ARBTECH

BS5837:2012
Trees in relation to design, demolition and construction – Recommendations

Arboricultural Method Statement

Discharge of 2018/0577/FUL Condition 12

Farrington Park

Farrington Park Golf Club

Marsh Lane

Farrington Gurney,

BS39 6TS

14 April 2020

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Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 08/11/2017 from Bryn Hillier to attend Farrington Park, Marsh Lane, Farrington Gurney, BS39 6TS (site) to undertake an arboricultural survey to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a schedule of trees, tree constraints plan, arboricultural impact assessment, arboricultural method statement and tree protection plan.

The production of this method statement and the accompanying tree protection plans have been requested in response to pre-commencement condition No.12 of the planning approval 2018/0577/FUL from Mendip District Council.

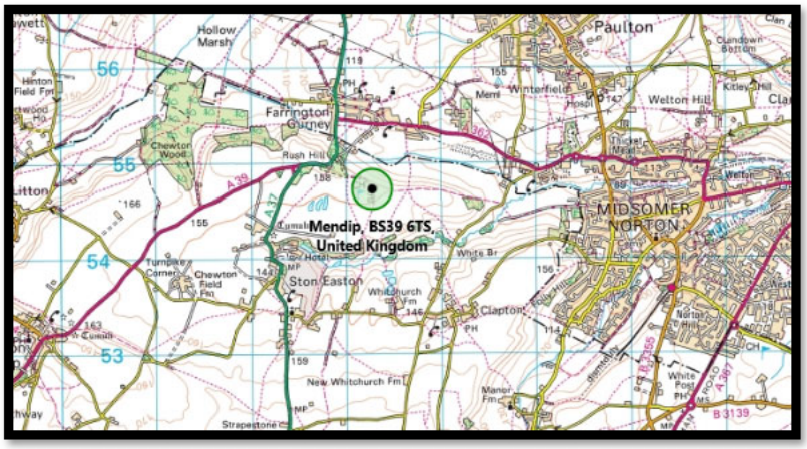
Executive Summary

This report describes the required tree works, protective measures and methodologies that will be observed during the development at Site to achieve the approved development and ensure the longevity of retained individual trees and groups of trees within and adjacent to the site.

Trees within the site were surveyed; using a methodology guided by British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' ("BS5837").

Subsequently, this report has been produced, balancing the layout of the proposed development against the competing needs of trees. This report comprises all of the requisite elements of an arboricultural implications assessment, method statement and supporting plans.

Figure 1: OS Map (Bing Maps)



Checklist for Submission to Local Planning Authority

Tree survey	✓
Tree constraints plan	✓
Arboricultural impact assessment	N/A
Arboricultural method statement	✓
Tree protection plan	✓

This report and its appendices follow precisely the strategy for arboricultural appraisal intended to provide local planning authorities with evidence that trees have been properly considered throughout the development process.

It is the conclusion of this report that the overall quality and longevity of the amenity contribution provided for by the trees and groups of trees within and adjacent to the site will not be adversely affected as a result of the local planning authority consenting to the proposed development. It is considered that any issues raised in this report, or beyond the scope of it can be dealt with by planning conditions.

General Information

Client: Farrington Park

Site: Farrington Park, Marsh Lane, Farrington Gurney, BS39 6TS.

Brief proposal description: Proposed works to a golf club including new academy course, new driving range, two new golf holes to North-West, front 5 holes converted to 9-hole course, new spa and accommodation, new touring caravan park and amenities, conversion of existing driving range to accommodation and proposed car park extension.

Planning application reference: 2018/0577/FUL

Table 1: Documents referred to.

Document	Reference No.
Topographical Surveys:	
Proposed New Holes - Topo Survey	FPGC020
Proposed 3 Holes - Topo Survey	FPGC021
Front 5 - Topo Survey	FPGC022
Proposed layout drawings	
Academy Course Proposed Site Plan	FPGC015
Proposed Driving Range – Proposed Site Plan	FPGC007A
Proposed Two Additional Holes Site	FPGC0009
Proposed Site Plan Front 5	FPGC017
Driving Range Conversion (New Spa and Accommodation) – Proposed Site Plan	FPGC004
New Touring Caravan Park and Amenities – Proposed Site Plan	FPGC004
Proposed Carpark Extension - Proposed Site Plan	FPGC004
British Standard 5837:2012	"BS5837"
Tree Protection Plan	Arbtech TPP 01-05

Tree Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by Aran Nearn on 22nd November 2017

A total of 40No. individual trees, 12No. groups of trees and 4No. collections of trees were surveyed Details for each of the trees surveyed are provided in the Schedule of Trees (see **Appendix 1**)

Table 2: Documents upon which this tree survey has been based.

Document	Originator	Reference Number	Title
Proposed New Holes - Topo Survey	Oval Homes	FPGC020	Topographical Survey
Proposed 3 Holes - Topo Survey	Oval Homes	FPGC021	Topographical Survey
Front 5 - Topo Survey	Oval Homes	FPGC022	Topographical Survey

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and decay detection equipment were not employed, though may form part of the survey's management recommendations. Measurements were taken using specialist tapes, laser and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order ("TPO"), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix 1), Tree Survey Report and Tree Constraints Plan.

Arboricultural Method Statement

The purpose of this method statement is to demonstrate how any aspect of the development that has potential to result in loss or damage to a tree may be implemented and provide an adequate level of protection for those trees that are to be retained during the proposed works.

Details of key site personnel, including site / project manager will be submitted to the Council's Tree Officer prior to the commencement of site works.

This method statement is to be approved and agreed to in writing by all key personnel prior to the commencement of site works.

No site personnel are to be present and no demolition, site clearance, building work or delivery of materials is to occur until the protective measures are in accordance with this method statement and the Tree Protection Plan drawing number **Arbtech TPP 01-05**.

Protective measures should be in accordance with this method statement and the Tree Protection Plan; drawing number **Arbtech TPP 01-05** will remain unaltered and in situ, unless otherwise specified, for the entire duration of the construction.

Table 3: Documents upon which this assessment has been based.

Document	Originator	Reference Number	Title
Proposed New Holes - Topo Survey	Oval Homes	FPGC020	Topographical Survey
Proposed 3 Holes - Topo Survey	Oval Homes	FPGC021	Topographical Survey
Front 5 - Topo Survey	Oval Homes	FPGC022	Topographical Survey
Academy Course Proposed Site Plan	Oval Homes	FPGC015	Proposed Site Plan
Proposed Driving Range – Proposed Site Plan	Oval Homes	FPGC007A	Proposed Site Plan
Proposed Two Additional Holes Site	Oval Homes	FPGC0009	Proposed Site Plan
Proposed Site Plan Front 5	Oval Homes	FPGC017	Proposed Site Plan

Document	Originator	Reference Number	Title
Driving Range Conversion (New Spa and Accommodation) – Proposed Site Plan	Oval Homes	FPGC004	Proposed Site Plan
New Touring Caravan Park and Amenities – Proposed Site Plan	Oval Homes	FPGC004	Proposed Site Plan
Proposed Carpark Extension - Proposed Site Plan	Oval Homes	FPGC004	Proposed Site Plan

Tree Works

For reasons of public safety, all tree works referred to herein must be carried out prior to any site personnel commencing works or any building materials being delivered.

Table 4: Summary of Tree Works.

No.	Species	Works	Category
G4	Various	Partial removal of group: fell trees to ground level; grind out stumps	C12
G5	Various	Partial removal of group: fell trees to ground level; grind out stumps	B12
G7	Various	Partial removal of group: fell trees to ground level; grind out stumps	B12
G8	Various	Partial removal of group: fell trees to ground level; grind out stumps	C12
G9	Various	Partial removal of group: fell trees to ground level; grind out stumps	B12
G10	Various	Fell trees to ground level; remove stumps	C12
G11	Various	Partial removal of group: fell trees to ground level; grind out stumps	C12
G12	Various	Partial removal of group: fell trees to ground level; grind out stumps	C12
8	Field maple	Fell tree to ground level; remove stump.	U
10	Common oak	Fell tree to ground level; remove stump.	U
16	Common oak	Fell tree to ground level; remove stump.	U
32	Common oak	Prune: Crown lift to achieve 4m over the proposed tee.	B12
33	Field maple	Prune: Crown lift to achieve 4m over the proposed tee.	B12
34	Common oak	Fell tree to ground level; remove stump.	B12

Notes

All tree work is to be undertaken in accordance with British Standard BS 3998:2010, Recommendations for tree work. All arising's are to be removed and the site is to be left as found. Care is to be taken of the ground around retained trees to make sure that it does not become compacted as a result of tree surgery operations. No equipment or vehicles such as timber Lorries, tractors, excavators or cranes shall be parked or driven

beneath the crowns of any retained trees, to prevent subsequent compaction and root death.

