

Arboricultural Method Statement

Highgate School

**Richards Music Centre
Highgate School
Adj. 2 Bishopswood Road
London N6 4PR**

12 January 2023

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Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 17th March 2016 from Mr D E Jones of Highgate School. to attend Highgate School, Adjacent 2 Bishopswood Road, London N6 4PR (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.

Executive Summary

This report describes the extent and effect of the proposed development at Site on 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.

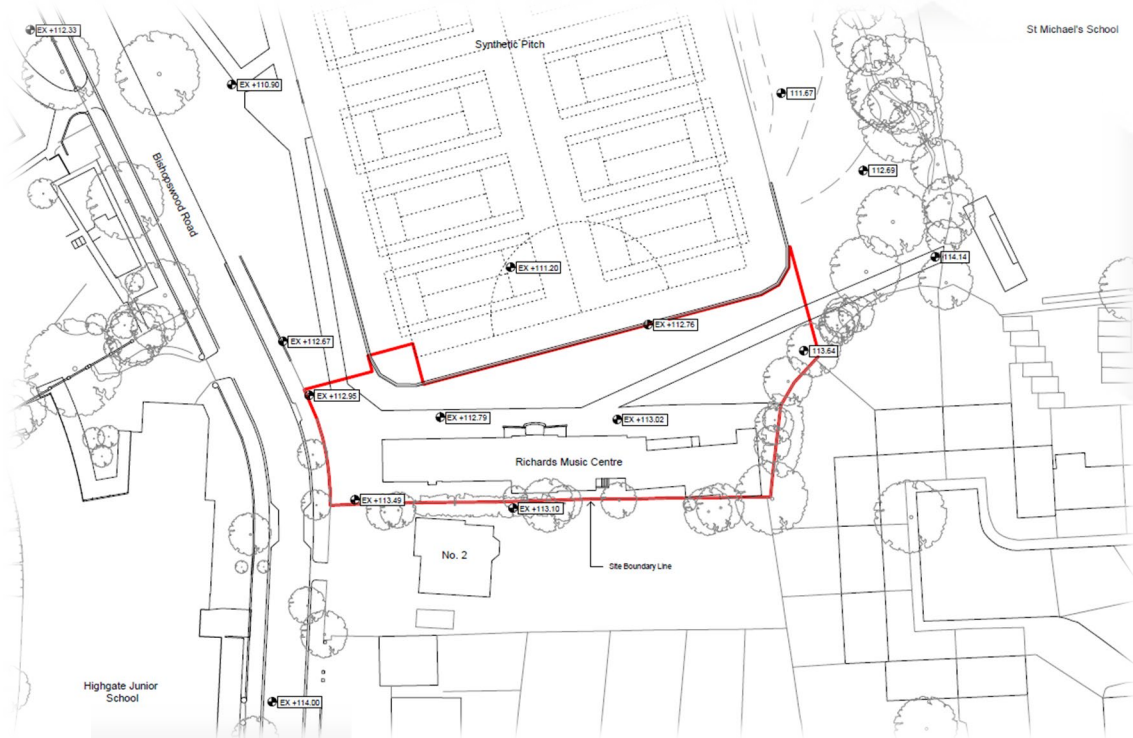


Figure 1: Extract from 'Existing Site Plan' (Hopkins Architects Limited)

Proposed scheme

It is proposed to demolish the existing structure and replace with a new music centre to include Basement, Ground Floor and First Floor.

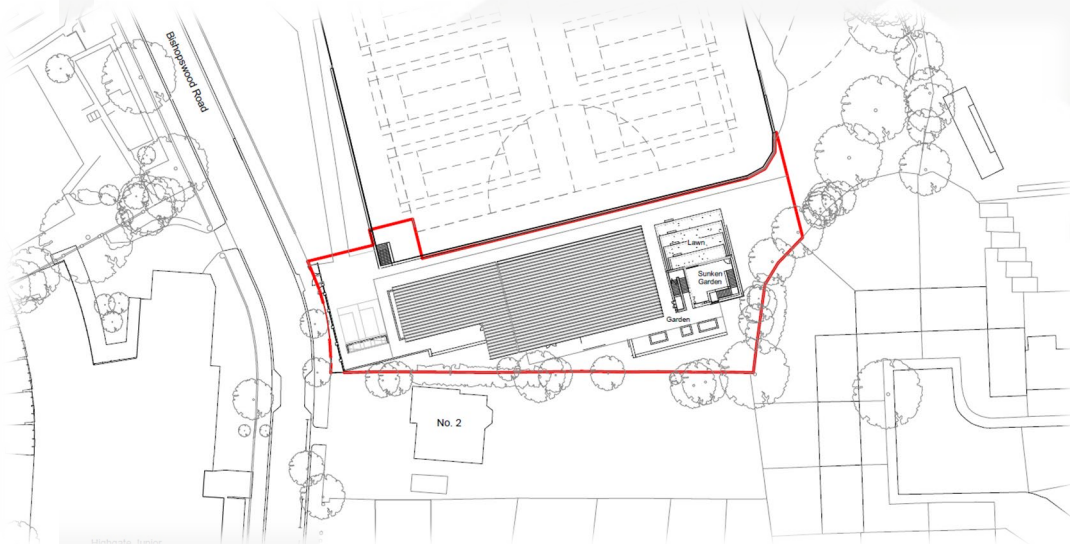


Figure 2: Extract from 'Proposed Site Plan' (Hopkins Architects Limited)

