



AllAboutTrees

Arboricultural & Ecological Consultancy
Chartered Arboriculturalists & Environmentalists

Arboricultural Impact Assessment & Method Statement For Trees On Land Adjacent To 39 Sunderland Rd, East Boldon



For
Phil Hartley

 Institute of
Chartered Foresters
Registered Consultant


Arboricultural
ASSOCIATION
Fellow Member


Consulting Arborist Society.com
PROFESSIONAL MEMBER

Document Verification

	Document Title	•Arboricultural Impact Assessment & Method Statement For Trees On Land Adjacent To 39 Sunderland Road, East Boldon •For Phil Hartley
	Prepared By	•T Archment ND HND Arb MArborA
	Authorised By	•Andrew Watson FLS MICFor CBiol MRSB FArborA CEnv LCGI

Original Issue	
Issued 1st December 2025	Authorised - A Watson
↓	
Revision	
-	-
↓	
Revision	
-	-

Table of Contents

	Page
1. Introduction	1
2. Protected Status Of Trees	2
3. Site Visit & Description	3
4. Arboricultural Impact Assessment	4
5. Arboricultural Method Statement	8
6. Arboricultural Supervision	24
7. Conclusion	25

Appendices

- 1. Tree Survey**
- 2. Glossary of Terms**
- 3. Site Plans**
 - Existing Trees Shown On Existing Layout (AIA & AMS Exi)**
 - Retained Trees Shown On Proposed Layout With Protective Measures Indicated -Tree Protection Plan (AIA & AMS TPP)**

1. Introduction

1.1 We are instructed by Phil Hartley to provide an Arboricultural Impact Assessment and Method Statement for the significant trees located within a specified area adjacent to 39 Sunderland Road, East Boldon.

1.2 This report is produced to evaluate the proposed construction of a residential dwelling with associated infrastructure. The developments juxtaposition with the existing trees is considered.

1.3 We were provided with the following documents:

- Existing plan in pdf
- Proposed development plans in pdf

1.4 This assessment is concerned with recording the species, size and condition of the trees. Recommendations are made where appropriate to establish acceptable levels of safety for the site and also to establish a higher level of arboricultural management.

1.5 The trees are also evaluated for the purposes of British Standard 5837–2012 Trees in relation to design, demolition & construction, with regard to their quality and value. The type and size of the root protection area is calculated and the position of the protective barriers is determined. The remaining contribution or safe useful life expectancy is estimated as an indication of the trees period of retention.

1.6 All observations were from ground level without detailed investigation. No invasive examination or climbing inspections were carried out to confirm visual or audible signs of defect and no tissue or soil samples were taken for laboratory analysis.

1.7 Trees are living organisms whose health and condition may change rapidly and all observations, recommendations and conclusions are based on the status of the tree at the time of inspection. The recommendations contained within this report are valid for a period of one year only.

1.7.1 Both abiotic and biotic factors can alter the health/structural integrity of trees rapidly. No liability can be accepted for any physiological or structural deterioration of the tree occurring after the date of our inspection or that was not evident on the day of inspection. Where this report is relied upon at a later date the reader should be aware that the physiological and structural condition of the surveyed trees may have changed; Re-inspection may lead to significantly different observations, recommendations and conclusions.

1.7.2 Any significant alteration to the site which may affect the trees (demolition activity, construction activity, alterations to infrastructure, level

changes, hydrological changes, extreme climatic events, etc) will necessitate a re- assessment of the trees.

1.8 This report was prepared for use by our client in accordance with the terms of the contract and for planning purposes only. It is not a substitute for a tree condition, insurance, or mortgage service. Information provided by third parties used in the preparation of this report is assumed to be correct. The contents are copyright and may not be duplicated or used by third parties without the written consent of AllAboutTrees Ltd.

1.9 This Arboricultural Impact Assessment and Method Statement forms part of the specification and schedule of works to be issued to the contractor and may form part of the contract documentation.

1.9.1 This document should be kept on file at the site office and be available for inspection by relevant parties.

2. Protected Status Of Trees

2.1 Trees may be legally protected, this may either be in the form of a Tree Preservation Order (TPO) or that the trees are located within a Conservation area. In addition, some tree felling may require a felling licence from the Forestry Commission.

2.2 Potentially large penalties may be enforced for illegally carrying out works on protected trees. It is recommended that checks are made before any works are undertaken and no work should commence until permission has been granted. Please note that there are a number of exemptions from the requirement to obtain a felling licence including land on which full planning permission has been granted by the local authority, however this exemption does not cover land where only outline planning permission has been granted, or on land which has been allocated for residential development within local authority urban and local development plans.

3. Site Visit & Description

Site location – N 54° 56' 35.13 W 01° 25' 25.73
O/S Grid reference- NZ 370 610 GB Grid



Figure 1 - The study area is indicated by the red boundary line as shown on the above image.

3.1 A site visit was undertaken on Friday 28th November 2025 by Tim Archment. The weather was fine with no visibility constraints.

3.2 The study area is a small grassed paddock to the rear of 39 Sunderland road, East Boldon. The northern boundary of the site is defined by a brick wall. Hedges mark the south and the west with a dilapidated fence and hedge to the east.

An additional fence has been erected in the past, off set from the boundary hedges, creating a no mans land and preventing maintenance of the boundary hedge. Sycamores have established both in the hedge and in the unused space. The western portion has been restored with stems in the hedge reduced accordingly and those beyond the hedge removed (hedge 2). The eastern portion (hedge 3) has not yet been addressed.

3.3 The study area is relatively flat with no apparent drainage issues.

4. Arboricultural Impact Assessment

4.1 The trees have been surveyed on site and plotted on the site plan. The positions have been plotted in accordance with the supplied plans. Where vegetation is not shown locations have been determined using a laser distometer and triangulation calculations.

4.2 All significant trees have been inspected and some of the smaller specimens have been included for accuracy. Individual recommendations are included within Appendix 1 of this report.

4.3 Root Protection Areas (RPAs)

4.3.1 The British Standard Root Protection Areas (RPAs) are indicated by the red circles surrounding the trunk position of the trees on the associated plans. These indicative circles do not take into consideration site specific conditions such as the presence of buildings, roads, footpaths, topography, underground utility services etc. and are representative of typical root morphology where said structures are not encountered.

4.4 Existing Trees

4.4.1 We have surveyed 5x trees, 3x groups and 4x hedgerows. The surveyed vegetation has been categorised in accordance with the criteria specified by BS5837 (see appendix 2 II) for further detail. The table below indicates into which categories the surveyed vegetation has been placed.

Tree Category Rating	Tree, Group or Hedge Reference
A – High	-
B – Moderate	Tree 5
C – Low	Trees 2, 3 & 4 Hedges 1-4 Groups 1-3
U – Unsuitable For Retention	Tree 1

4.5 Vegetation Removal

4.5.1 It will be necessary to remove some of the existing trees to facilitate the proposed development and to establish a higher level of arboricultural management for the site.

- Sections of hedges 3 & 4 have been identified for removal as part of the proposals.

It is recommended the restoration of the southern boundary hedgerow is continued with works conducted to hedge 3 to match hedge 2. 9x sycamore trees within the no-mans-land will need to be removed while the remainder can be reduced in height to match the hedge. Of the nine sycamore to remove, four are showing dieback in their canopies and are not expected to

survive for more than 10 years. Overgrown hawthorn in the hedge will need to be trimmed to shape and tidy.

It is also recommended that the western most tree in hedge 4 is removed to allow formation of the new vehicular access from the A184 and to improve the vision splay.

4.5.2 Any planting undertaken to complement the proposals must be carefully considered to ensure the trees can grow fully into maturity without requiring major or regular pruning works. New specimens should not be positioned in close proximity to buildings, windows or utility services.

4.6 Retained Trees

4.6.1 The existing boundary wall affords trees 1-5 and groups 1-2 adequate protection. Protective barriers, as indicated by the blue line on the TPP, will be used to afford remaining vegetation protection, as well as excluding a large portion of tree 1's RPA from the working area. A specification for protective barrier construction is provided in section 5 of this document.

