	9	320	1	4	4	2	4	YM	Part of linear group. Located outside of the site. Stem diameter and offsite crown spread extents are estimated measurements. Large/medium tree clearly visible to public. Crown lifted. Good form typical species and setting. Dominant tree. Good vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3.84	46.3
T15	Fraxinus excelsior (Ash)	9.5	300	1	3	3	2.5	3	YM	Part of linear group. Located outside of the site. Stem diameter and offsite crown spread extents are estimated measurements. Large/medium tree clearly visible to public. Crown lifted. Leaning North-East. Codominant tree. Ash Dieback, Class 1: 100%–76% remaining canopy. Low vitality. Declining. Provides low or only temporary/transient benefits.	No works.	<10	C1	3.6	40.7

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
G16	Fraxinus excelsior (Ash),Alnus glutinosa (Common Alder),Quercus robur (Common Oak)	5	250	1	2	2	2	2	YM	Linear group. Located outside of the site. Measurements estimated. Large or medium tree/s clearly visible to public. Crown lifted. Average form typical species and setting. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3	28.3
T17	Alnus glutinosa (Common Alder)	9.5	300	1	3	3	2	3	YM	Part of linear group. Located outside of the site. Stem diameter and offsite crown spread extents are estimated measurements. Large/medium tree clearly visible to public. Crown lifted. Average form typical species and setting. Dominant tree. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3.6	40.7

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
T18	Alnus glutinosa (Common Alder)	9.5	300	1	3	3	2	3	YM	Part of linear group. Located outside of the site. Stem diameter and offsite crown spread extents are estimated measurements. Large/medium tree clearly visible to public. Crown lifted. Average form typical species and setting. Dominant tree. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3.6	40.7
T19	Pinus sylvestris (Scots Pine)	8	350	1	4	4	4	4	YM	Part of linear group. Located outside of the site. Stem diameter and offsite crown spread extents are estimated measurements Large/medium tree clearly visible to public. Average form typical species and setting. Dominant tree. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	4.2	55.4

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
G20	Fraxinus excelsior (Ash),Betula pendula (Silver Birch)	9	300	1	2.5	2.5	2.5	2.5	YM	Part of linear group. Located outside of the site. Measurements estimated. Large or medium tree/s clearly visible to public. Crown lifted. Average form typical species and setting. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3.6	40.7
T21	Pinus sylvestris (Scots Pine)	8	350	1	4	1	4	4	YM	Part of linear group. Located outside of the site. Stem diameter and offsite crown spread extents are estimated measurements. Large or medium tree/s clearly visible to public. Average form typical species and setting. Dominant tree. Asymmetrical crown shape. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	4.2	55.4

Tree No.	Species	Height (m)	Mean Trunk Ø	No. Stem	Crown radius				Age Class	Observations	Remedial action	Estimated remaining contribution (years)	Retention Category	RPR Radius	RPA Area
					N	E	S	W							
T22	Pinus sylvestris (Scots Pine)	9	350	1	4	3	4	4	YM	Part of linear group. Located outside of the site. Stem diameter and offsite crown spread extents are estimated measurements.. Large or medium tree/s clearly visible to public. Average form typical species and setting. Dominant tree. Asymmetric crown shape. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	4.2	55.4
G23	Alnus glutinosa (Common Alder),Fraxinus excelsior (Ash),Fagus sylvatica (Beech),Betula pendula (Silver Birch),Salix alba (White Willow)	9	300	1	3	3	3	3	YM	Located outside of the site. Measurements estimated. Large or medium tree/s clearly visible to public. No significant past management. Average form typical species and setting. Average vitality. Present in numbers such that attracts higher collective rating than would as individual.	No works.	20+	B2	3.6	40.7

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