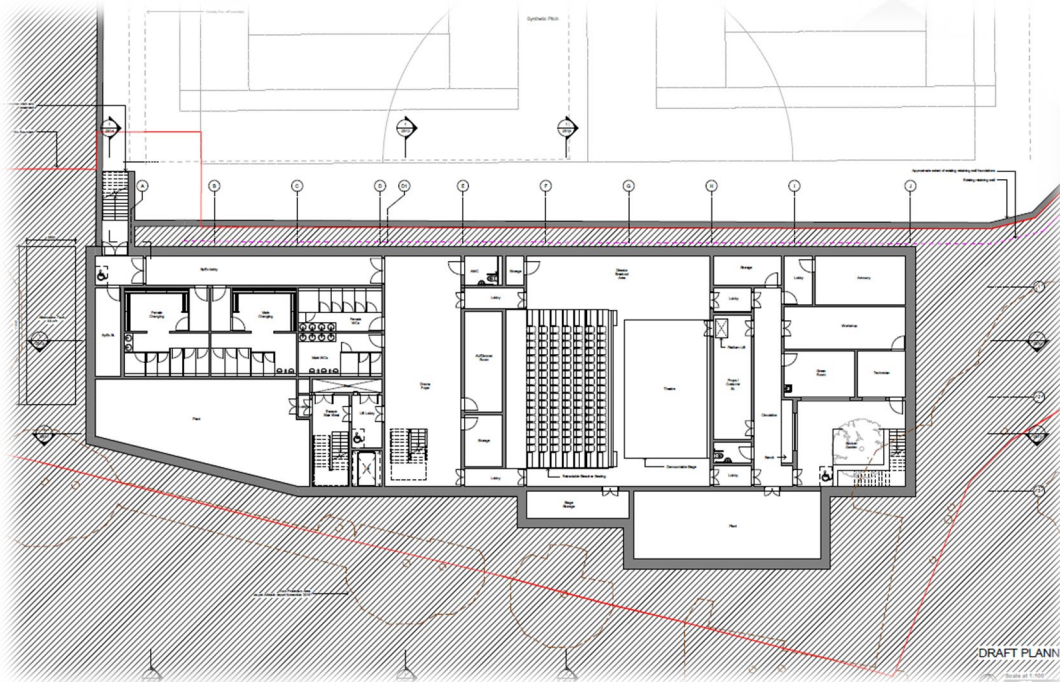


Figure 3: Extract from 'Proposed GA Basement Plan' (Hopkins Architects Limited)

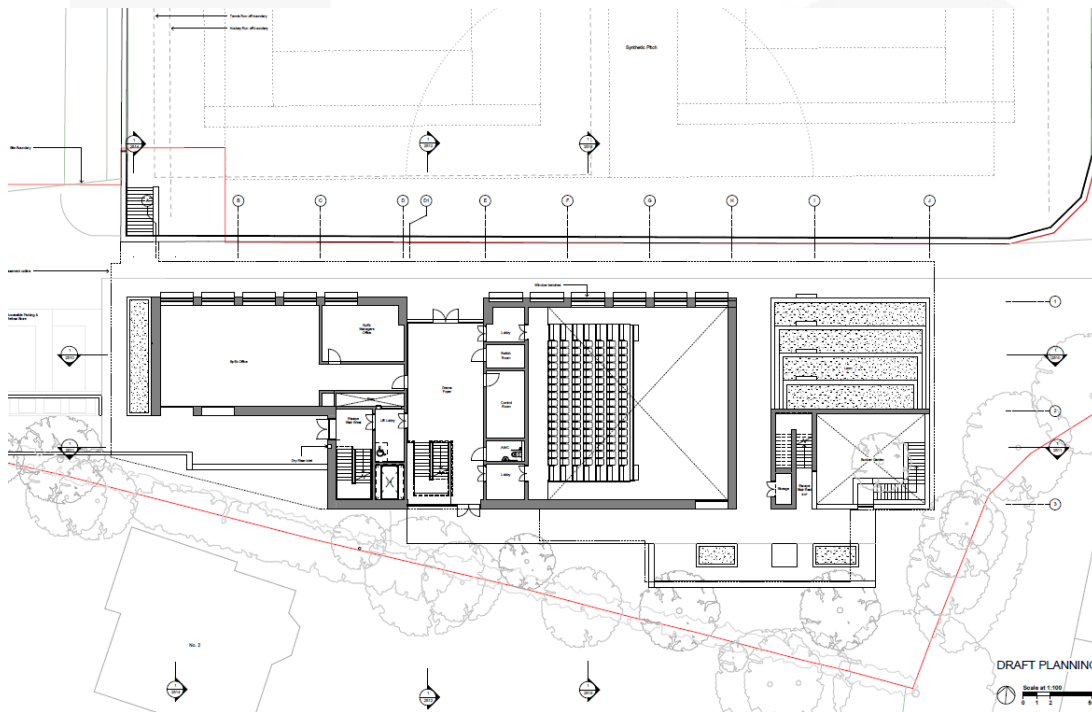


Figure 4: Extract from 'Proposed GA Ground Floor Plan' (Hopkins Architects Limited)

It is likely that arboricultural impacts can be addressed with arboricultural methodology or minor amendments to the proposal.

Checklist for Submission to Local Planning Authority

Tree survey	✓
Tree constraints plan	✓
Arboricultural impact assessment	✓
Arboricultural method statement	✓
Tree protection plan	✓

This report and its appendices precisely follow 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: Highgate School

Site: Highgate School, Adjacent 2 Bishopswood Road, London N6 4PR

Brief proposal description: It is proposed to demolish the existing structure and replace with a new music centre to include Basement, Ground Floor and First Floor.

Planning application reference: N/A

Table 1: Documents referred to.