Ground Protection

4.6.2 In some locations access will be required within the RPA of retained trees. Ground protection must be put in place to prevent excessive compaction/churning of the ground. This must be put in place in the locations indicated by orange hatching on the TPP and to the specification provided section 5 of this document.

4.6.3 If the 'tree friendly' no dig, porous surfacing detailed in section 5 is not laid as part of the initial works it will also be necessary to provide ground protection measures in the area shown by the green hatching on the TPP until the surfacing has been laid.

4.7 Specialist Construction Methodologies

New Surfacing

4.7.1 It is proposed to form new hard surfacing within the RPA of tree 5. It is important that no damage is caused to the rooting area, therefore a 'no-dig, tree friendly' methodology must be implemented in the areas indicated by green hatching on the TPP. Further detail can be found within section 5 of this document.

4.7.2 The proposed design shows hard surfacing will be formed within the RPA of tree 1 and hedges 2 & 3. The location of the building is within the RPA of hedge 2 and, to a much lesser degree, group 2. This is all low value vegetation and consequently specialist construction methodologies are considered excessive:

- Tree 1 is a pollarded black poplar which is pushing against the boundary wall. It makes limited contribution to the site or street scene. It is of limited value and not retainable in the long term. The RPA is based on the size of the stem and provides adequate rooting area for a tree with full canopy. This tree does not require a 12.0m RPA to support its negligible canopy. While there may be some disturbance to the root system this is considered of limited consequence and unlikely to be as severe as the TPP suggests.
- Similarly, the RPA of hedge 2 and 3 are so large due to the sycamore stems which have been allowed to establish. As with tree 1, the RPA is somewhat inflated by the size of the stems. The individuals within the hedge do not have full canopies and so the impact on the hedge is not as severe as it first appears. While formation of the surfacing, and construction of the dwelling may have some impact on the RPAs of the larger sycamores, this will be limited. The hawthorn, which have much smaller RPAs, will be unaffected. The use of no-dig systems, or specialist foundations, is considered excessive for these low value hedges.

4.8 Wildlife Habitats

4.8.1 As part of the survey the significant trees were inspected from ground level for signs of wildlife habitation, in particular birds and bats.

Bats

4.8.2 All UK bats and their roosts are protected by law. The legislation protecting bats are:

- The Wildlife & Countryside Act 1981 (WCA)
- Conservation of Habitats and Species Regulations 2017

For all countries of the UK, the legal protection for bats and their roosts may be summarised as follows:

You will be committing a criminal offence if you:

1. Deliberately* capture, injure or kill a bat
2. Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
3. Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
4. Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat
5. Intentionally or recklessly obstruct access to a bat roost

**In a court, 'deliberately' will probably be interpreted as someone who, although not intending to capture/injure or kill a bat, performed the relevant action, being sufficiently informed and aware of the consequence his/her action will most likely have.)*

4.8.3 Penalties on conviction - the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

4.8.4 When carrying out tree works it is essential that the contractor or other competent person carries out a specific 'bats in trees risk assessment' which can be obtained from the 'Arboricultural Association' or the 'Bat Conservation Trust' (BCT). If evidence of bats is found work must stop immediately we should be contacted so that our licenced Ecologist can advise further.

Birds

4.8.5 In the UK, all wild birds, their nests and their eggs are protected by law.

In England, Scotland and Wales the legislation that protects wild birds is:

- The Wildlife and Countryside Act 1981
- The Countryside (or CRoW) Act 2000

4.8.6 As with bats the contractor has an obligation to carry out visual checks prior to works. Where possible tree works should be carried out in the period from August to the end of February in order to avoid the bird nesting season.

The Project Ecologist should be contacted for any further information required to ensure compliance with legal requirements.

5. Arboricultural Method Statement

5.1 Order Of Operations

5.1.1 The following is provided as to the optimal order of operations from an arboricultural perspective:

- Site to be managed as per the guidance in section 5.2 of this document.
- Remove trees in conflict with the development (see section 5.3 of this document). Carry out pruning works as specified in appendix 1 of this document. The tree works should wherever possible be carried out in accordance with BS3998:2010 Tree Work – Recommendations and contractors undertaking the work must comply with the legal obligations to wildlife (see section 4.8).
- Establish site compound and storage in accordance with section 5.4 of this document.
- Erect protective barrier in the position indicated by the blue line on the TPP and as per the specification which forms section 5.5 of this document.
- Install ground protection in the position indicated by the orange hatching on the TPP and as per the specification which forms section 5.6 of this document.
- Undertake construction works.
 - Guidance for formation of new surfacing within RPAs is provided in section 5.7 of this document.
 - Guidance for installation of services within RPAs (if required) is provided in section 5.8 of this document.
- Following completion of construction works the protective measures can be removed.

5.2 Site Management

5.2.1 It will be the responsibility of the site manager (or appointed person) to brief and induct all personnel entering site, particularly those who will conduct work in proximity of retained trees. A copy of this document and the associated Tree Protection Plan must be available and readily accessible to all entering the site.

5.2.2 The site manager (or appointed person) will be responsible for daily management of the site and protection of retained trees. The site manager will liaise with the project arborist as required for all tree related matters. Prior notice of any activity which has potential to impact on the retained trees must be made to the project arborist.

5.2.3 Any damage incurred to retained trees, or to tree protection measures, will be documented by the site manager (or appointed person) and reported to the project arborist. Works must cease in the affected area until the project

arborist has been able to assess the situation and appropriate recommendations implemented (if required).

5.2.4 If the need for additional arboricultural works are identified beyond those approved during the planning process the project arborist must be informed as soon as practicable. Appropriate advice will be provided as to the suitable course of action, dependent upon the additional works required.

5.2.5 It is the responsibility of the site manager (or appointed person) to ensure all planning conditions are adhered to. A programme of arboricultural monitoring is provided in section 6 of this document.

5.3 Tree Works

5.3.1 The first arboricultural works on site will be the removal of all the conflicting vegetation:

- 9x sycamore in hedge 2
- 1x hawthorn in hedge 4

The sections of hedge to be removed have had their coloured hatch removed. A broken black ring has been placed around the coloured categorisation circle adjacent to the hedge label.

5.3.2 The stumps may be ground out using a stump grinding machine.

5.3.3 Details of any prescribed pruning works are included within Appendix 1 of this report. The tree works should wherever possible be carried out in accordance with BS3998:2010 Tree Work – Recommendations.

5.4 Location of Site Compound & Storage Areas

5.4.1 The contractor's site compound, storage & parking areas must be located outside of the root protection areas (RPAs) of the retained trees. This includes any trees which are located outside of the study area but not included within the survey.

5.4.2 All site storage areas, especially cement mixing and washing points for plant and vehicles must also be situated outside of the root protection areas (RPA). Where there is a possible risk of polluted water runoff heavy duty plastic sheeting and sand bags must be used to contain spillages and contamination.

5.5 Root Protection Area & Barrier Specification

5.5.1 Trees on development sites are prone to damage during the course of demolition and construction works. Retained trees need to be protected in line with British Standard 5837–2012 Trees in relation to design, demolition & construction.

5.5.2 This usually involves identifying a construction exclusion zone around the tree which should remain undisturbed with appropriate protective barriers preventing access to this Root Protection Area for the duration of the project.

5.5.3 The minimum root protection areas (measured in a radius from the centre of the tree to the protective barrier) are outlined for each individual tree and the barrier layout is indicated on the plan.

5.5.4 The exact root spread of an individual tree is difficult to quantify, but in general, the bulk of a trees roots are situated in the upper 600mm of the soil with the finer absorbing roots prevalent in the upper 250mm.

5.5.5 Dependant on soil conditions and the species of the tree, the root plate may extend radially for distances in excess of the height of the tree.

5.5.6 In the case of development sites, the root protection area is designed to prevent any significant long-term damage to the tree by protecting the root plate and to some extent the lower branches of the tree.