Tree removal

A tree should be felled in one piece only when there is no significant risk of damage to people, property or protected species (see Annex A).
Where restrictions (e.g. lack of space, buildings, other features, land ownership or use, or other trees which are to be retained) cannot be overcome, trees should be dismantled in sections.
This also applies where a tall stump is being retained but where branches are to be removed/pruned.
Extensively decayed trees can be unpredictable when they are being felled, and special precautions should therefore be taken, such as the use of a winch to guide the direction of fall.

Stump removal – stump grinding

Stump grinding should be to a minimum of 300mm deep or to extend through the base of the stump leaving the major roots disconnected if the intention is to reduce the potential for the spread of Honey fungus.
The grinding residue should be treated as arising's and removed from site.
NOTE Mechanical destruction of a stump by stump grinding is less disruptive to the site than digging out.
The hole left by stump removal, should be filled with soil or other material. The filling should be appropriate for future site usage, and for any surface treatment that is to be installed.
Where future plant growth is desired, the backfill material should be firmed in 150 mm layers by treading, avoiding excessive compaction and destruction of the soil structure.

Stump removal - digging

Stump removal by digging out should include disposal/utilisation of woody material (see Clause **13**).
NOTE Whether done by hand or machine, digging out can cause severe disturbance of the site.
Where possible, when winching out a stump, a ground or other type of anchor should be used rather than a tree to be retained. If there is no alternative to using such a tree as an anchor, appropriate protective measures should be adopted.

After stump removal

The hole left by stump removal, whether by digging out or grinding, should be filled with soil or other material. The filling should be appropriate for future site usage and for any surface treatment that is to be installed.
Where future plant growth is desired, the back-fill material should be firmed in 150mm layers by treading, avoiding excessive compaction and destruction of the soil structure.

Protected Species (general informative for tree works)

Conservation Status of British Bats

The general consensus in Britain and Europe is that virtually all bat species are declining and vulnerable. Our understanding of population status is poor as there is very little historical data for most bat species. Certain species, such as the horseshoe bats, are better understood and have well documented contractions in range and population size.

Given this general picture of decline in UK Government within the UK Biodiversity Action Plan has designated five species of bats as priority species (greater and lesser horseshoe bats, barbastelle, Bechstein's and pipistrelle). These plans provide an action pathway whereby the maintenance and restoration of the former populations' levels are investigated.

Legal Status of British Bats

Given the above position all British bats as well as their breeding sites and resting places enjoy national and international protection.

All bat species in the UK are fully protected under the Wildlife and Countryside Act 1981 (as amended) through inclusion in Schedule 5. All bats are also listed on Annex IV (and some on Annex II) of the EC Habitats Directive giving further, European protection. Taken together the act and Conservation of Habitats and Species Regulations 2012 (as amended)* make it an offence to; intentionally or deliberately kill, injure or capture (take) bats;

- Deliberately disturb bats (whether in a roost or not);
- Damage, destroy or obstruct access to bat roosts;
- Possess or transport a bat or any part of a bat, unless acquired legally;
- Sell, barter or exchange bats, or parts of bats

The legislation although not strictly affording protection to foraging grounds does protect roost sites. Bat roosts are protected at all times of the year whether or not bats are present. Any disturbance of a roost due to development must be licenced.

**the regulations that delivered by the UK's commitments to the Habitats Directive.*

Breeding birds

All nesting birds are protected under the Wildlife and Countryside Act (as amended) 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Furthermore, a number of birds enjoy further protection under that Act and are listed on Schedule 1 of the Act. These further protected birds are also protected from disturbance and it may be necessary to operate “no-go” buffer zones around such nests – typically out to 100m.

Planning policy guidance on the treatment of species identified as priorities under the biodiversity action programme suggests that local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents and should ensure that they are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. The conservation of these species should be promoted through the incorporation of beneficial biodiversity designs within developments.

Sequencing of works

A logical sequence of events is to be observed and shall be phased as follows.

Table 5: Sequence of Events

Stage	Event
Stage 1	Carry out tree works as specified within the summary of tree works
Stage 2	Installation of protective measures in accordance with the approved tree protection plan/s
Stage 3	Pre-commencement site meeting
Stage 4	Site set up
Stage 5	Undertake and complete construction works
Stage6	Undertake external landscaping works outside of the construction exclusion zones
Stage 7	Removal of all machinery and materials form site
Stage 8	Dismantle and removal of protective measures
Stage 9	Undertake external landscaping works within the construction exclusion zones
Stage 10	Sign off from project arboriculturist

Protective Measures

Protective measures are to be installed immediately following the completion of the tree works and are to be sited and aligned in accordance with the tree protection plan (**Arbtech TPP 01-05**) prior to the commencement of any works or the introduction of any machinery or material to site.

Upon installation of the protective measures around the retained trees the project arboriculturist will visit the site to inspect and document the position and specifications of the protective measures.

In the event that the protective measures and their positions do not comply with this arboricultural method statement document number **Arbtech AMS 01** (14 April 2020) and tree protection plan drawing number **Arbtech TPP 01-05**, the project arboriculturist shall inform the client and fencing contractor so adjustments can be made.

When the protective measures comply with document number **Arbtech AMS 01** (14 April 2020) and tree protection plan drawing number **Arbtech TPP 01-05**, the project arboriculturist will sign off the protective measures in writing to the client and will send a copy to the fencing contractor, site agent and local authority tree officer.

If the protective measures become damaged or there is any accident or emergencies involving trees, these areas are to be cordoned off immediately with high visibility plastic mesh fencing. The site agent is to photograph and document the damage and inform the project arboriculturist immediately after the incident and all work within in this area is to cease until the project arboriculturist has made a visit to the site. Any and all damaged sections of protective measures shall be replaced within 48 hours of the initial incident.

The protected area is sacrosanct and will not be invaded by the storage of materials, mixing of concrete or other products, accessed by machinery, equipment or pedestrians or in any other way disturbed by construction activity.

The protective measures will remain in place until the completion of stage 7 (see Sequencing of Works), there after they will be carefully dismantled only with the agreement of the project arboriculturist and or the local authority tree officer.

The existing site boundary measures are to be retained for the duration of the development. If for any reason the existing boundary measures are not to be used protective barrier fencing is to be installed along the line of the boundaries and is only to be removed upon the written permission of the project arboriculturist or LPA tree officer upon the completion of the development or immediately prior to the installation of the permanent boundary measures.

Proposed hard surfacing is to be installed immediately to act as ground protection, where it is decided that this is not a viable option these areas are to be covered by ground boarding as designed by the project engineer to cope with any likely loading.

No equipment, vehicles or plant shall operate beyond the tree protection fencing. Booms, hoists and rigs should be kept as far away from the canopies of retained trees at all times. Where it is necessary to operate within 5m of a tree canopy, it will be done with the utmost caution and under the control of a banks man. Damage to trees will be considered a breach of this tree protection plan, which in turn could be a breach of planning permission.

Protective Barrier Fencing

Protective barrier fencing should be appropriate for the intensity and proximity of the development to protect trees where development activity is in close proximity.

Two specifications for protective fencing will be employed on the site. Individual. Category 'B' trees are protected 2m tall welded mesh panels will form the basis of the structure (Specification 1 - **Figure 3**). Where category 'C' trees or large groups, in areas where workspace is not limited, less robust fencing will denote the construction exclusion zone (Specification 2).