Document	Reference No.
Survey base Plan	HS-BWR_Topo Survey_160304
Proposed GA Basement Plan	A/HS-RMC2/2310/Rev.L
Proposed GA First Floor Plan	A/HS-RMC2/2311/Rev.L
LPA pre-app comments	N/A
British Standard 5837:2012	“BS5837”
Arboricultural Impact Assessment	Arbtech AIA 02
Tree Protection Plan	Arbtech TPP 02

Tree Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by Jon Hartley on 19 April 2016.

A total of 24no individual trees and 3no groups 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
Survey Base Plan	--	HS-BWR_Topo Survey_160304	--

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, stating at Annex B:

*The potential effect of development on trees, **whether statutorily protected** (e.g. by a tree preservation order or by their inclusion within a conservation area) **or not**, is a material consideration that is taken into account in dealing with planning applications.*

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 Impact Assessment

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

Document	Originator	Reference Number	Title
Survey Base Plan	--	HS-BWR_Topo Survey_160304	--
Proposed GA Basement Plan	Hopkins Architects Limited	A/HS- RMC2/2310/Rev.L	Proposed GA Basement Plan
Proposed GA First Floor Plan	Hopkins Architects Limited	A/HS- RMC2/2311/Rev.L	Proposed GA First Floor Plan

Several issues may need to be addressed in an arboricultural impact assessment between the trees and the proposed development, these are as follows:

- The effect and extent of the proposed development within the root protection areas (RPAs) of retained trees;
- The potential conflicts of the proposed development with canopies of retained trees; and
- The likelihood of any future remedial works to retained trees beyond which would have been scheduled as a part of usual management.

Table 4: Impacts upon the RPAs of retained trees.

Tree Number	Species	Structure	RPA (m ²)	Incursion	
				(m ²)	(%)
T11	Sycamore	Basement	55.4	2.4	4.3
T14	London Plane	Basement	651.4	28.3	4.3
T17	Common Yew	Wall	56.5	3.4	6.0

These impacts can be seen on the Arboricultural Impact Assessment drawing number Arbtech AIA 02.

Trees to be removed

The implementation of the proposed development will result in the removal of 1No. tree due excessive impact to its RPA.

A breakdown of all tree removals and pruning works can be seen in Table 8: Summary of Tree Works

Table 5: Number of individual trees to be removed.

U	A	B	C
0	0	1	0

Table 6: Number of groups to be removed.

U	A	B	C
0 (0)	0 (0)	0 (0)	0 (0)

() = partial removal of a group

Canopy cover is ecologically important and the loss of canopy cover by this tree will be mitigated with planting within the development.

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 before the commencement of site works.

This method statement is to be approved and agreed to in writing by all key personnel before 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 02.

Protective measures will be in accordance with this method statement and the Tree Protection Plan; drawing number Arbtech TPP 02 will remain unaltered and in situ, unless otherwise specified, for the entire duration of the construction.

Table 7: Documents upon which this assessment has been based.

Document	Originator	Reference Number	Title
Survey Base Plan	--	HS-BWR_Topo Survey_160304	--
Proposed GA Basement Plan	Hopkins Architects Limited	A/HS- RMC2/2310/Rev.L	Proposed GA Basement Plan
Proposed GA First Floor Plan	Hopkins Architects Limited	A/HS- RMC2/2311/Rev.L	Proposed GA First Floor Plan

Tree Works

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

Table 8: Summary of Tree Works.

No.	Species	Works	Category
T12	Sycamore	Fell tree to ground level; grind out stump	B2

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 will 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 will 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 will 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 will be firmed in 150 mm layers by treading, avoiding excessive compaction and destruction of the soil structure.

After stump removal

The hole left by stump removal, whether by digging out or grinding, will be filled with soil or other material. The filling will 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 will be firmed in 150mm layers by treading, avoiding excessive compaction and destruction of the soil structure.

Soil amelioration

To mitigate the impact upon notional RPAs of retained trees resulting from the installation of proposed structures/surfacing to impacted RPAs, effected trees will be subject to soil improvement, thereby improving the growing conditions.

To improve the soil structure within the remaining RPA compressed air will be injected to a depth of 600mm at 1m spacings, by way of a perforated soil probe (e.g. Terravent; Vogt etc.) to create fissures within the soil profile. A mixture of Terramol and enriched biochar (or similar) will then be injected into the newly fissured soil, again using the same high-pressure system.

The Terramol will have the effect of physically holding open the new gaseous exchange pathways. Biochar is a very pure, high-carbon form of charcoal that improves the

structure, aeration, water-holding capacity and nutrient retention of soils and substrates while providing permanent refuge for beneficial microbiology. Enriched biochar has beneficial elements added to it including mycorrhizal fungi, Trichoderma, trace nutrients and beneficial bacteria.

Application rates will be determined by the specific equipment used and will be specified by the specialist contractor.

Protected Species (general informative for tree works)

Conservation Status of British Bats

The 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, several 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 9: 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	Construction site setup
Stage 5	Undertake demolition of existing structure
Stage 6	Undertake and complete construction works
Stage 7	Undertake external landscaping works outside of the construction exclusion zones
Stage 8	Removal of all machinery and materials form site
Stage 9	Dismantle and removal of protective measures
Stage 10	Undertake external landscaping works within the construction exclusion zones
Stage 11	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 02) before 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.

If the protective measures and their positions do not comply with this arboricultural method statement document number Arbtech AMS 02 (12 January 2023) and tree protection plan drawing number Arbtech TPP 02, 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 02 (12 January 2023) and tree protection plan drawing number Arbtech TPP 02, 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 this area is to cease until the Project Arboriculturist has visited the site. Any 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 8 (see Sequencing of Works), thereafter they will be carefully dismantled only with the agreement of the Project Arboriculturist and or the local authority tree officer.