5.5.7 The barriers should be erected prior to work commencing on site and should remain until construction activities have been completed. The root protection area should be considered essential and should not be removed or altered without prior recommendation by an Arboriculturalist and approval of the local planning authority.

5.5.8 The barrier should consist of proprietary 2m tall welded mesh panels mounted on rubber or concrete feet. The panels must be joined together with a minimum of two anti-tamper couplings situated at least 1m vertically apart and installed uniformly throughout the barrier so that they can only be removed from inside the barrier. Where space allows the panels must be supported by stabiliser struts mounted on a block tray.

5.5.9 No fixing shall be made to any tree and all possible care must be taken to prevent damage to tree roots when locating the posts.

5.5.10 All types of barriers must be firmly attached to prevent movement by site personnel or vehicles and all-weather signs with the wording “Construction exclusion zone- keep out” should be attached.

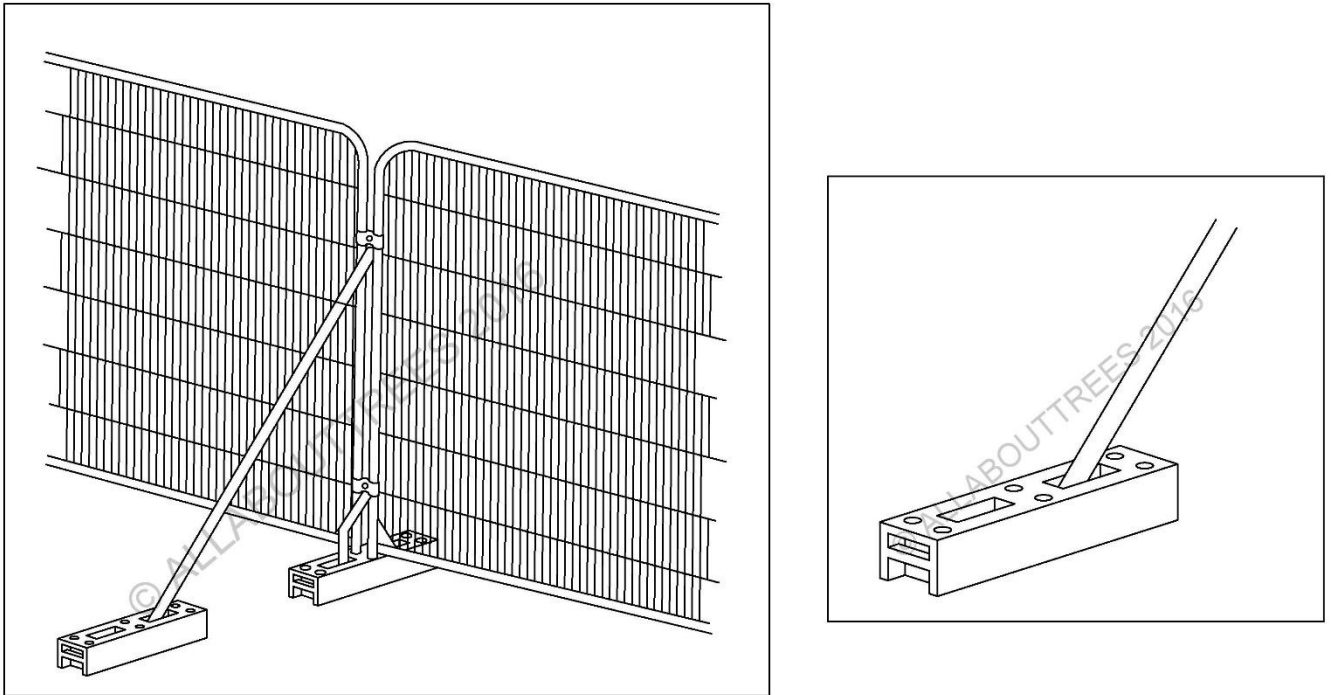


Figure 2 - Stabiliser strut mounted on block tray.



Figure 3 – An example of a barrier erected on a site

5.6 Ground Protection Areas & Erection Of Scaffolding Within The Trees Root Protection Areas

5.6.1 In some cases (adjacent to tree 5, group 2 and hedge 2) it will be necessary to provide access within the root protection area of the trees, or to create space for scaffolding and working areas. To prevent damage occurring to the trees, the following technique should be observed. The areas requiring this protection are marked in hatched orange on the TPP.

5.6.2 If the 'tree friendly' no dig, porous surfacing detailed in section 5.2 is not laid as part of the initial works it will also be necessary to provide ground protection measures in the area shown by the green hatching on the TPP until the surfacing has been laid. A number of ground protection options are suitable dependant on the weight and type of access required.

5.6.3 The following diagrams visualise the layout requirements. By sufficiently protecting the rootplate of the tree, the access or scaffolding and associated working area can be placed within the root protection area. There is no limitation as to the size of the ground protection area, but we would advise that it is at least 0.5m from the trunk of any tree.

5.6.4 A summary of the requirements for the erection of the scaffolding and working area are detailed below:

- Protective barriers should be erected onto a framework of scaffolding (as per the barrier drawing in section 5.5 to comply with the recommendations of BS 5837).
- The barrier is erected prior to the commencement of work at a suitable distance from the building to allow for the erection of the main scaffolding.
- A porous geotextile fabric should be laid onto the undisturbed ground surface and a layer of sand or compressible material such as woodchip applied to level the area.
- Boards should be laid onto the sand to protect the rootplate. Scaffold boards are usually adequate for pedestrian loads
- The boarding must remain until building works are completed.

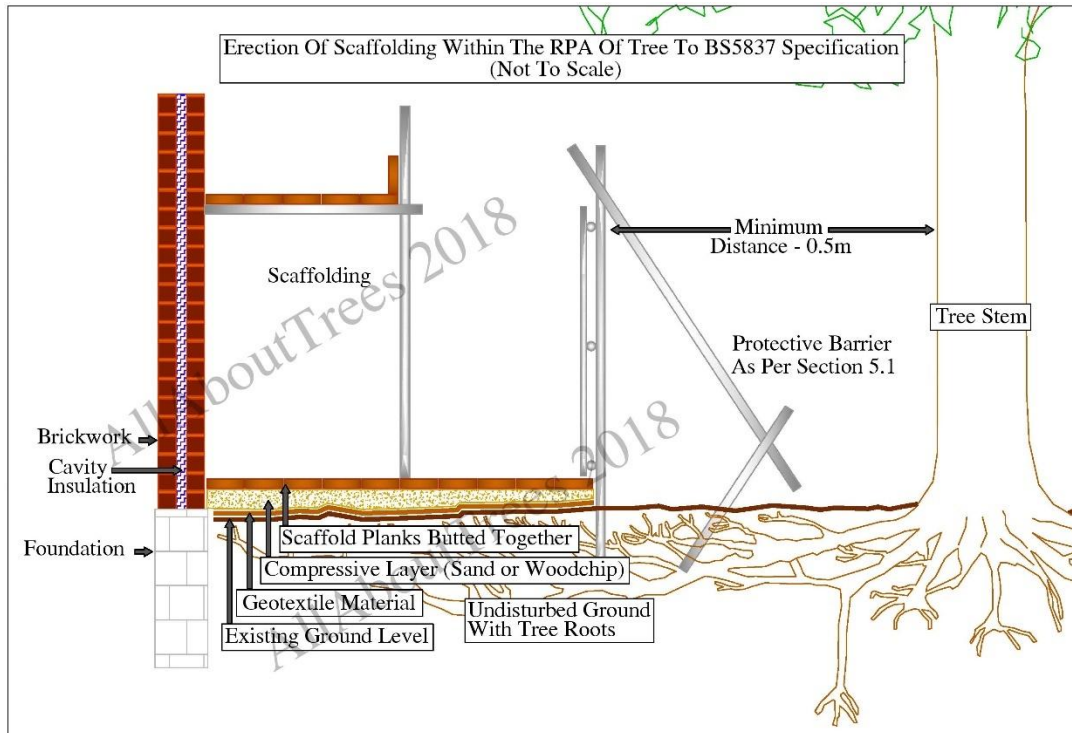


Figure 4 - Ground Protection Measures

5.6.5 Temporary ground protection should be tailored to the likely load it will be subjected to. The following diagrams indicate the acceptable techniques for:

- Pedestrian
- Plant and vehicle access up to 2 tons gross weight
- Plant and vehicle access up exceeding 2 tons gross weight

Ground Protection Suitable For Pedestrian Movement Only

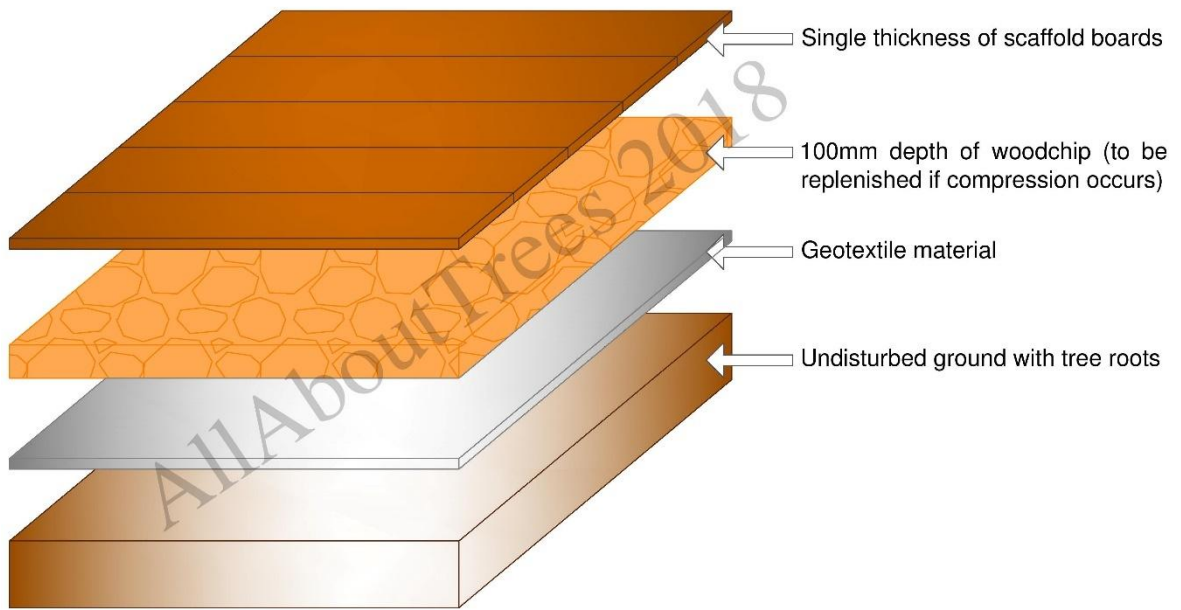


Figure 5

Ground Protection Suitable For Pedestrian Operated Plant Up To A Gross Weight of 2t

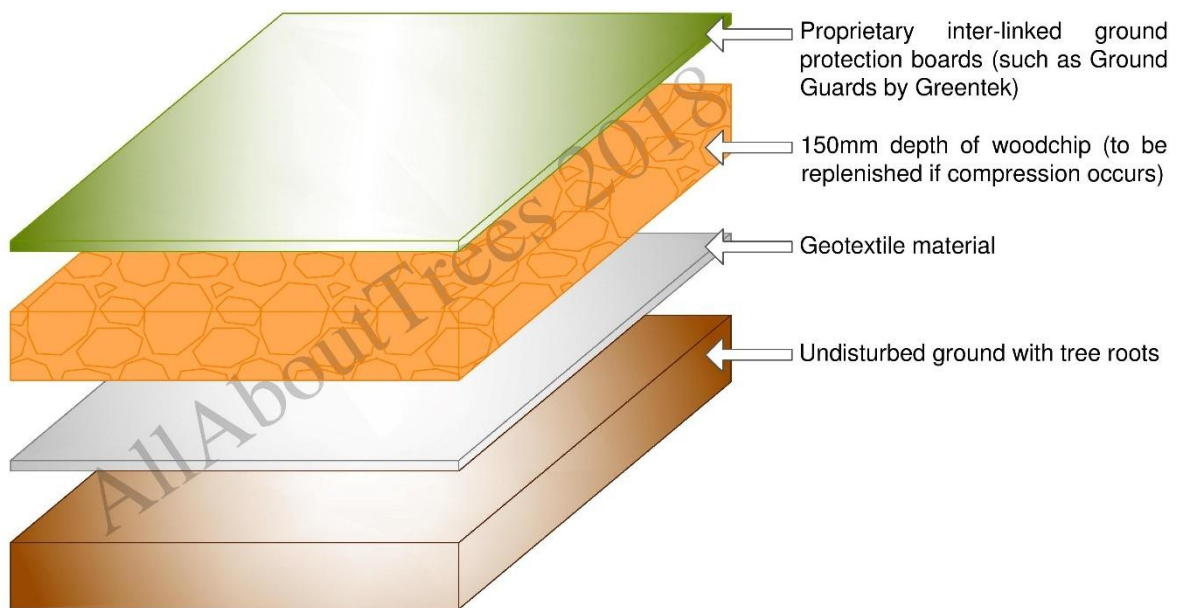


Figure 6

5.6.6 If the likely loading is to exceed 2t gross weight it will be necessary to produce an engineered solution with arboricultural advice to accommodate the likely load safely. One such example is shown below. In some cases, it may be necessary to install a temporary road using a 3D cellular confinement system (such as Cellweb by Geosynthetics Ltd).

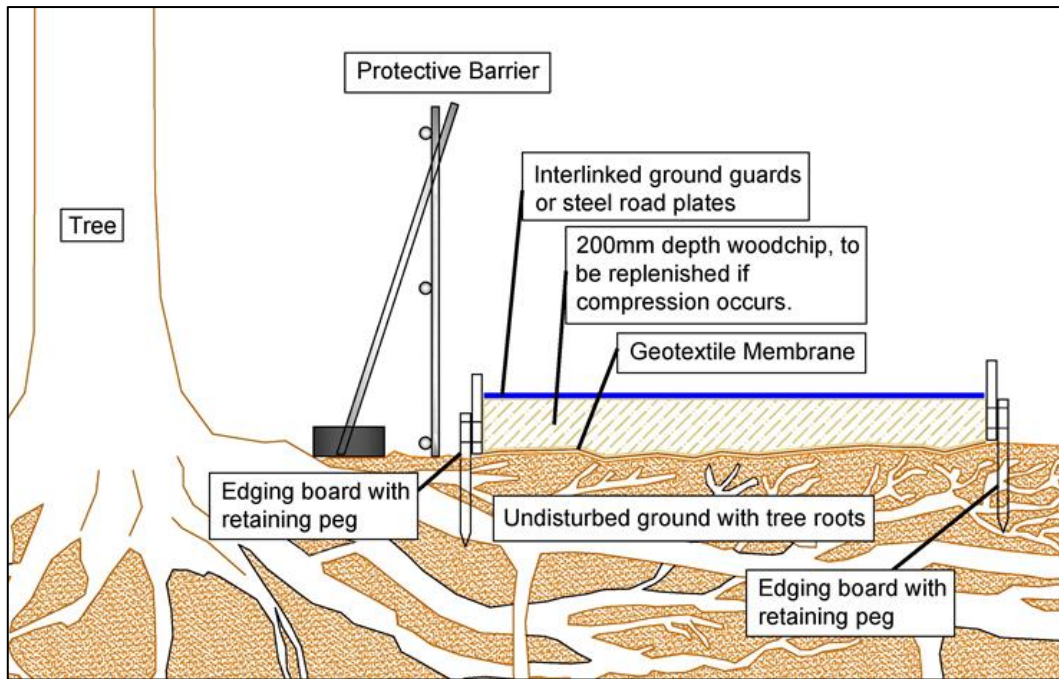


Figure 7

5.7 Construction Methodology & Materials Near To Retained Trees

5.7.1 As the site contains a number of trees which will need to be retained as an integral part of the development, it is vital that the trees health and condition is maintained through protective measures and 'tree friendly' construction methods which avoid both short and long-term damage to the trees. The area which requires this tree friendly construction is indicated as hatched green on the tree protection plan (TPP).