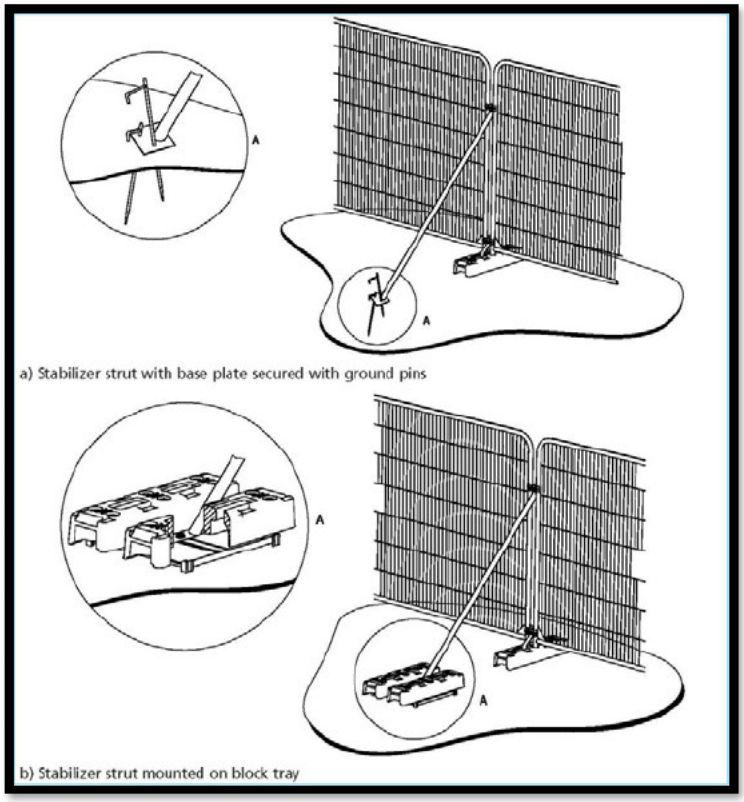
Specification 1:

To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabiliser struts, which should be attached to a base plate and secured with ground pins.

Specification2:

To comprise of heavy-duty orange safety barrier mesh 1m tall secured every 2m using 1.3mx8mm road pins.

Figure 2: Fencing specification 1 -Welded mesh panels with above-ground stabilising systems.



Signage denoting the words "*Construction Exclusion Zone*" at 5.0m intervals will be fixed to all protective barrier fencing (See **Appendix 2**).

Protective fencing is to be removed ONLY with the written permission of the arboricultural consultant and approval of the local planning authority (LPA).

Ground protection

Where existing hard surface exists within RPAs this may be retained to act as passive ground protection within RPAs.

Where proposed hard surface is to be constructed within RPAs this may be utilised as ground protection and should be installed prior to any other site works. If this is not to be installed until later in the program of works, temporary ground boarding will be installed until replaced by the proposed surface.

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.

Where it is determined by the project engineer that the any hard surfacing is not adequate protection from any expected loading, ground boarding is to be installed to the engineer's specification on top of the hard surfacing within the root protection areas of retained trees.

Where machinery will be stored or used from the ground boarding within the RPAs of the retained trees an impervious barrier and or bunding to prevent oils, fuel or chemicals is to be installed to prevent leaching into the soil within or adjacent to the RPAs.

Note The ground protection might comprise of one of the following:

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100mm depth of woodchip), laid onto a geotextile membrane;
b) for pedestrian-operated plant up to a gross weight of 2t, proprietary inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip), laid onto a geotextile membrane;
c) for wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. proprietary system 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.

For any situations other than those described in a) or b) (as above), the ground boarding is to be designed by a suitably qualified person to an engineering specification in conjunction with arboricultural advice, to be suitable of supporting the expected loading to be placed upon it.

In all cases, the objective of the ground boarding is to avoid compaction of the soil beneath, so that tree root functions remain unimpaired.

Due to the various sizes of demolition and construction plant available and the potential requirements for material storage within the site the final specifications for the ground boarding is to be designed and supplied to the LPA tree officer for their approval by the project engineer a minimum of ten (10) working days before its installation.

Demolition

Prior to the demolition of the existing site features, all tree works are to have been completed, tree protection measures are to be in place as per Arbtech Consulting Ltd. tree protection plan document number **Arbtech TPP 01-05** and have been signed off and a copy of the demolition method statement has been submitted and approved by the project arboriculturist and LPA tree officer, to ensure that there is no conflict with this method statement.

All demolition work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturist.

Existing Underground Services

Existing services within the site should be retained where ever possible. Where existing services within RPAs require upgrading, the upmost care must be taken to minimise disturbance, and where feasible trenchless techniques are to be employed, and only where necessary should open excavations be considered.

Construction

Prior to the construction of the proposed development, a copy of the construction method statement should have been submitted and approved by the project arboriculturist and LPA tree officer, to ensure that there is no conflict with this method statement.

All excavations and construction work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturist.

New Academy Course

Tree protection fencing will be installed as per tree protection plan **Arbtech TPP 03** prior to any construction works commencing.

A new footpath through group G3 is proposed. This will be achieved using a no-dig subbase and porous surface treatment as detailed in **Hard Surfacing** below.

There will be no level changes within the RPAs of retained trees.

New Driving Range

Tree protection fencing will be installed as per tree protection plan **Arbtech TPP 02** prior to any construction works commencing.

There are no trees impacted directly by the proposed development. As such, no specialist methodology is required.

There will be no level changes within the RPAs of retained trees.

Two New Golf Holes to NW

Tree protection fencing will be installed as per tree protection plan **Arbtech TPP 01** prior to any construction works commencing.

Trees 32 and 34 are impacted by the position of the Tees. Any level changes required within RPAs of these trees will be achieved using **manual excavation** techniques.

There will be no other level changes within the RPAs of other retained trees.

Conversion of Front Five Holes to Nine Holes

Tree protection fencing will be installed as per tree protection plans **Arbtech TPP 03-05** prior to any construction works commencing.

Tree 14 is impacted by the position of the Tees and tree 23 the Green. Any level changes required within RPAs of these trees will be achieved using **Manual Excavation** techniques.

There will be no other level changes within the RPAs of other retained trees.

New Spa and Accommodation

Tree protection fencing will be installed as per tree protection plan **Arbtech TPP 05** prior to any construction works commencing.

A new vehicular surface within the RPA of tree 27 is proposed. This will be achieved using a no-dig subbase and porous surface treatment as detailed in **Hard Surfacing** below.

There will be no level changes within the RPAs of retained trees.

New Touring Caravan Park and Amenities

Tree protection fencing will be installed as per tree protection plan **Arbtech TPP 05** prior to any construction works commencing.

New hard surface is proposed within the RPAs of trees 26 and 45. This will be achieved using a no-dig subbase and porous surface treatment as detailed in **Hard Surfacing** below. Any minor level changes required for the installation of the pitches within these RPAs will be achieved using **Manual Excavation** techniques.

Any service runs within RPAs will also be achieved using the methodology described at **Services**.

There will be no other level changes within the RPAs of retained trees.

Proposed Car Park Extension

Tree protection fencing will be installed as per tree protection plan **Arbtech TPP 05** prior to any construction works commencing.

A new vehicular surface within the RPA of tree 27 is proposed. This will be achieved using a no-dig subbase and porous surface treatment as detailed in **Hard Surfacing** below.

There will be no level changes within the RPAs of retained trees.

Hard Surfacing

New hard surfacing to be situated within the RPAs of retained trees is to be designed in conjunction with arboricultural advice to accommodate the likely loading. The design should not require excavation however the removal of the turf layer or other surface vegetation may be acceptable if necessary, but ideally the construction will be situated entirely above the existing ground level.

Prior to the installation of the hard surfacing within the RPAs vegetation may be removed using hand tools or sprayed with an approved non residual herbicide such as 'Glyphosate'.

NB: The use of a multi-dimensional confinement system will affect the finished level of the hard surfacing by raising the levels and needs to be taken into consideration when designing foundations and setting the finished floor level of adjacent buildings.

Multi-dimensional confinement system

If a multi-dimensional confinement system (such as CellWeb^{TM} or similar) is to be used it is to be laid entirely above the existing soil surface over a geo textile membrane and or a bi-axel geo-grid (such as tensar TriAx). Prior to this any small hollows on the surface may be filled with clean sharp sand (not builders' sand) to a maximum depth of 150mm. The 'CellWeb' is to be backfilled by hand with no-fines aggregate of 20mm – 30mm. The use of an excavator/machinery to fill the confinement system may be possible at the discretion of the project arboriculturist.

The area of 'CellWeb' shall be covered with a permeable geotextile fabric and the finished wearing course laid on top. The wearing course shall be permeable to both water and air to comply with 'SUDS' regulations.

Edge supports of an appropriate size and strength should be set above ground level and should be secured with either haunching or steel pins driven into the ground. The outer edge of the supports may be banked up with clean topsoil.