The existing/proposed site boundary measures are to be retained/installed and retained for the duration of the development. If for any reason the existing/proposed 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 upon the completion of the development or immediately before the installation of the permanent boundary measures.

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.

Construction Exclusion Zone

A construction exclusion zone (CEZ) as designated by the protective barrier fencing, is an area where there is to be no construction activity. Access to the area for construction personnel or machinery is strictly prohibited, unless detailed in the tree protection plan, and there is no scope for materials or waste storage; welfare facilities etc. There may be some construction activities planned for these areas (e.g. the installation of service trenches) these activities will be undertaken under direct, on-site arboricultural supervision.

Protective Barrier Fencing

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

Signage denoting the words “*tree protection area*” at 5.0m intervals will be fixed to the protective barrier fencing (See Appendix 2).

Protective fencing is to be removed ONLY with the written permission of the Project Arboriculturist.

Default specification: To comprise either 2.4m wooden site hoarding; or a 2.3m high scaffold framework, well braced to resist impacts, with uprights to be spaced at a maximum of 3.0m intervals and driven into the ground by a minimum of 600mm. On to this, standard anti-climb welded mesh panels are to be securely fixed to each other with at least two scaffold clamps and to the scaffold framework with wire.

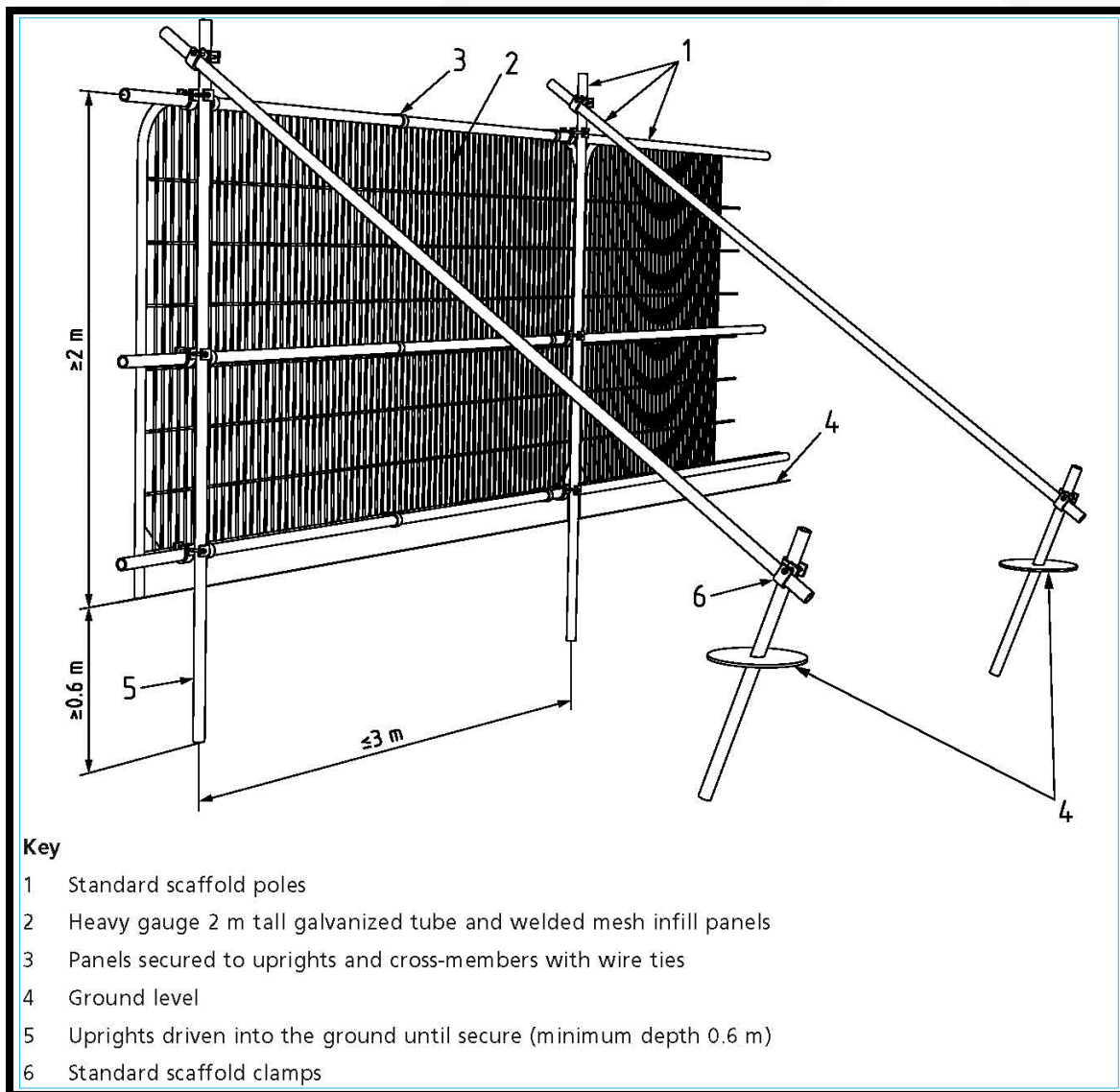


Figure 5: Default specification for protective barrier fencing (BS5837).

Secondary specification: 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 will be supported on the inner side by stabiliser struts, which will be attached to a base plate and secured with ground pins.