5.7.2 The construction method outlined below is suitable for the construction of permeable footpaths, roads and parking bays. It is not intended as a finished engineering solution but as an outline methodology to allow the construction of the above elements without damaging the nearby tree root system. We recommend the Cellweb system by Geosynthetics Ltd for this application as it has been thoroughly tested in the field and scientific data is available to support its use near to retained trees.

5.7.3 If the principles of the 'no dig' construction are followed, no significant permanent damage should occur to the retained trees.

5.7.4 The **principal rules of construction** are as follows:

- 1) No roots are to be severed (except for hand digging to remove rocks or protrusions taking care not to sever any roots over 2.5cm in diameter).
- 2) The soil must not be compacted

- 3) Oxygen and water must be able to diffuse into the soil beneath the engineered surface
- 4) The construction of the road, footpath or parking bay will have to be **above existing ground** level and at least 0.5m away from the trunks and buttress roots of the retained trees.
- 5) Dependent on the landform and underlying soil type, permeable surfacing can result in the soil moisture content remaining at or near field capacity for long periods. Where there is a risk of waterlogging appropriate land drainage should be incorporated into the design. If land drainage is required within the root protection area it must be designed to avoid damage to the tree and the soil structure, for example sand slitting formed by compressed soil displacement (soil pick or air spade) with the slits set radially to the tree.
- 6) If the permeable surface is to be used by construction traffic it must be protected with a temporary sacrificial surface laid onto a geotextile separator (Treetex T300) to ensure that the interstices do not become blocked and the surfaces permeability is maintained.

5.7.5 The method of construction is:

- 1) Ideally construction should be undertaken between the months of May and October when the ground is at its driest and less prone to compaction
- 2) Ground vegetation should be carefully removed with any organic material being removed from the line of the surfacing to prevent the build-up of anaerobic conditions beneath the surfacing which will damage the tree roots.
- 3) No digging should take place within the protective zone except for the careful removal of organic matter by hand tools. Any hollows must be filled with sharp sand, any digging to remove rocks or protrusions must be by hand taking care not to sever any roots over 2.5cm in diameter. Stumps should be ground out rather than excavated to prevent damage to the retained trees roots.



Photo 1- line of new road prior to the commencement of works

5.7.6 The method of providing a permeable surfacing is as follows:

- 1) Lay a Treetex T300 geotextile material directly on the existing subgrade. Overlap dry joints by 300mm



Photo 2- laying of Fibretext material onto existing subgrade

- 2) Lay and expand the cellular confinement system, Cellweb by Geosynthetics Ltd, and anchor open during infilling. As a general indication only, a depth of at least 100mm is required for domestic traffic up to approximately 3 tons. A 200 mm depth should accommodate vehicles up to approximately 8 tons. Footpaths and cycle ways generally require a depth of 75mm. Geosynthetics Ltd provide a free consultation, design and advisory service to help specify the exact depth and construction of the Cellweb system.
- 3) The three-dimensional cell structure is formed by ultrasonically welding polyethylene (perforated) strips and panels together to create a three-dimensional network of interconnecting cells. A high degree of frictional interaction is developed between infill and cell wall, increasing the stiffness of the system. The use of cellular confinement reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between

cellular confinement and traditional aggregate and grid reinforced structures demonstrate a 50% reduction in construction thickness.

Expand the Cellweb 2.56m wide panels to their full 8.1m length and pin with staking pins to anchor the cells open. Staple adjacent panels together to create a continuous mattress.

Below are illustrations of the correct stapling procedure for joining both edges and ends of panels together.

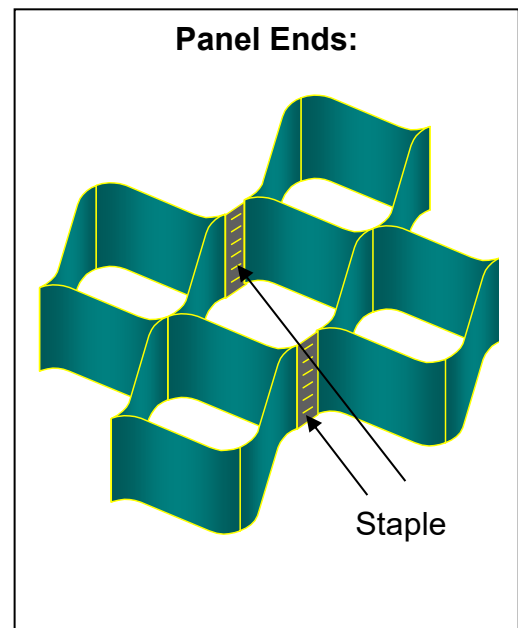
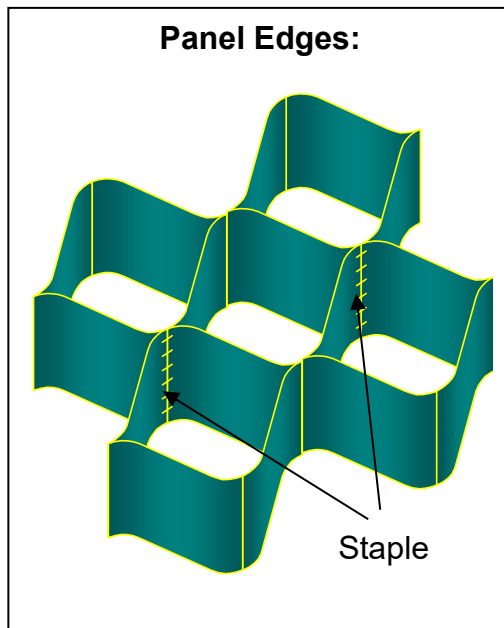


Photo 3- expanding and filling the Cellweb system

- 4) Fill the cellular confinement system with aggregate (the amount is dependent on the depth of the Cellweb employed). The aggregate should not contain any fines and be of an inert type material such as whinstone chips rather than any lime-based product. The angular particle dimensions should be 20-40mm. As most urban soils are already alkaline in nature, the use of dolomite, limestone or crushed

concrete is not suitable for this application as it can react with rain water with the potential to change the soil pH and form impenetrable layers which impede water movement and gaseous exchange



Photo 4- once filled the system can support plant to carry aggregate to the fill area

5.7.7 Final surfacing options

- **Block paving or paving slabs** –will require the laying of a second layer of Treetex T300 Geotextile separation fabric over the infilled Cellweb sections. Then lay a sharp sand or coarse aggregate (no fines) bedding layer compacted with a vibro compaction plate to the recommended depth. Place paviors as per the manufacturer's instructions using the sand or coarse aggregate as the jointing material. The use of porous blocks such as 80mm Priora by Marshalls are particularly tree friendly and allow natural rainfall to reach the rooting area.
- **In-situ concrete** – in-situ concrete forms an impermeable surface therefore falls and openings need to be provided to allow air and water to enter the soil. The necessary liner can be penetrated through the falls and openings once the concrete has set.

This can be achieved by forming 50mm diameter holes in the construction of a slab at regular spacing's of 300-600mm and backfilling the resultant holes with no fines gravel or aggregate

- **Porous tarmac and resin bonded gravels** – place 25mm surcharge of the granular material above the Cellweb system and lay either the bitumen base and wearing course or the resin bonded gravel layer
- **Loose Gravel-** Place a second layer of Treetex T300 Geotextile separation fabric over the infilled Cellweb sections. Place decorative aggregate to the required depth. A treated timber edge should be provided to restrict gravel movement
- **Grass blocks or gravel infilled blocks** - Lay a second layer of Treetex T300 Geotextile separation fabric over the infilled Cellweb sections. Lay

Turf pave sub-surface paving system infilled with 50/50 rootzone mix. Seed as required. Alternatively, the Turfpave blocks may be infilled with gravel

5.7.9 It is important that the edging material used does not encroach into the protected area and the use of conventional kerbing is not possible as the depth of excavation required for their installation will sever the tree roots.