Figure 3: Typical cross section for multi-dimensional confinement system using kerb edging

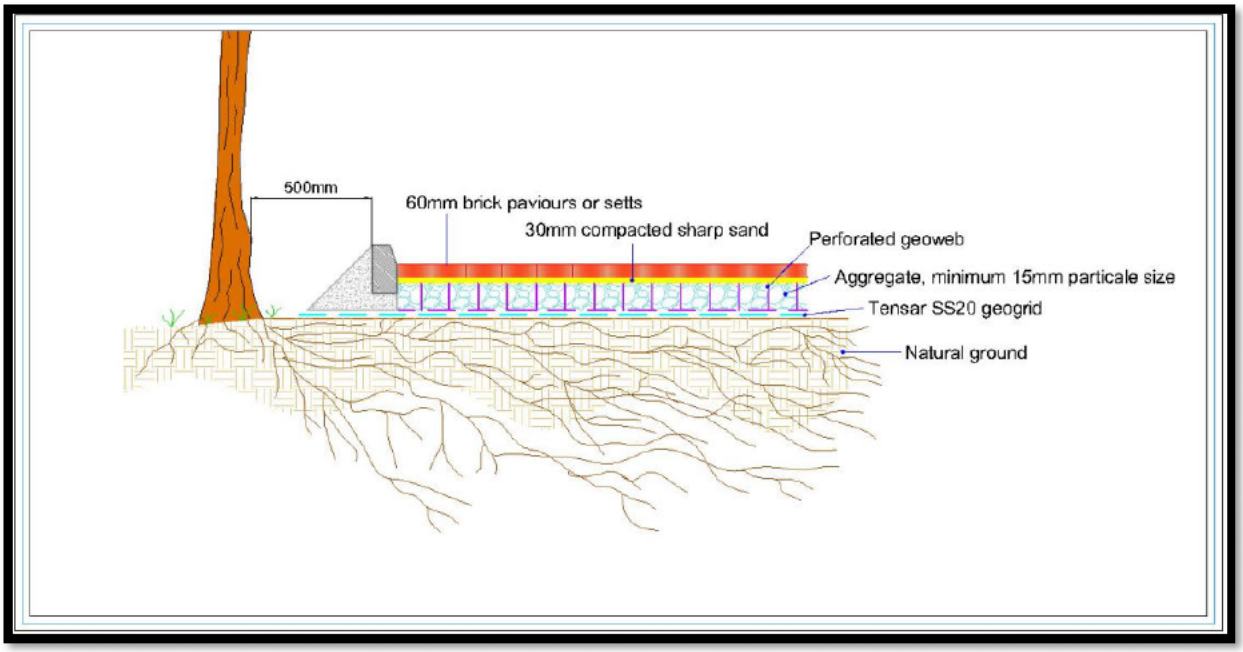
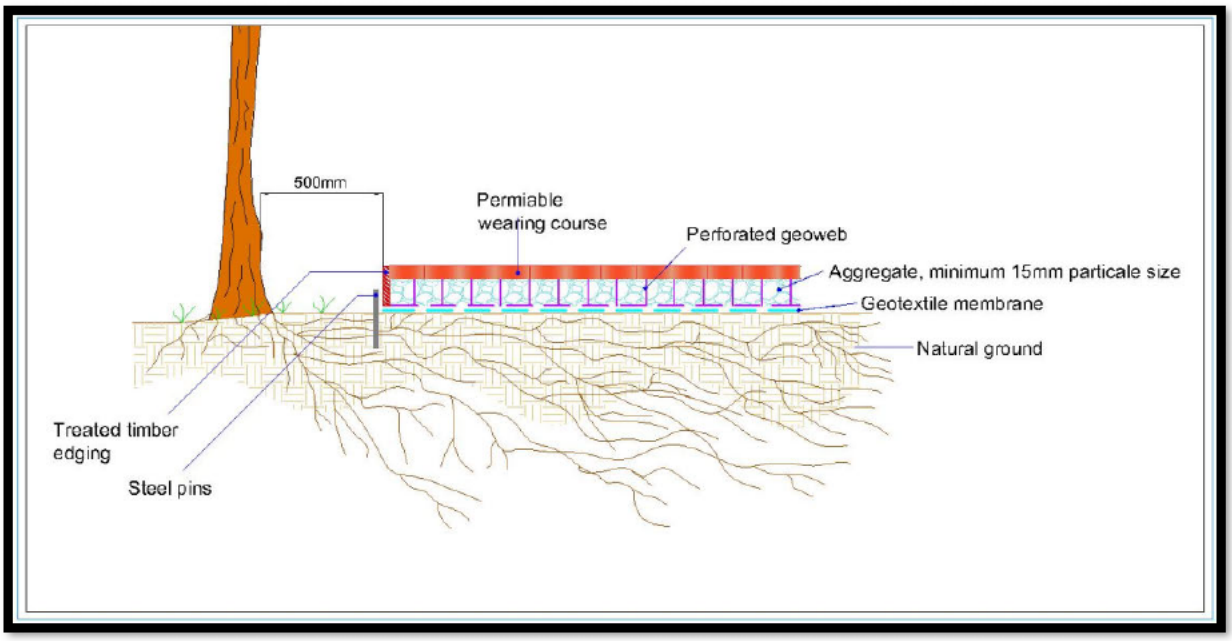


Figure 4: Typical cross section for multi-dimensional confinement system using timber edging



Installation of a multi-dimensional confinement system

a) Prepare the surface
- Remove any surface rocks and debris;
- Create a level surface by filling in any hollows with clean angular stone or sharp sand;
- Do not level off any high spots or compact the soil through rolling.

b) Layout Geotextile membrane
- Layout the permeable Geotextile membrane, overlaying edges of the required area by 300mm;
- Overlap any joints by 300m or more.

c) Layout multi-dimensional confinement system (MDC)
- Layout the collapsed MDC system on-top of the Geotextile membrane;
- Place one steel pin into the centre cell at one end of the panel and secure it into the ground;
- Pull out the MDC to its full length (see manufacturers specifications), place a steel pin in the centre at the opposite end and secure it into the ground;
- Pull out the MDC to its full width (see manufacturers specifications), and secure each corner into the ground with steel pins;
- Create a panel to the correct size using the required number of steel pins (as per the manufacture specifications);
- Makes sure all cells are fully extended (as per manufactures specifications);
- Staple adjacent panels together (as per manufacturers specifications);
- If a curved shape is required, the panels are to be cut down to the required size and shape once the MDC is pinned out. Do not curve or bend panels into place.

d) Infill with clean angular stone
- The infill material must be a clean (no fines) angular stone (as per manufactures specifications)
- **Do not use M.O.T type 1 or crushed stone with fines within or adjacent to RPAs**;
- Infill the MDC cells with clean angular stone, working towards the tree using the infilled panels as a platform;
- No compaction is required of the infill. Do not use a whacker plate, roller or any other means of compaction.

e) Edge restraints
- All kerb edging should be situated on top of the MDC within RPAs, do not excavate within RPAs to install kerb edging;
- Where edging is required for light structures, a peg and treated timber board edging is normally acceptable;
- Other options include wooden sleepers, plastic or metal edging;
- The outer edges of the supports may be banked up with clean top soil and or mulch.

f) Wearing course
- Install a permeable geotextile membrane, over lapping any joints by 300mm before laying the wearing course;
- Surfaces can include block paving, asphalt, loose gravel, resin bound gravel, concrete etc.;
- Within RPAs the wearing course shall be permeable to both water and air.

Manual excavation

Excavation within RPAs will be undertaken by hand under direct on-site arboricultural supervision of the required depth of the foundation; Or to a minimum of 600mm deep of any excavation, whether for proposed foundations, hard surfacing or underground services. The total depth of the manual excavation will be determined by the arboriculturist whilst on site.

The soil is to be loosened with the aid of a fork or pick axe and then cleared with the aid of an Air-spade, Air-vac and or shovel. Any roots found will be cleanly severed by the arboricultural consultant with either a hand saw or secateurs.

Any roots found with a diameter of less than 25mm shall be cleanly severed by the arboricultural consultant. Any roots of 25mm and above shall be excavated around without damaging them; the arboricultural consultant shall decide if it's feasible or necessary to retain the root, if not it shall be severed.

The edge of the excavation closest to the trees will be covered with damp hessian to prevent soil collapse or contamination by concrete.