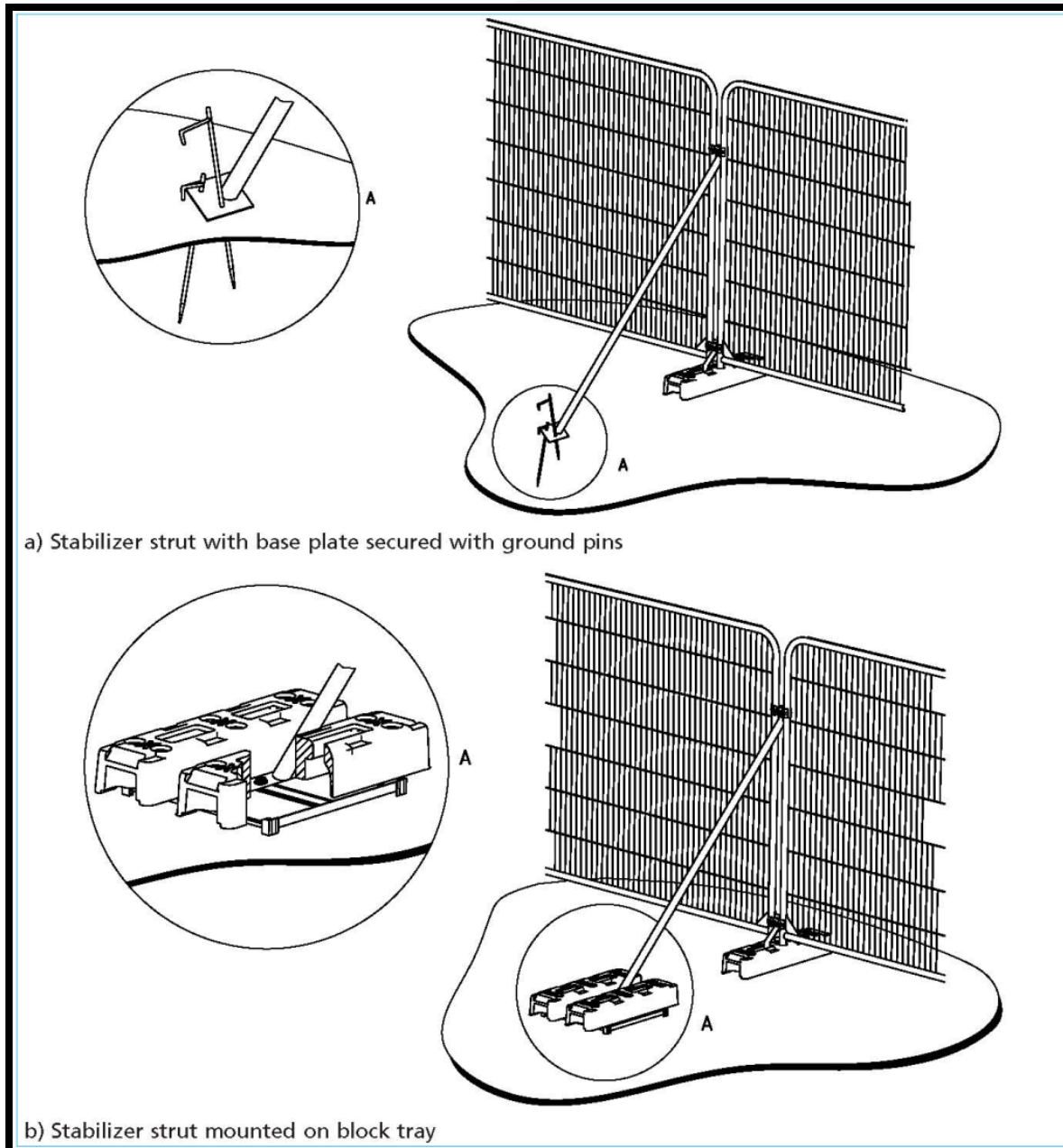


Figure 6: Examples of protective barrier fencing with above-ground stabilising systems (BS5837).

Ground boarding

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

Where it is determined by the project engineer that 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 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.

At this stage, no contractors have been approached so it is not possible to know exactly what equipment they have available and will be using.

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 Project Arboriculturist for their approval by the project engineer a minimum of ten (10) working days before its installation.

Prohibition

- Mechanical digging or scraping is not permitted within a defined root protection area or 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 areas cordoned off by protective barrier fencing.
- Cement silos, mixing site to be situated within a bunded area to prevent spillage/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.
- Allowance must 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 02; 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 before 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 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 on 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 the 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.

Demolition

Before 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 02 and have been signed off and a copy of the demolition method statement has been submitted and approved by the Project Arboriculturist 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.

Structures / Buildings / Walls

Demolition of the existing structure beneath the canopies and within the RPAs retained trees T11, T13, T14, T19-T24 & G2 as show on Arbtech TPP 02 by a turquoise 'Cross' hatching is to be undertaken carefully under arboricultural supervision.

The structures are to be taken down so that all debris and materials are to fall outside of the RPAs and away from the canopies of all retained trees.

Foundations within and adjacent to the RPAs of retained trees are to be left in situ wherever possible. Where this is not possible demolition of the existing foundations are to be undertaken to the minimum depth required to allow for the installation of the new soft and hard landscaping.

The removal of the existing foundations within the RPA of retained trees are to be undertaken using a handheld pneumatic breaker, hand tools and wheelbarrows to break up and remove the debris out of the RPA. In some situations, and only at the discretion of the arborist it may be possible to use an excavator using a hydraulic breaker and a suitably sized toothless grading bucket.

It may be permitted by the project arboriculturalist for an excavator to undertake the demolition and removal of the foundation, but it must be situated outside of the RPA, on top of the hard surfacing working away from the RPAs or from suitable ground boarding capable of handling the expected loading.

If it is likely that there will be any soil collapse or the trench begins to collapse within the RPAs of retained trees which will lead to the loss of rooting environment, excavations are to be stopped immediately and the trench is to be shored up to prevent further soil collapse.