5.7.10 Edging supports such as angled steel section, pinned edges, sleepers (pinned in place) or gabions are advised although there are a number of varying kerbing options available which do not require any excavation and could be used above the existing ground level.



Photo 5- completed road using porous tarmac surfacing

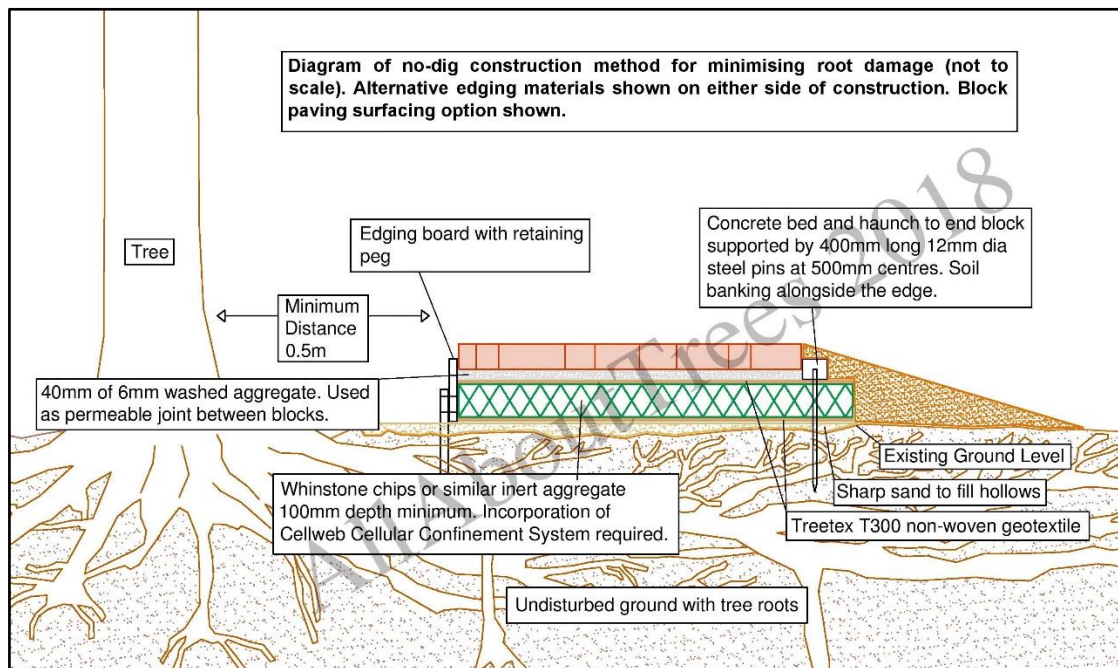


Figure 8 – Cross section of 3D cellular confinement system

5.7.11 Where the footpath, road or parking bay goes through a root protection area, it is not usually possible to erect the normal permanent protective barrier at the correct distance from the tree as access to construct the hard surfacing is a requirement. In this situation the permanent protective barrier is erected as per the TPP as near to the edge of the working area as possible.

5.7.12 This leaves a portion of the root protection area unfenced and unprotected until the surfacing is laid. As such, the no dig surfacing must either be laid as part of the initial works (i.e. day 1) or ground protection measures, as per section 5.6 of this report, will required in the area shown by the green hatching on the TPP until the surfacing has been laid.

5.8 Service Runs

5.8.1 It is assumed that the existing service runs will be exploited where possible, but if new works are required it is important that they comply with the National Joint Utilities Group (NJUG) 'Guidelines for the planning, installation, and maintenance of utility services in proximity to trees' and BS 5837:2012. The excavation of open trenches by machine will be unacceptable within the protective zone of any of the retained trees.

5.8.2 Wherever possible, services should be routed outside of any retained trees RPA. When this is not possible apparatus should be routed together in a common duct and any inspection chambers sited outside the RPA.

5.8.3 Acceptable techniques for the laying of services in order of preference are:

- **Trenchless-** by use of thrust boring or similar techniques. The pit excavations for starting and receiving the machinery should be located outside of the root protection area. To avoid root damage, the mole should run at a depth of at least 600mm.
Use of external lubricants on the mole other than water (e.g. oil or bentonite) should be avoided.

Trenchless Solutions For Installation Of Underground Services					
Method	Accuracy (MM)	Bore ^(A) diameter (MM)	Maximum subterranean length (M)	Applications	Not suitable for
Micro tunnelling	<20	100 to 300	40	Gravity-fall pipes, deep apparatus, watercourse/ roadway under crossings	Low-cost projects due to relative expense
Surface-launched directional drilling	≈100	25 to 1200	150	Pressure popes, cables including fibre optic	Gravity fall pipes, e.g. drains and sewers ^(B)
Pipe ramming	≈150	150 to 2000	70	Any large-bore pipes and ducts	Rocky and other heavily obstructed soils
Impact moling ^(C)	≈50 ^(D)	30 to 180 ^(E)	40	Gas, water and cable connections, e.g. from street to property	Any application that requires accuracy over distances in excess of 5m.

- (A) Dependent upon strata encountered
 (B) Pit-launched directional drilling can be used for gravity fall pipes up to 20m in subterranean length
 (C) Impact moling (also known as thrust-bore) generally requires soft, cohesive soils.
 (D) Substantial inverse relationship between accuracy and distance
 (E) Figures given relate to single pass: up to 300mm bore achievable with multiple passes

5.8.4 If trenchless insertion is not feasible the alternatives are detailed below in order of preference:

- **Broken trench-** by using hand dug trench sections together with trenchless techniques. It should be limited to practical access and installation around or below the roots. The trench must be dug by hand (see following comments re continuous trenching) and only be long enough to allow access for linking to the next section. The open sections should be kept as short as possible.
- **Continuous trench-** the trench is excavated by hand and retains as many roots as possible. The surface layer is removed carefully and hand digging of the trench takes place. No roots over 2.5cm diameter or clumps of smaller roots (including fibrous) should be severed. The bark surrounding the roots must be maintained. Cutting of roots over 2.5cm diameter should not be attempted without the advice of the Project Arboriculturalist.

If roots have to be cut, a sharp tool (defined as spade, narrow spade, fork, breaker bar, secateurs, handsaw, post hole shoveller, hand trowel) should be used.

Backfilling

5.8.5 Reinstatement of street works must comply with the code of practice New Roads and Streetworks Act 1991 (Specification for the reinstatement of openings in highways), but where tree roots are involved backfilling should be carefully carried out to avoid direct damage to retained roots and excessive compaction of the soil around them.

5.8.6 The backfill should incorporate an inert granular material mixed with top soil or sharp sand (not builder's sand) around the retained roots. This will allow a measure of compaction for resurfacing whilst creating an aerated zone around the roots.

5.8.7 Roots and in particular fine roots, are vulnerable to desiccation on exposure to air. The roots are at greatest risk when there are rapid fluctuations in the air temperature around them (especially winter diurnal temperatures). It is vitally important that the roots are covered with sacking whilst the trench is open. The sacking should be removed once the trench is backfilled.

6. Arboricultural Supervision

6.1 The following programme of supervision is proposed to assist in the preservation and protection of the retained trees during all aspects of the proposed development.

6.2 The supervision arrangements must be sufficiently flexible to allow for the supervision of all sensitive works as they occur. The Arboricultural Consultant's initial role is to liaise with the developer and the council to ensure that the appropriate protective measures are in place before any works commence on site and once the site is active monitor compliance with the Arboricultural conditions and advise on any tree problems that may arise.