Soil beneath the depth may be sheet piled, regular piled or excavated deeper. Machinery may be used for this providing that it is situated outside of the RPA or has appropriate ground protection in place to move around on and work upon.

Services

Existing services within the site should be retained wherever possible. Where existing services within RPAs require upgrading, the upmost care must be taken to minimise disturbance, and where feasible trenchless techniques are to be employed, and only where necessary should open excavations be considered.

Where new services are to be introduced into the site they should be located outside of RPAs, where they will not interfere with tree roots. If any excavations are required within the RPAs all trenches are to be excavated by hand and radially to the tree trunks under direct on-site arboricultural supervision and are to be carried out under NJUG guidelines.

Final positions of any proposed services should be verified and approved by the arboricultural consultant and local authority tree officer before implementation.

New Underground services

Trenching for installation of underground services and drainage routes could sever any roots that may be present and as such adversely affects the health of the tree. For this reason, particular care should be taken in routing and methods of installation of all underground services. All underground services and drainage routes should be located so that no excavations are required within RPAs.
Where it has been impossible to keep underground services from passing through RPAs or within close proximity to trees, these sections are to be installed in one of three ways in accordance with the guidance set out in National Joint Utilities Group guidelines (NJUG 4), under on site arboricultural supervision.

Trenchless Techniques

There are three main types of trenchless techniques, these include, guided and unguided boring and pipe replacement by lining or bursting. These allow for the installation, maintenance or renewal of underground services, without the disturbance of soil in which roots are likely to be growing. Starting and receiving pits for the boring machinery are to be located outside of the RPAs of any retained trees, with the bore depth being maintained at a minimum depth of 600mm below the existing ground level.
Techniques involving external lubrication of the equipment shall use no material other than water as other lubricants could contaminate the soil (e.g. oil, bentonite, etc.).

Manual Excavation

Excavation within RPAs will be undertaken by hand under direct on-site arboricultural supervision of the required depth of the foundation; Or to a minimum of 600mm deep of any excavation, whether for proposed foundations, hard surfacing or underground

services. The total depth of the manual excavation will be determined by the arboriculturist whilst on site.

The soil is to be loosened with the aid of a fork or pickaxe and then cleared with the aid of an Air-spade, Air-vac and or shovel. Any roots found will be cleanly severed by the arboricultural consultant with either a hand saw or secateurs.

Any roots found with a diameter of less than 25mm shall be cleanly severed by the arboricultural consultant. Any roots of 25mm and above shall be excavated around without damaging them; the arboricultural consultant shall decide if it's feasible or necessary to retain the root, if not it shall be severed.

The edge of the excavation closest to the trees will be covered with damp hessian to prevent soil collapse or contamination by concrete.

Soil beneath the depth may be sheet piled, regular piled or excavated deeper. Machinery may be used for this providing that it is situated outside of the RPA or has appropriate ground protection in place to move around on and work upon.

Broken Trench – Hand Dug

This technique combines both trenchless techniques and manual excavation where excavation is unavoidable. Excavations should be limited to where there is clear access around and below the roots. All trenches shall be excavated by hand with the same precautions taken as for manual excavation. Open section of trench should only be large enough to allow access for linking to the next section.

Prohibition

- Mechanical digging or scraping is not permitted within a defined root protection area or within areas cordoned off by protective barrier fencing.
- No access will be permitted within the protected areas;
- No materials, equipment or debris will be stored within any of the fenced areas, or against the fencing;
- Fires are not permitted within 10m of any vegetation.
- Leaning objects against or attaching of objects to a tree is not permitted.
- Machinery, plant and vehicles are not permitted to be washed down within 10m of vegetation.
- Chemicals and materials are not to be transported, stored, used or mixed within a root protection area or within areas cordoned off by protective barrier fencing.
- Cement silos, mixing site to be situated within a bunded area to prevent pillage/leaking of chemicals harmful to trees. These areas are to be sited well clear of protected trees.
- Refuelling of plant or machinery is prohibited within 10m of the construction exclusion zones.
- It is essential that allowance should be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees.
- Where machinery is to be used within 5m of retained tree canopies a banks man will be required at all times whilst setting up, moving or operating within this distance of retained trees canopies.
- Storage of all caustic material and chemicals are to be situated well clear of protected areas and preferably on lower ground if slopes are present, or to be situated within a bonded area to prevent any spills or leaks entering the ground.

Site Management

The site manager will be responsible for briefing and inducting all personnel who will be working on any stage of this development and especially those who will be working within or adjacent to the canopies or RPAs of retained trees; and will make them aware of, and provide a copy of this method statement and tree protection plan drawing number **Arbtech TPP 01-05**; this is to include but not exclusively the movement and or operation of plant, excavations, unloading deliveries, mixing and or pouring of cement and concrete.

The site manager will be responsible for the day to day running and protection of all retained trees and for liaising with the project arborist about any tree related matters and prior to any works that may or will affect the RPAs or canopies of retained trees; this is to include but not exclusively the movement and or operation of plant, excavations, unloading deliveries, mixing, pouring and storage of all caustic materials that may cause harm to retained trees.

Any incidents of damage to retained trees or of tree protection measures will be documented by the site manager who will then report these incidents to the project arboriculturist immediately and make sure that works within this area cease until the project arborist has had an opportunity to inspect the damage and where appropriate, agree a mitigation plan with the local planning authority tree officer.

The site manager may designate another person to take charge of briefing and inducting process of new site personnel or visitors in his absence.

If the site manager is replaced or is absent from site for more than three consecutive working days, the project arborist will be informed, and a prestart meeting will be held with the new or acting site manager.

It is the responsibility of the site manager to ensure that the planning conditions attached to the planning consent are adhered to at all times and that a monitoring regime and supervision of any works within or adjacent to the RPAs are adopted.

If at any time pruning works are required other than those previously approved, permission must be sought from the LPA tree officer and once permission is granted they are to be carried out by a suitably qualified person in accordance with BS3998:2010 Tree work – Recommendations.

Monitoring and Supervision

Where trees have been identified within this method statement and tree protection plan drawing number **Arbtech TPP 01-05** for retention, there should be an auditable system of arboricultural monitoring. This is to extend to arboricultural supervision whenever demolition or construction activity is to take place within or adjacent to any canopy or RPA.

The development's tree protection measures are to be monitored and all demolition and construction works to be undertaken within or adjacent to the RPAs of retained trees are to be supervised by project arboriculturist, who should be retained to record and report observations to the council at appropriate intervals.

Pre-commencement site meeting

Prior to the commencement of any works or machinery and materials arriving on site a pre-commencement site meeting involving the project arborist, land owner or agent, site manager, contractors and engineer (as appropriate) and the relevant LPA officers will be held to ensure that all aspects of the arboricultural method statement and tree protection are understood and for all parties to swap contact details (see **Appendix 3**).

Monitoring and supervision schedule

The initial monitoring visit will be to check that the tree protective measures are in the correct location and as specified within the approved method statement; if so to sign off their installation.

There after monitoring visits are to take place at regular intervals, to ensure that tree protection measures are in place and are functioning as designed or whenever necessary to undertake works to be carried out under arboricultural supervision. The frequency of the monitoring visits is to be determined with the LPA tree officer at the pre-commencement site meeting.

A record of all arboricultural monitoring and supervision visits will be kept, and any faults will be logged, this will then be copied to the site agent, developer and local planning authority in a digital format.

If during the course of the development it is necessary for areas to be re-designed so that they would require changes to the approved arboricultural method statement or tree protection plan and so affecting retained trees the project arborist and LPA tree officer will be invited to attend a site meeting with all relevant parties. Prior to any changes being implemented these must have been approved in writing by the LPA tree officer.

Supervision

The arboricultural consultant will be required to attend site to directly supervise all demolition and construction works that are to be undertaken within or adjacent to the RPAs of all retained trees and will be advised a minimum of 72 hours prior to the commencement of any works that require his attendance, these will include:

1. Pre-commencement site meeting.
2. Location of protective measures.
3. Supervised excavations for installation of tees within RPAs of tree nos.14, 31 & 32.
4. Supervised excavations for installation of green within the RPA of tree no. 23.
5. Supervised excavations for installation of pitches within the RPAs of tree nos. 26 & 45.
6. Installation of 'No Dig' hard surfacing within the RPAs of tree nos. 26. 27 & 45.
7. Any excavations within or adjacent to RPAs including hard surfacing or underground services (a non-exhaustive list).
8. Arboricultural sign off and removal of protective measures.