Where the removal of foundations occurs within the RPAs of retained trees these voids are to be back filled with clean topsoil.

Hard Surfacing

Where it is required for hard surfacing is to be removed and or re-surfaced within the RPAs of retained trees it is to be undertaken under direct on-site arboricultural supervision, during the landscaping phase of the development.

The wearing course will be broken up using a handheld pneumatic breaker, hand tools and wheelbarrows to break up and remove the surfacing. Where is necessary to remove the subbase, this is to be undertaken using a fork to loosen the material and moved using shovels and wheelbarrows.

In some situations, and at the discretion of the arborist it may be possible to use an excavator using a hydraulic breaker and a suitably sized toothless grading bucket. If an excavator is to be used it must be situated outside of the RPAs, on top of the hard surfacing working away from the RPAs or from ground boarding.

Whichever system is used there is to be **NO** disturbance of the soil beneath. If roots are found they are to be covered over with damp hessian and a layer of either sharp sand, wood chip or topsoil will be applied as soon as practicably possible to prevent desiccation.

Existing Underground Services

Existing services within the site should be retained wherever possible. Where existing services within RPAs require upgrading, the utmost 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

Before the construction of the proposed development, a copy of the construction method statement will have been submitted and approved by the Project Arboriculturist 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.

Foundations design

New foundations for walls situated within the RPAs of retained trees are to be designed in conjunction with arboricultural advice to accommodate the likely loading of the structure. The foundations will be designed to limit the amount of excavation required within RPAs to retain significant roots as identified during the site investigations.

The installation of a foundation will result in the loss of 6% of the RPA of tree T17, however, this area is currently under established hard surface so its likely that root activity here will be minimal in comparison with that within the area of ownership.

All and any excavations that may be required for foundations within the RPAs of retained trees will initially be undertaken manually under arboricultural supervision (see Manual excavation).

If roots are encountered during the excavation process the remaining onsite rooting volume will be ameliorated (see **Soil Amelioration**).

Basement

The proposed basement has been designed to be situated almost entirely outside of the RPAs of all retained trees with the exception for minor incursions within the RPAs of trees T11 & T14.

Table 10: Impacts upon RPAs of retained trees – Subterranean construction.

Tree No.	Species	RPA	Incursion
T11	Sycamore	55.4	4.3
T14	London Plane	651.4	4.3

Before the excavation and or installation of the basement, a retaining system will be installed along the line of the basement to retain the surrounding soil and to remove the need for any over dig.

Within and immediately adjacent to the RPAs of trees excavations will be undertaken along the line of the retaining system to a depth of 800mm, these excavations will be undertaken manually under arboricultural supervision.

Concrete fuse adjacent to RPAs

Before concrete being poured to form the foundations within or immediately adjacent to the RPAs of retained trees the excavation is to be lined and sealed to prevent any leaching of the concrete into the soil and causing desiccation of retained roots by concrete runoff.

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 Project Arboriculturist with either a hand saw or secateurs.

Any roots found with a diameter of less than 25mm shall be cleanly severed by the Project Arboriculturist. Any roots of 25mm and above shall be excavated around without damaging them; the Project Arboriculturist shall decide if it is 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.

The 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

Detailed drawings of proposed underground services are not available at this time; hence it is not possible to identify any specific potential impacts associated with the scheme at this stage.

Existing services within the site will be retained wherever possible. Where existing services within RPAs require upgrading, the utmost 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 will 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 will be verified and approved by the Project Arboriculturist 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 will be taken in routing and methods of installation of all underground services. All underground services and drainage routes will 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 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 Project Arboriculturist with either a hand saw or secateurs.

Any roots found with a diameter of less than 25mm shall be cleanly severed by the Project Arboriculturist. Any roots of 25mm and above shall be excavated around without damaging them; the Project Arboriculturist shall decide if it is 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.

The 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 will 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. The open section of the trench will only be large enough to allow access for linking to the next section.

Landscaping

A specification for and notation relating to the precise alignment of r new tree planting will be contained in the landscape proposals.

Landscaping around retained trees may only be carried out once all tree protection measures have been removed (planting, turfing, fencing etc.).

All excavations within the Root Protection Areas shall be undertaken by hand and without reducing current ground levels unless it is agreed in writing with the LPA. At no time is the use of a rotavator permitted within the RPAs of retained trees.

Any tree roots discovered will be left in-situ and shall not be cut or otherwise damaged. Where possible, the soil structure within the Root Protection area shall be preserved.

No works will be carried out within the RPAs of any trees if the soil moisture is of such a level that soil compaction may be likely. Should the soil become compacted or has a poor structure which would hinder the development of the existing trees and plants or any new plantings the arboriculturist will be consulted about soil decompaction techniques.

Monitoring and Supervision

Where trees have been identified within this method statement and tree protection plan drawing number Arbtech TPP 02 for retention, there will 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 are to be undertaken within or adjacent to the RPAs of retained trees are to be supervised by Project Arboriculturist, who will be retained to record and report observations to the council at appropriate intervals.

Pre-commencement site meeting

Before the commencement of any works or machinery and materials arriving on site a pre-commencement site meeting involving the project arborist, landowner 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 protection measures are in the correct location and as specified within the approved method statement, if so to sign off their installation.

Thereafter, 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 agreed 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 development areas must 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. Before any changes being implemented these must have been approved in writing by the LPA tree officer.