Action	Programming	Extent of supervision	Nature of supervision
Pre-commencement meeting with site manager & Council tree officer	Before any site activity commences	Meeting on site Review any updates to the proposal Confirm extent of tree works and protective barrier position.	E-mail confirming results of meeting distributed to relevant parties.
Tree works undertaken Finalising tree protection barrier installation and other tree protection measures	Before any plant enters site or demolition/construction work commences.	Confirm position of the protective barriers and other tree protection measures have been installed and comply with the Tree Protection Plan (TPP) Provide photographs indicating completed tree protection	E-mail confirming results of meeting distributed to relevant parties.
Installation of services within root protection areas (if required)	Prior to installation of surfacing or services & during installation of surfaces and services	Communication with contractor prior to installation and during installation of surfacing and services to ensure compliance with AIA	E-mail confirming results of meeting distributed to relevant parties.
Removal of protective barriers and other tree protection measures	Once construction activities have finished	Communication with contractor for briefing before removal commences	E-mail confirming results of meeting distributed to relevant parties.

7. Conclusion

7.1 Sections of hedges 3 and 4 will need to be removed to facilitate the development proposals.

7.2 By using the protective elements dictated by British Standard 5837, no significant damage should take place to retained vegetation and tree cover should flourish in the longer term.

7.3 It is anticipated that all of the retained trees can be incorporated into the site design; however, it is vital that the ultimate size and spread of the trees should be considered when retaining trees near to the building and that shading and light penetration should also be considered when positioning the windows in the building.

7.4 It is the developer's responsibility to ensure that the details of the Arboricultural Method Statement and any agreed amendments are known and understood by all relevant site personnel. Copies of the agreed documents must be kept on site at all times and the site manager or other appropriate person must brief all personnel who could impact the trees on the specific tree protection requirements.

7.4.1 This should form part of the site induction procedure and be written into the appropriate site management documents.

For and on behalf of
AllAboutTrees Ltd

Andrew Watson FLS MICFor CBiol MRSA FARborA CEnv LCGI
-Chartered Arboriculturalist & Registered Consultant

Appendix 1

Tree No.	Species Common Name Latin Name	Height (M)	Crown Spread (M)				Trunk Diameter (MM)	No. Of Stems	Height Of Lower Canopy (M)	First Significant Branch Position (M)	Age	Physiological Condition	Structural Condition	Root Protection Area Radii (M)	Estimated Remaining Contribution (Years)	Tree Quality Assessment	Comments	Maintenance	Bat Roost Potential	Ultimate Size For Species (M)		Priority
			N	S	E	W														Height	Spread	
1	Hybrid Black Poplar <i>Populus x canadensis</i>	6.0	3.0	2.5	3.0	1.0	1000	1	1.5	3.0 E	Mature	Poor	Poor	12.0	<10	U – Unsuitable For Retention	Tree located in the adjacent property. Surveyed remotely with some dimensions estimated. Information collected in 2019 survey for adjacent property used to aid. Pollarded at 3.0m with regenerative growth now present. Tree pushing against wall – significant abrasive damage on south flank of stem. Cavity located above abrasive damage. Wall recently repaired though this is only a short term fix as the tree is still present and insufficient space has been provided for incremental growth. Further failure of the wall is foreseeable.	It is recommended that the tree is felled to ground level and herbicide applied to the stool to prevent further regenerative growth. Alternatively, one could apply herbicide and allow the tree to die in situ. The above works should only be undertaken with express permission of the tree owner. If the tree is retained, it will be adequately protected by the position of the existing brick boundary wall, as well as the protective barrier as shown by the blue line on the TPP.	Low	25	18	A
2	Plum <i>Prunus domestica</i>	6.5	2.0	1.5	2.0	1.5	130, 110	2	2	2N	Middle aged	Poor	Fair	2.0	10+	C - Low	Tree located in the adjacent property. Surveyed remotely with some dimensions estimated. Information collected in 2019 survey for adjacent property used to aid. Poor shape & form. Ivy on tree. Stem divides below 1.5m. Included bark present in fork.	This tree is retainable and will be adequately protected by the existing brick boundary wall. No works required.	None	15	12	-
3	Plum <i>Prunus domestica</i>	6.5	1.0	1.5	1.5	1.0	110	1	2	2N	Middle aged	Fair	Fair	1.3	20+	C - Low	Tree located in the adjacent property. Surveyed remotely with some dimensions estimated. Information collected in 2019 survey for adjacent property used to aid.	This tree is retainable and will be adequately protected by the existing brick boundary wall. No works required.	None	15	12	-

Tree No.	Species Common Name Latin Name	Height (M)	Crown Spread (M)				Trunk Diameter (MM)	No. Of Stems	Height Of Lower Canopy (M)	First Significant Branch Position (M)	Age	Physiological Condition	Structural Condition	Root Protection Area Radii (M)	Estimated Remaining Contribution (Years)	Tree Quality Assessment	Comments	Maintenance	Bat Roost Potential	Ultimate Size For Species (M)		Priority
			N	S	E	W														Height	Spread	
																	Multiple stems above 1.5m.					
4	Plum <i>Prunus domestica</i>	6.0	1.5	1.5	1.0	1.5	120	1	0	0N	Young	Fair	Fair	1.4	20+	C-Low	Tree located in the adjacent property. Surveyed remotely with some dimensions estimated. Information collected in 2019 survey for adjacent property used to aid. Suckers around stem base.	This tree is retainable and will be adequately protected by the existing brick boundary wall. No works required.	None	15	12	-
5	Sycamore <i>Acer pseudoplatanus</i>	14.0	4.0	5.5	6.0	5.5	630	1	6	4S	Middle aged	Fair	Fair	7.6	20+	B-Moderate	Tree located in the adjacent property. Surveyed remotely with some dimensions estimated. Information collected in 2019 survey for adjacent property used to aid. Ivy on tree. Suckers on lower stem. Stem divides above 1.5m. Apertures on stem at sites of lost branches.	This tree is retainable and will be adequately protected by the existing brick boundary wall. Ground protection measures required in the area shown by orange hatching on the TPP. No-dig surfacing required in the area shown by the green hatching on the TPP. No works required.	Low	22	16	-

Tree No.	Species	Height (M)	Trunk Diameter (MM)	Age	Overall Condition	Root Protection Area Radii (M)	Estimated Remaining Contribution (Years)	Tree Quality Assessment	Comments	Maintenance	Bat Roost Potential	Priority
	Common Name											
Groups												
1	Sycamore, holly	<4	<100	Young	Fair	1.2	20+	C - Low	Group located in the adjacent property. Surveyed remotely with some dimensions estimated. No major visible defects.	This group is retainable and will be adequately protected by the existing brick boundary wall. No tree works required at the present time.	None	-
2	Silver birch, tree cotoneaster, cypress, elder, wild cherry, Photinia	<7	<150	Young to semi mature	Fair	1.8	20+	C - Low	Group located in the adjacent property. Surveyed remotely with some dimensions estimated. No major visible defects.	This group is retainable and will be adequately protected by the existing brick boundary wall, as well as the protective barrier as shown by the blue line on the TPP.	None	A