Completion meeting

Once all construction works have been completed all materials and machinery has been removed from site the project arborist shall be informed and will invite the LPA tree officer to meet on site to discuss the process and discuss any final remedial works that may be required and to sign the development off so that the protective measures may be removed.

Appendix 1: Tree Survey Schedules

BS5837:2012 Tree Survey

Client: Farrington Park
Project: Farrington Park
Survey Date: 22/11/2017
Surveyor: Aran Nearn

ARBTECH

Arbtech Consulting Limited

Unit 3
Well House Barns
Chester
Cheshire
CH4 0DH
Phone: 01244661170

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
C1										Estimated Measurements	
A Collection	5	1	120	N	2	0	SM	A: 6.5	Good	C: Fair	C.1.2
See comments for details				E	2	0		R: 1.43		S: Fair	20 to 40 yrs
				S	2	0				B: Fair	
				W	2	0				Collection of young hazel, field maple and hawthorn; stem and crown dimensions recorded are the largest represented within the collection.	
C2										Estimated Measurements	
A Collection	4	1	100	N	2	1	Y	A: 4.5	Good	C: Good	C.1.2
See comments for details				E	2	1		R: 1.19		S: Good	20 to 40 yrs
				S	2	1				B: Good	
				W	2	1				Collection of young hornbeam and hawthorn; stem and crown dimensions recorded are the largest represented within the collection.	
C3										Estimated Measurements	
A Collection	6	1	300	N	3	2	SM	A: 40.7	Good	C: Fair	B.1.2
See comments for details				E	3	2		R: 3.59		S: Fair	20 to 40 yrs
				S	3	2				B: Good	
				W	3	2				Collection of semi-mature cherry, goat willow and oak; stem and crown dimensions recorded are the largest represented within the collection.	
C4										Estimated Measurements	
A Collection	5	1	120	N	2	1	Y	A: 6.5	Good	C: Good	C.1.2
See comments for details				E	2	1		R: 1.43		S: Good	20 to 40 yrs
				S	2	1				B: Good	
				W	2	1				Collection of young hornbeam; stem and crown dimensions recorded are the largest represented within the collection.	

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
G1										Estimated Measurements	
A Group	6	1	100	N 2	0	SM	A: 4.5	Fair	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Linear boundary group; species include ash, sycamore and hawthorn; maintained as rough hedging, with a dense bramble understorey; stem and crown dimensions recorded are the largest represented within the group.	10 to 20 yrs
				S 2	0				B: Fair		
				W 2	0						
G2										Estimated Measurements	
A Group	6	1	100	N 2	0	SM	A: 4.5	Fair	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Linear boundary group; species include ash, sycamore and hawthorn; maintained as rough hedging, with a dense bramble understorey; stem and crown dimensions recorded are the largest represented within the group.	10 to 20 yrs
				S 2	0				B: Fair		
				W 2	0						
G3										Estimated Measurements	
A Group	5	1	100	N 2	0	SM	A: 4.5	Good	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Shrub and sapling group; species include quick thorn, willow and bramble; stem and crown dimensions recorded are the largest represented within the group.	10 to 20 yrs
				S 2	0				B: Fair		
				W 2	0						
G4										Estimated Measurements	
A Group	5	1	100	N 2	0	SM	A: 4.5	Fair	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Shrub and sapling group; species include quick thorn, willow and bramble; stem and crown dimensions recorded are the largest represented within the group.	10 to 20 yrs
				S 2	0				B: Fair		
				W 2	0						
G5										Estimated Measurements	
A Group	17	1	500	N 6	1	M	A: 113.1	Good	C: Fair		B.1.2
See comments for details				E 6	1		R: 6		S: Ivy	Linear boundary group; species include oak, sycamore and hazel, with a bramble and ivy understorey; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 6	1				B: Fair		
				W 6	1						
G6										Estimated Measurements	
A Group	5	1	100	N 2	0	SM	A: 4.5	Good	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Shrub and sapling group; species include quick thorn, willow and bramble; stem and crown dimensions recorded are the largest represented within the group.	10 to 20 yrs
				S 2	0				B: Fair		
				W 2	0						

Age Classifications:
N Newly planted
Y Young
SM Semi-mature
EM Early Mature
M Mature
OM Over Mature

Condition:
C Crown
S Stem
B Basal area

Stems:
Ø Diameter
(Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
G7										Estimated Measurements	
A Group	17	1	500	N 6	1	M	A: 113.1	Good	C: Fair		B.1.2
See comments for details				E 6	1		R: 6		S: Ivy	Linear boundary group; species include oak, sycamore and hazel, with a bramble and ivy understorey; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 6	1				B: Fair		
				W 6	1						
G8										Estimated Measurements	
A Group	6	1	100	N 2	0	SM	A: 4.5	Fair	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Linear boundary group; species include ash, sycamore and hawthorn; maintained as rough hedging, with a dense bramble understorey; stem and crown dimensions recorded are the largest represented within the group.	10 to 20 yrs
				S 2	0				B: Fair		
				W 2	0						
G9										Estimated Measurements	
A Group	20	1	500	N 6	2	M	A: 113.1	Good	C: Fair		B.1.2
See comments for details				E 6	2		R: 6		S: Good	Off-site linear boundary group; species include oak, ash and sycamore; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 6	2				B: Good		
				W 6	2						
G10										Estimated Measurements	
A Group	6	1	100	N 2	0	Y	A: 4.5	Good	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Shrub and sapling group; species include willow and bramble; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 2	0				B: Fair		
				W 2	0						
G11										Estimated Measurements	
A Group	6	1	100	N 2	0	Y	A: 4.5	Good	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Shrub and sapling group; species include willow and bramble; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 2	0				B: Fair		
				W 2	0						
G12										Estimated Measurements	
A Group	6	1	100	N 2	0	Y	A: 4.5	Good	C: Fair		C.1.2
See comments for details				E 2	0		R: 1.19		S: Fair	Shrub and sapling group; species include willow and bramble; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 2	0				B: Fair		
				W 2	0						