Supervision

The Project Arboriculturist 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 before the commencement of any works that require his attendance, these will include:

1. Pre-commencement site meeting.
2. Location of protective measures.
3. Supervised demolition of existing structures foundations within RPAs of trees T11, T13, T14, T19-T24 & G2.
4. Supervised excavations for foundations within RPA of tree T17.
5. Any demolition and or excavations within or adjacent to RPAs, including foundations, hard surfacing or underground services (a non-exhaustive list).
6. 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 Schedule

BS5837:2012 Tree Survey

Arbtech Consulting Ltd.

Client: Highgate School
 Project: Richards Music Centre
 Survey Date: 19/04/2016
 Surveyor: Jon Hartley



Unit 3, Well House Lane
 Chester Road
 Chester
 Cheshire
 CH4 0DH
 Phone: 01244661170

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
G1												Estimated Measurements		
A Group		6	1	200	N	3	2	SM	A: 18.1	Good	C: Good			C.2
- -					E	3	2		R: 2.4		S:	Off site mixed species group including Prunus spp. and Ilex sp.		20 to 40 yrs
					S	3	2				B:			
					W	3	2							
G2												Estimated Measurements		
A Group		3.5	1	75	N	1.5	1	Y	A: 2.5	Good	C: Fair			C.2
- -					E	1.5	1		R: 0.89		S: Fair	Off site linear group including yew, holly and lilac.		20 to 40 yrs
					S	1.5	1				B: Fair			
					W	1.5	1							
G3												Estimated Measurements		
A Group		4	1	100	N	1	1	Y	A: 4.5	Good	C: Good			C.1
- -					E	1	1		R: 1.19		S: Good	Off site boundary group of Malus sp. and Ilex sp.		20 to 40 yrs
					S	1	1				B:			
					W	1	1							
T1												Estimated Measurements		
Common Lime		18	1	890	N	6	4	M	A: 358.4	Fair	C: Fair			A.1.2
Tilia europaea					E	6	4		R: 10.68		S: Good	Basal and epicormic shoot development throughout typical of the species. Historically reduced with pruning wounds to 70mm diameter and regrowth to 70mm diameter.		>40 yrs
					S	6	4				B: Good			
					W	6	4							
Age Classifications:		N	Newly planted	EM	Early Mature	Condition:			C	Crown	Stems:	Ø	Diameter	
		Y	Young	M	Mature				S	Stem		(Eq)	Equivalent stem diameter using BS5837:2012 definition	
		SM	Semi-mature	OM	Over Mature				B	Basal area				

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
T2										Estimated Measurements	
Common Lime <i>Tilia europaea</i>	18	1	810	N E S W	6 6 6 6	4	M A: 296.9 R: 9.72	Fair	C: Fair S: Good B: Good	Basal and epicormic shoot development throughout typical of the species. Historically reduced with pruning wounds to 70mm diameter and regrowth to 70mm diameter.	A.1.2 >40 yrs
T3											
Sycamore <i>Acer pseudoplatanus</i>	15	1	500	N E S W	3 3 3 3	5	M A: 113.1 R: 6	Good	C: Fair S: Good B: Good	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 50mm diameter with regeneration up to 30mm.	B.1.2 >40 yrs
T4											
Sycamore <i>Acer pseudoplatanus</i>	15	1	290	N E S W	3 3 3 3	5	M A: 38.1 R: 3.48	Good	C: Fair S: Good B: Good	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 50mm diameter with regeneration up to 30mm.	B.1.2 >40 yrs
T5											
Sycamore <i>Acer pseudoplatanus</i>	15	1	270	N E S W	3 3 3 3	5	M A: 33 R: 3.24	Good	C: Fair S: Good B: Good	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 50mm diameter with regeneration up to 30mm.	B.1.2 >40 yrs
T6											
Sycamore <i>Acer pseudoplatanus</i>	15	1	270	N E S W	3 3 3 3	5	M A: 33 R: 3.24	Good	C: Fair S: Good B: Good	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 50mm diameter with regeneration up to 30mm.	B.1.2 >40 yrs
T7											
Sycamore <i>Acer pseudoplatanus</i>	15	1	220	N E S W	3 3 3 3	5	M A: 21.9 R: 2.64	Good	C: Fair S: Good B: Good	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 50mm diameter with regeneration up to 30mm.	B.1.2 >40 yrs
Age Classifications: N Newly planted EM Early Mature Condition: C Crown Stems: Ø Diameter Y Young M Mature S Stem (Eq) Equivalent stem diameter using BS5837:2012 definition SM Semi-mature OM Over Mature B Basal area											

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
T8											
Sycamore <i>Acer pseudoplatanus</i>	15	2	581 (Eq)	N E S W	5 3 4 4	4 5 5 5	M A: 152.9 R: 6.97	Good	C: Good S: Good B: Poor	Two codominant stems from base with included bark from base to 600mm. Crown has been reduced to wounds up to approximately 50mm diameter with regeneration up to approximately 30mmdiameter.	B.2 20 to 40 yrs
T9											
Sycamore <i>Acer pseudoplatanus</i>	15	1	420	N E S W	4 2 4 4	5 5 5 5	M A: 79.8 R: 5.03	Good	C: Fair S: Good B: Good	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 50mm diameter with regeneration up to 30mm.	B.1.2 >40 yrs
T10										Estimated Measurements	
Common Oak <i>Quercus robur</i>	14	1	650	N E S W	4 4 5 4	6 3 3 3	M A: 191.2 R: 7.8	Good	C: Fair S: Fair B:	Off site tree. Historical stem wound from base to 6m extending half circumference commensurate with fire damage. Historical reduction up to 200mm diameter wounds.	B.2.3 >40 yrs
T11											
Sycamore <i>Acer pseudoplatanus</i>	16	1	350	N E S W	2 2 1 2	4 4 4 4	M A: 55.4 R: 4.19	Good	C: Good S: Good B: Good	Boundary tree. Reduced 30mm diameter with regeneration up to 30mm diameter.	B.2 >40 yrs
T12											
Sycamore <i>Acer pseudoplatanus</i>	16	1	570	N E S W	3 3 3 5	5 7 5 5	M A: 147 R: 6.84	Good	C: Good S: Good B: Good	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 70mm diameter with regeneration up to 30mm.	B.2 >40 yrs
T13											
Sycamore <i>Acer pseudoplatanus</i>	16	1	390	N E S W	1 3 3 3	5 5 5 5	M A: 68.8 R: 4.67	Good	C: Good S: Good B: Poor	Boundary tree regular maintained with reduction works. Works resulting in pruning wounds up to 70mm diameter with regeneration up to 30mm. Historical basal wound originally 300mmx300mm now 100mmx200mm.	C.2 10 to 20 yrs
Age Classifications:	N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature	Condition:		C S B	Crown Stem Basal area	Stems:	Ø (Eq)	Diameter Equivalent stem diameter using BS5837:2012 definition