Tree No.	Species Common Name	Height (M)	Trunk Diameter (MM)	Age	Overall Condition	Root Protection Area Radii (M)	Estimated Remaining Contribution (Years)	Tree Quality Assessment	Comments	Maintenance	Bat Roost Potential	Priority
										Ground protection measures required in the area shown by orange hatching on the TPP. Prune oversailing branches back to provide 2.0m clearance from the proposed dwelling.		
3	Cherry laurel, Osier	<3	<100	Young to semi mature	Fair	1.2	20+	C - Low	Group located in the adjacent property. Surveyed remotely with some dimensions estimated. No major visible defects.	This group is retainable and will be adequately protected by the existing brick boundary wall. No tree works required at the present time.	None	-
Hedges												
1	Cherry laurel	<2.5	<70	Young	Fair	0.8	20+	C – Low	Hedgerow defining site boundary. Ivy covered collapsed fence on site side making hedge appear much larger than it is. No major visible defects.	This hedge is retainable and will be adequately protected by the position of the protective barrier as indicated by the blue line on the TPP. Trim to shape and tidy as required.	None	C
2	Hawthorn, wild privet, sycamore, ash, rose, ivy	<3	<400	Young to mature	Fair	<5.0	10+	C – Low	Hedgerow defining the site boundary. Not managed in some time allowing establishment of trees, in hedgerow and directly adjacent. Hedge in process of restoration. Stems beyond hedge line removed and those in the hedge reduced to match the remainder. It is assumed an additional fence was previously present, preventing access and allowing establishment (see hedge 3). Assumed to be planted hawthorn with others as self-sets. Hawthorn in hedge generally below 120mm.	This hedge is retainable and will be adequately protected by the position of the protective barrier as indicated by the blue line on the TPP. Ground protection measures required in the area shown by orange hatching on the TPP. Trim to shape and tidy as required.	Low	C
3	Hawthorn, sycamore	<8.5	<250	Young to mature	Fair	<3.0	10+	C – Low	Continuation of hedge 2 though surveyed as hedge 3 due to difference in structure. This section of the boundary has not yet been restored to a single hedge line. It is assumed the process is ongoing and this hedge will be managed to match hedge 2. Fence present approximately 1.8m from hedge creating a no mans land where access is difficult, restricting ability to maintain the hedge. Hawthorn to 5.0m and 150mm diameter. Sycamore up to 8.5m with stems below 250mm. Ivy established in sycamores to east of hedge.	This hedge is retainable and will be adequately protected by the position of the protective barrier as indicated by the blue line on the TPP. Remove sycamore stems growing in the no man's land (nine in total) to reclaim the space. Of these 9, 4 are showing dieback in the canopy and have life expectancies below 10 years. The remainder can be reduced, trimmed to shape and tidy, and incorporated into the hedge.	Low	A
4	Hawthorn	4.0	120	Middle aged to mature	Fair	1.4	10+	C – Low	Hedgerow defining field boundary and extending across the frontage of the study area.	Remove western most individual to allow formation of new access and improve vision splay.	Low	A

Tree No.	Species Common Name	Height (M)	Trunk Diameter (MM)	Age	Overall Condition	Root Protection Area Radii (M)	Estimated Remaining Contribution (Years)	Tree Quality Assessment	Comments	Maintenance	Bat Roost Potential	Priority
									2x ivy smothered hawthorn on site boundary. Limited ability to provide any meaningful comment on these trees due to dense ivy. Service wires over sail hedge. Minor encroachment over the adjacent path. No recent management.	The remainder of the hedge is retainable and will be adequately protected by the position of the protective barrier as indicated by the blue line on the TPP. Trim to shape and tidy as required.		

Appendix 2(I)

Glossary of Terms

- 1 Reference number:** An individual identifying number
- 2 Species:** Species identification is based on visual field observations and lists the common name. In some cases the botanical name will be used where there is no common alternative. On in-depth surveys the botanical name only may be used
- 3 Height:** Height is estimated to the nearest metre. On computerised surveys this may be within a range of heights. When measured height is required, a clinometer is used to measure to the nearest metre
- 4 Diameter:** Trunk diameter measured at 1.5 metres from ground level to the nearest centimetre. In some surveys this is indicated as a range
- 5 Spread:** Measurement of canopy from the trunk to the nearest metre in four directions, North, South, East, and West in metres
- 6 Lower crown Clearance:** Height in metres of crown clearance above adjacent ground level
- 7 Age:**

Either an estimate (or statement if accurately known) of the age of the tree, classified as:

 - Y** = Young tree, established tree usually up to one third of expected ultimate height & spread
 - MA** = middle aged, usually between one third and two thirds of ultimate height & spread
 - M** = Mature, more or less at full height but still increasing in girth & spread
 - OM** = Over mature, grown to full size and becoming senescent,
 - V** = Veteran tree, individuals surviving beyond the typical age range for the species
- 8 Physiological Condition:**

Good = Healthy tree with good vitality,
 Fair = Moderate health and vitality normal or slightly less for species and age
 Poor = Poor shape or form - signs of decline in crown, may have structural weakness.
 Dead = dead or dying tree
- 9 Structural Condition:**

Good = No visible structural defects
 Fair = Only minor structural defects
 Poor = Defects which may need to be rectified or regularly monitored
 Remove = Severe defects which may result in immanent failure or collapse
- 10 Management Recommendations:** General comments on the condition of the tree or group and any action required. potential for wildlife habitats
- 11 Estimated Remaining Contribution:**

Safe Useful Life Expectancy (SULE): in some cases the age ranges are modified

Short: 0 – 10years	Medium: 10– 20 Years
Intermediate: 20-40	Long: 40 + years
- 12 Tree Quality:** Assessment of tree quality see following cascade chart for details
- 13 Priority:**

A - Works to achieve an acceptable level of safety or required to facilitate the development
 B - Works to achieve higher levels of arboricultural management.
 C - To improve the aesthetic appearance.
- 12 Ultimate Size:** Taken from Arboriculture Research Note 8490ARB or NHBC Standards Chapter 4.2 as appropriate The Normal Ultimate Height in an Urban Situation in metres. Ultimate spread of the Crown in metres.
- 13 Root Protection Area:** The distance at which the protective barrier should be erected measured in radii from the centre of the trunk in metres.

- 14 Pruning:** Pruning shall be defined as the removal of living or dead parts of a plant by the Contractor. Such parts may be soft growth, twigs, branches, limbs or sections of the tree trunk. The cut material may vary from small to large in size.
- 15 Crown Cleaning:** Cleaning out is defined as the removal of dead, dying or diseased branchwood, broken branches or stubs left from previous tree surgery operations (see also 16 Deadwooding) together with all unwanted objects, which may include ivy (if specified) and/or other climbing plants, nails, redundant cable bracing, rope swings, tree houses and windblown rubbish from the tree, and any such debris from any cavities within the tree.
- 16 Deadwood Removal:** Dead-wooding shall be defined as the removal of all dead and dying branches and limbs from the tree.
- 17 Crown Lifting:** Crown lifting shall be defined as the removal of all soft growth and branches or parts thereof which are below or which extend below the height specified in the tender documents. It is recognised that the resultant canopy base might not be one single level but might be stepped to allow for different clearances, for example where a tree overhangs both the footway and the road where different height clearances are required.
- 18 Crown Reduction:** Crown reduction shall be defined as the reduction of the complete outline dimension of the canopy, from the tips of limbs and branches to the main trunk, by pruning growth to an acceptable branch, twig or but to leave a flowing silhouette.

Appendix 2(II) Cascade Chart For Assessing Tree Quality

Category and definition Trees to be considered for retention	Criteria – Subcategories			Identification on plan
	1. Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation	
<u>Category High = A</u> 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 of 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)	Green
<u>Category Moderate = B</u> 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	Blue
<u>Category Low = C</u> Trees of low quality with an estimated remaining life expectancy of at least 10 years; or young trees with a stem diameter below 150mm	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 benefits	Yellow
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			
<u>Category = U Trees unsuitable for retention</u> Those of 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 U category trees (i.e. 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 (e.g. Dutch elm disease) or very low quality trees suppressing adjacent trees of better quality - Habitat reinstatement may be appropriate (e.g. U category trees used as a bat roost- installation of bat box in nearby tree)			Red



AllAboutTrees

Arboricultural & Ecological Consultancy
Chartered Arboriculturalists & Environmentalists

The Old School
Quarry Lane
Butterknowle
Co Durham
DL13 5LN

Telephone 0191 3739494 / 01388 710481

Email – info@allabouttrees.co.uk
www.allabouttrees.co.uk

Registered in England & Wales No. 5301671
Registered Office: The Old School, Quarry Lane, Butterknowle, Co Durham
DL13 5LN