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
1											
Sycamore *Acer pseudoplatanus*	20	1	910	N 7 E 7 S 7 W 7	3 3 3 3	M	A: 374.7 R: 10.92	Good	C: Good S: Ivy B: Good	Grows from pathway edge; 60% ivy coverage of stem; previously crown reduced, wound diameter up to 50mm.	**B.1.2** 20 to 40 yrs
2										Estimated Measurements	
Common Oak *Quercus robur*	13	1	800	N 6 E 6 S 6 W 6	3 3 3 3	OM	A: 289.6 R: 9.6	Fair	C: Poor S: Ivy B: Not Visible	Grows from shrub group; base not visible through undergrowth; 80% ivy coverage of stem; dieback throughout upper crown; stag heading.	**C.1.2** 10 to 20 yrs
3											
Common Oak *Quercus robur*	15	1	760	N 8 E 8 S 8 W 8	3 3 3 3	M	A: 261.3 R: 9.11	Good	C: Good S: Ivy B: Fair	Grows from shrub group; cavity at base, internal decay present, wound diameter up to 200mm; 50% ivy coverage of stem.	**B.1.2** 20 to 40 yrs
4											
Common Oak *Quercus robur*	20	1	1460	N 6 E 9 S 12 W 10	3 3 3 3	M	A: 707 R: 15	Good	C: Good S: Good B: Fair	Grows from lawn; two co-dominant stems from 3m; cavity runs through base, 200mm diameter; several large structural failures of lowest lateral limbs; jagged wounds, up to 350mm diameter.	**B.1.2** 20 to 40 yrs
5										Estimated Measurements	
Common Ash *Fraxinus excelsior*	10	1	350	N 4 E 4 S 4 W 4	2 2 2 2	M	A: 55.4 R: 4.19	Good	C: Fair S: Ivy B: Not Visible	Grows from pond bank; base not accessible; 40% ivy coverage of stem.	**B.1** 20 to 40 yrs
6										Estimated Measurements	
Common Ash *Fraxinus excelsior*	10	1	250	N 1 E 2 S 3 W 2	1 1 1 1	SM	A: 28.3 R: 3	Good	C: Fair S: Fair B: Not Visible	Grows from pond bank; base not visible; stem lens at 20 degrees from vertical to south.	**B.1** 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
7											
Common Ash *Fraxinus excelsior*	6	1	310	N 3 E 3 S 3 W 3	2 2 2 2	SM	A: 43.5 R: 3.72	Good	C: Good S: Good B: Good	Grows from lawn; major union at 2m; two co-dominant stems.	B.1.2 20 to 40 yrs
8											
Field Maple *Acer campestre*	5	1	290	N 3 E 3 S 3 W 3	2 2 2 2	SM	A: 38.1 R: 3.48	Good	C: Fair S: Good B: Poor	Extensive root and soil heave; snapped roots to south; full structural failure imminent.	U <10 yrs
9											
Common Oak *Quercus robur*	17	1	940	N 6 E 6 S 6 W 6	1 1 1 1	M	A: 399.8 R: 11.28	Good	C: Good S: Good B: Good	Grows from lawn; low hanging canopy.	A.1.2 >40 yrs
10											
Common Oak *Quercus robur*	10	1	930	N 3 E 6 S 10 W 4	2 2 2 2	OM	A: 391.3 R: 11.16	Decline	C: Poor S: Poor B: Poor	Old fungal brackets at base, appear to be ganoderma sp., large cavity at 3m, up to 400mm diameter, with extensive internal decay; major structural failures with jagged wounds.	U <10 yrs
11										Estimated Measurements	
Common Ash *Fraxinus excelsior*	14	1	400	N 5 E 5 S 5 W 5	2 2 2 2	M	A: 72.4 R: 4.8	Good	C: Fair S: Ivy B: Not Visible	Grows from dense shrub group; base not accessible; stem diameter estimated; 80% ivy coverage of stem.	B.1 20 to 40 yrs
12											
Common Oak *Quercus robur*	15	1	660	N 6 E 6 S 6 W 6	3 3 3 3	M	A: 197.1 R: 7.92	Good	C: Good S: Good B: Good	Grows from fairway; focal tree.	A.1.2 >40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
13											
Common Oak *Quercus robur*	15	1	1080	N 8 E 8 S 8 W 8	3 3 3 3	OM	A: 527.7 R: 12.96	Decline	C: Poor S: Good B: Fair	Large ganoderma sp. bracket at base; extensive dieback throughout crown.	C.1.2 10 to 20 yrs
14											
Common Oak *Quercus robur*	15	1	880	N 8 E 8 S 8 W 8	4 4 4 4	M	A: 350.4 R: 10.56	Good	C: Good S: Good B: Fair	Grows from fairway; raised soil level at base, by 0.5m to east and west.	B.1.2 20 to 40 yrs
15											
Common Ash *Fraxinus excelsior*	10	2	318 (Eq)	N 4 E 2 S 4 W 4	4 4 4 4	SM	A: 45.8 R: 3.81	Good	C: Fair S: Fair B: Fair	Two co-dominant stems from base; stems lean at 10 degrees from vertical to west; asymmetrical crown distribution due to suppression from neighbouring tree.	B.1 20 to 40 yrs
16											
Common Oak *Quercus robur*	13	1	950	N 6 E 6 S 6 W 6	3 3 3 3	OM	A: 408.3 R: 11.4	Fair	C: Fair S: Fair B: Poor	Stem leans at 20 degrees from vertical to east; major cavity at base, 300mm diameter with internal decay; cavity at 3m, with extensive internal decay, wound diameter up to 300mm; structural failure of major scaffold branch to east, jagged wound remains, up to 1m in length.	U <10 yrs
17											
Common Oak *Quercus robur*	18	1	1080	N 9 E 9 S 9 W 9	2 2 2 2	M	A: 527.7 R: 12.96	Good	C: Good S: Good B: Good	Grows next to putting green; heavy low hanging scaffold branches.	A.1.2 >40 yrs
18											
Common Oak *Quercus robur*	18	1	1080	N 8 E 8 S 8 W 8	3 3 3 3	M	A: 527.7 R: 12.96	Good	C: Good S: Good B: Good	Grows from fairway; previously crown lifted to 3m, wound diameter up to 150mm.	A.1.2 >40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
19											
Common Oak *Quercus robur*	19	1	1500	N 11 E 11 S 11 W 11	1 1 1 1	M	A: 707 R: 15	Good	C: Good S: Good B: Good	Jagged wound at 4m due to previous structural failure; wound diameter up to 300mm.	A.1.2 >40 yrs
20											
Common Oak *Quercus robur*	18	1	1170	N 2 E 8 S 6 W 6	2 2 2 2	M	A: 619.4 R: 14.04	Good	C: Fair S: Poor B: Fair	Cavity at base, up to 100mm diameter; major structural failure of co-dominant stem; wound diameter up to 1m, extensive internal decay present; asymmetrical crown distribution due to loss of co-dominant stem.	C.1.2 10 to 20 yrs
21											
Common Ash *Fraxinus excelsior*	8	4	395 (Eq)	N 4 E 4 S 4 W 4	2 2 2 2	SM	A: 70.7 R: 4.74	Good	C: Good S: Fair B: Good	Multi-stemmed from base; up to 100mm of included bark at major junction.	B.1 20 to 40 yrs
22											
Common Oak *Quercus robur*	20	1	1190	N 10 E 10 S 10 W 10	3 3 3 3	M	A: 640.7 R: 14.28	Good	C: Good S: Fair B: Good	Previously crown lifted to 5m; wound diameter up to 300mm; dead stem in crown, 5m in length and 300mm diameter.	B.1.2 20 to 40 yrs
23											
Common Oak *Quercus robur*	20	1	1130	N 4 E 8 S 7 W 4	4 4 4 4	M	A: 577.7 R: 13.56	Good	C: Fair S: Good B: Fair	Cavity at base, up to 200mm diameter; crown reduced over putting green, wound diameter up to 100mm.	B.1.2 20 to 40 yrs
24											
Common Oak *Quercus robur*	20	1	610	N 2 E 2 S 8 W 8	2 2 2 2	M	A: 168.4 R: 7.32	Good	C: Fair S: Good B: Good	Grows on edge of putting green; asymmetrical crown distribution due to suppression from neighbouring tree.	B.1.2 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
25											
Common Oak *Quercus robur*	17	1	1060	N 7 E 7 S 7 W 7	2 2 2 2	M	A: 508.4 R: 12.72	Good	C: Good S: Good B: Good	Grows from lawn; focal tree.	A.1.2 >40 yrs
26											
Common Oak *Quercus robur*	12	1	880	N 3 E 4 S 5 W 4	3 3 3 3	M	A: 350.4 R: 10.56	Good	C: Fair S: Good B: Good	Previously crown lifted to 3m, wound diameter up to 100mm; asymmetrical crown distribution due to suppression from previously present tree.	B.1.2 20 to 40 yrs
27											
Common Ash *Fraxinus excelsior*	18	1	1400	N 10 E 10 S 11 W 12	2 2 2 2	M	A: 707 R: 15	Good	C: Good S: Fair B: Good	Three co-dominant stems from 2m; wounding at major union, up to 200mm diameter; no internal decay present; co-dominant stem previously failed to south; jagged wound up to 300mm diameter; onset of internal decay.	B.1.2 20 to 40 yrs
28										Estimated Measurements	
Common Oak *Quercus robur*	20	1	800	N 6 E 6 S 6 W 6	3 3 3 3	M	A: 289.6 R: 9.6	Fair	C: Fair S: Good B: Good	Off-site tree; grows from neighbouring land; dieback throughout crown.	B.1.2 20 to 40 yrs
29											
Sycamore *Acer pseudoplatanus*	15	1	500	N 6 E 6 S 6 W 6	2 2 2 2	M	A: 113.1 R: 6	Good	C: Good S: Good B: Not Visible	Off-site tree; grows from neighbouring land; base not visible from site.	B.1.2 20 to 40 yrs
30											
Sycamore *Acer pseudoplatanus*	15	1	500	N 4 E 1 S 3 W 4	5 5 5 5	OM	A: 113.1 R: 6	Decline	C: Poor S: Ivy B: Not Visible	Off-site tree; grows from neighbouring land; 100% ivy coverage of stem; dieback throughout entire crown.	U <10 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
31										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	18	1	600	N 7 E 7 S 7 W 7	2 2 2 2	M	A: 162.9 R: 7.2	Good	C: Good S: Good B: Not Visible	Off-site tree; grows from neighbouring land; dieback throughout upper crown.	B.1.2 20 to 40 yrs
32										Estimated Measurements	
Common Oak *Quercus robur*	18	1	600	N 7 E 7 S 7 W 7	2 2 2 2	M	A: 162.9 R: 7.2	Good	C: Fair S: Ivy B: Not Visible	Off-site tree; grows from neighbouring land; 90% ivy coverage of stem.	B.1.2 20 to 40 yrs
33											
Field Maple *Acer campestre*	12	1	400	N 5 E 5 S 5 W 5	3 3 3 3	M	A: 72.4 R: 4.8	Good	C: Good S: Ivy B: Not Visible	Off-site tree; grows from neighbouring land; 90% ivy coverage of stem.	B.1.2 20 to 40 yrs
34										Estimated Measurements	
Common Oak *Quercus robur*	13	1	1300	N 9 E 9 S 9 W 9	2 2 2 2	OM	A: 707 R: 15	Good	C: Fair S: Fair B: Not Visible	Grows from dense undergrowth; base not accessible; jagged wound from structural failure of co-dominant stem, wound up to 3m in length.	B.1.2 20 to 40 yrs
35											
Common Ash *Fraxinus excelsior*	18	3	470 (Eq)	N 6 E 6 S 6 W 6	1 1 1 1	M	A: 99.8 R: 5.63	Good	C: Good S: Fair B: Good	Multi-stemmed from base; up to 200mm of included bark.	B.1.2 20 to 40 yrs
36											
Common Ash *Fraxinus excelsior*	18	3	424 (Eq)	N 2 E 4 S 4 W 5	1 1 1 1	M	A: 81.5 R: 5.09	Good	C: Fair S: Good B: Good	Grows as part of group of 3; asymmetrical crown distribution due to suppression from neighbouring tree.	B.1.2 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
37											
Common Ash *Fraxinus excelsior*	18	4	424 (Eq)	N 2 E 4 S 2 W 5	1 1 1 1	M	A: 81.3 R: 5.08	Good	C: Fair S: Good B: Good	Grows as part of group of 3; asymmetrical crown distribution due to suppression from neighbouring tree.	B.1.2 20 to 40 yrs
38											
Common Ash *Fraxinus excelsior*	18	4	468 (Eq)	N 5 E 4 S 2 W 4	1 1 1 1	M	A: 99.3 R: 5.62	Good	C: Fair S: Good B: Good	Grows as part of group of 3; asymmetrical crown distribution due to suppression from neighbouring tree.	B.1.2 20 to 40 yrs
39											
Common Hawthorn *Crataegus monogyna*	5	10	316 (Eq)	N 4 E 4 S 4 W 4	0 0 0 0	SM	A: 45.2 R: 3.79	Good	C: Good S: Fair B: Good	Grows in close proximity to wall; multi-stemmed from base.	C.1 10 to 20 yrs
40										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	16	1	1300	N 9 E 9 S 9 W 9	1 1 1 1	OM	A: 707 R: 15	Fair	C: Poor S: Poor B: Not Visible	Base not accessible through dense undergrowth; major structural failure of main stem at 6m; jagged wound, 3m in length, extensive internal decay present.	C.1.2 10 to 20 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Client: Farrington Park
Project: Farrington Park
Survey Date: 23/08/2019
Surveyor: Aran Nearn