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
T14										Estimated Measurements	
London Plane <i>Platanus x hispanica</i>	22	1	1200	N	6	6	M	A: 651.5 R: 14.4	Fair	C: Poor S: Fair B:	B.2 20 to 40 yrs
				E	0	22				Appears to be historically of two codominant stems with eastern stem removed. Asymmetrical crown distribution resulting from poor pruning. observations made from site and obscured by 4m fence.	
				S	8	4					
				W	9	4					
T15										Estimated Measurements	
Common Lime <i>Tilia europaea</i>	12	1	490	N	2.5	6	SM	A: 108.6 R: 5.87	Fair	C: Fair S: Fair B: Fair	B.2 20 to 40 yrs
				E	2.5	6				Off site street tree regularly pollarded.	
				S	2.5	6					
				W	2.5	6					
T16										Estimated Measurements	
Common Lime <i>Tilia europaea</i>	12	1	470	N	2.5	6	SM	A: 99.9 R: 5.63	Fair	C: Fair S: Fair B: Fair	B.2 20 to 40 yrs
				E	2.5	6				Off site street tree regularly pollarded.	
				S	2.5	6					
				W	2.5	6					
T17										Estimated Measurements	
Common Yew <i>Taxus baccata</i>	9	2	354 (Eq)	N	2	8	SM	A: 56.6 R: 4.24	Good	C: Fair S: Good B: Fair	B.2 >40 yrs
				E	3	2				Off site tree. Ivy obscures inspection of stem and base.	
				S	3	2					
				W	3	2					
T18										Estimated Measurements	
Bay <i>Laurus nobilis</i>	5	4	281 (Eq)	N	3	2	SM	A: 35.7 R: 3.37	Good	C: Good S: Good B: Good	B.2 >40 yrs
				E	3	2				Off site boundary tree.	
				S	3	2					
				W	2	2					
T19											
Common or Black Elder <i>Sambucas nigra</i>	4	1	110	N	2	2	M	A: 5.5 R: 1.32	Good	C: Fair S: Good B: Good	C.1 20 to 40 yrs
				E	0	2				Boundary tree of low quality and value.	
				S	0	2					
				W	3	2					
Age Classifications: N Newly planted EM Early Mature Condition: C Crown Stems: Ø Diameter Y Young M Mature S Stem (Eq) Equivalent stem diameter using BS5837:2012 definition SM Semi-mature OM Over Mature B Basal area											

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
T20										Estimated Measurements	
Common Beech <i>Fagus sylvatica</i>	12	1	320	N E S W	4.5 4 4 4	3	SM A: 46.3 R: 3.83	Good	C: Fair S: Good B: Good	Off site tree. Recently reduced to current dimensions.	B.1.2 20 to 40 yrs
T21										Estimated Measurements	
Common Hawthorn <i>Crataegus monogyna</i>	6	1	250	N E S W	3 3 3 3	2	M A: 28.3 R: 3	Good	C: Fair S: Ivy B:	Off site tree. Ivy obscures inspection of stem and primary branch unions from base to 6m.	B.1.2 20 to 40 yrs
T22										Estimated Measurements	
Purple leaf plum <i>Prunus cerasifera</i>	6	1	300	N E S W	3 4 3 3	2	M A: 40.7 R: 3.59	Good	C: Fair S: Fair B:	Off site boundary tree. Two codominant stems from 2m with included bark at stem union.	C.1.2 10 to 20 yrs
T23										Estimated Measurements	
Southern Magnolia <i>Magnolia grandiflora</i>	9	1	300	N E S W	4 4 4 4	2	M A: 40.7 R: 3.59	Good	C: Good S: Good B: Good	Off site tree. Recorded observations made from on-site with very limited visual access to subject.	B.2 20 to 40 yrs
T24										Estimated Measurements	
Silver Birch <i>Betula pendula</i>	10	1	250	N E S W	4 2 4 4	5	SM A: 28.3 R: 3	Good	C: Good S: Fair B:	Off site tree. Recorded observations made from on-site with very limited visual access to subject.	C.2 20 to 40 yrs
Age Classifications: N Newly planted EM Early Mature Condition: C Crown Stems: Ø Diameter Y Young M Mature S Stem (Eq) Equivalent stem diameter using BS5837:2012 definition SM Semi-mature OM Over Mature B Basal area											

Appendix 2: Tree Protection Notice

(To be printed at A3 or larger)

Tree Protection Area **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**



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		
	Project Arboriculturist	Arbtech Consulting Ltd.	01244 661170 https://arbtech.co.uk
	Site Manager		
	Main contractor		

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