BS5837:2012 Tree Survey

ARBTECH

Arbtech Consulting Limited

Unit 3
Well House Barns
Chester
Cheshire
CH4 0DH
Phone: 01244 661170

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
G13										Estimated Measurements	
A Group	5	1	100	N 2	0	SM	A: 4.5	Fair	C: Fair		C.1
See comments for details				E 2	0		R: 1.19		S: Fair	Linear scrub group of bramble and hawthorn, with occasional young ash; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 2	0				B: Fair		
				W 2	0						
G14										Estimated Measurements	
A Group	18	1	450	N 5	2	M	A: 91.6	Good	C: Fair		B.1.2
See comments for details				E 5	2		R: 5.39		S: Good	Linear boundary group of oak, ash and field maple; bases inaccessible through dense undergrowth; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 5	2				B: Not Visible		
				W 5	2						
G15										Estimated Measurements	
A Group	10	1	300	N 4	1	SM	A: 40.7	Good	C: Fair		B.1.2
See comments for details				E 4	1		R: 3.59		S: Good	Linear boundary group of oak, ash and field maple; bases inaccessible through dense undergrowth; stem and crown dimensions recorded are the largest represented within the group.	20 to 40 yrs
				S 4	1				B: Not Visible		
				W 4	1						
41										Estimated Measurements	
Common Ash	20	1	460	N 4	6	M	A: 95.7	Good	C: Fair		B.1
Fraxinus excelsior				E 2	6		R: 5.51		S: Ivy	Part of linear group; 70% ivy coverage of stem; asymmetrical crown distribution due to suppression from neighbouring trees.	20 to 40 yrs
				S 10	6				B: Good		
				W 8	6						

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
42										Estimated Measurements	
Common Ash *Fraxinus excelsior*	20	1	480	N 10 E 4 S 4 W 8	10 10 10 10	M	A: 104.2 R: 5.75	Good	C: Fair S: Ivy B: Good	Part of linear group; 70% ivy coverage of stem; asymmetrical crown distribution due to suppression from neighbouring trees.	B.1 20 to 40 yrs
43										Estimated Measurements	
Field Maple *Acer campestre*	9	3	453 (Eq)	N 5 E 3 S 2 W 3	2 2 2 2	M	A: 93 R: 5.44	Good	C: Fair S: Ivy B: Good	Part of linear group; vertical suppression from neighbouring trees; 50% ivy coverage of stem.	B.1 20 to 40 yrs
44										Estimated Measurements	
Field Maple *Acer campestre*	9	1	130	N 2 E 2 S 2 W 2	1 1 1 1	Y	A: 7.6 R: 1.55	Fair	C: Fair S: Fair B: Not Visible	Base not accessible through dense undergrowth.	C.1 10 to 20 yrs
45										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	15	3	693 (Eq)	N 8 E 6 S 4 W 5	2 2 2 2	M	A: 217.2 R: 8.31	Good	C: Fair S: Good B: Not Visible	Base not accessible through dense undergrowth.	B.1 20 to 40 yrs
46										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	10	1	400	N 4 E 3 S 3 W 2	2 2 2 2	M	A: 72.4 R: 4.8	Good	C: Fair S: Good B: Not Visible	Base not accessible through dense undergrowth; asymmetrical crown distribution due to suppression from neighbouring tree.	B.1 20 to 40 yrs
47										Estimated Measurements	
Field Maple *Acer campestre*	10	5	300 (Eq)	N 4 E 4 S 4 W 4	2 2 2 2	M	A: 40.7 R: 3.59	Fair	C: Fair S: Poor B: Fair	Multi-stemmed from base; extensive decay of 3 co-dominant stems, initial wounds appear consistent with mechanical damage.	U <10 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
48											
Field Maple *Acer campestre*	8	2	372 (Eq)	N 3 E 3 S 3 W 3	2 2 2 2	SM	A: 62.6 R: 4.46	Good	C: Fair S: Ivy B: Good	Grows from edge of track; 40% ivy coverage of stem.	**B.1** 20 to 40 yrs
49											Estimated Measurements
Field Maple *Acer campestre*	10	1	270	N 3 E 5 S 3 W 2	3 3 3 3	SM	A: 33 R: 3.24	Fair	C: Fair S: Ivy B: Fair	Grows from edge of track; 70% ivy coverage of stem.	**C.1** 10 to 20 yrs

Age Classifications:
N Newly planted
Y Young
SM Semi-mature
EM Early Mature
M Mature
OM Over Mature

Condition:
C Crown
S Stem
B Basal area

Stems:
Ø Diameter
(Eq) Equivalent stem diameter using BS5837:2012 definition

Appendix 2: Tree Protection Notice

(To be printed at A3 or larger)

Construction Exclusion Zone

KEEP OUT

Do **not** move this fence

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECT OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

ARBTECH

Unit 3, Well House Barn, Chester Road, Chester, CH4 0DH
https://arbtech.co.uk - 01244 661170

Appendix 3: Contact Details

Name	Position	Company	Contact
	Client		
	Agent / Project Manager		
	Tree Officer		
	Arboricultural Consultant	Arbtech Consulting Ltd.	01244 661170 https://arbtech.co.uk
	Site Manager		
	Main contractor		

Document Production Record

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