GREENACRE
ARBORICULTURE

53 Balgores Lane
Gidea Park
Romford
Essex
RM2 5JU

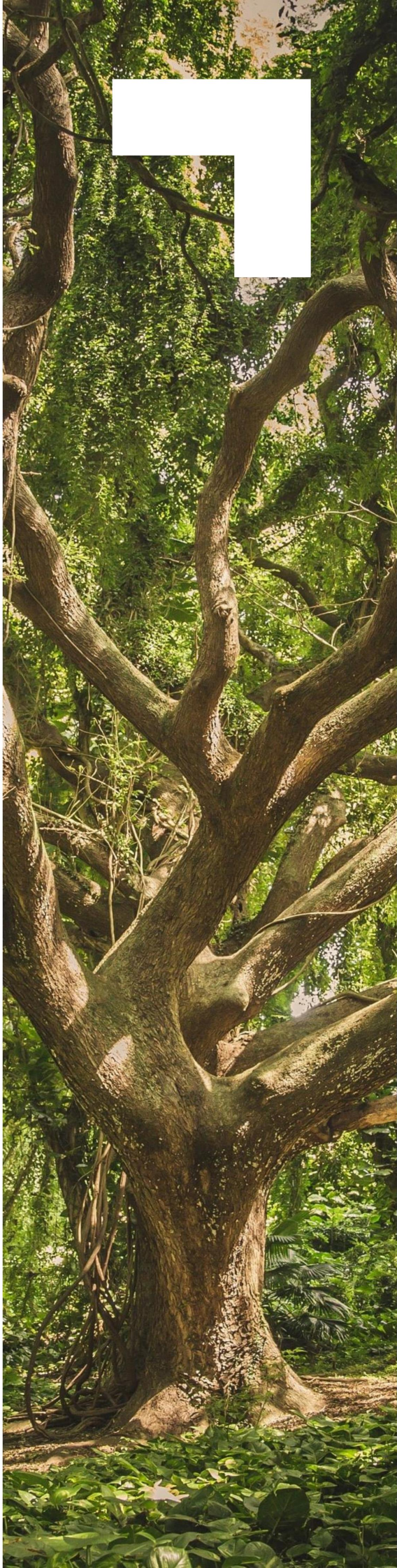
Arboricultural Impact Assessment
Ref. 12/202407

Date instructed:
24.07.2024

Date of survey:
29.07.2024

Prepared by:
C.A. Jones & E.R. Donnelly

Date completed:
14.08.2024



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1. Introduction and Background Information

1.1 Instruction

Greenacre Arboriculture Ltd has been instructed by Essex Design Studio to carry out a survey of the trees located within and adjacent to the property of 53 Balgores Lane, Gidea Park, Romford, Essex, RM2 5JU and produce an arboricultural report, in accordance with BS5837:2012.

1.2 Background

In support of a planning application to the London Borough of Havering Council, the client has requested that a Tree Survey and Arboricultural Impact Assessment be undertaken, in relation to the proposed construction of replacement single-storey rear extension to the property.

1.3 Documents provided

- Balgores Lane.dwg

2. Tree Survey

2.1 Scope

To undertake a survey of the trees located within the proposed development site, in accordance with BS5837:2012.

The management recommendations provided are based upon the condition of individual or group relative to their surroundings and current landscape, and not in relation to the proposed development. Management recommendations specified to trees would include those which are identified as posing a significant or immediate hazard to life or property.

2.2 Survey methodology

The data and information recorded within this report are used to identify trees suitable for retention during construction and development. The categorisation of trees included within the survey is carried out in accordance with the cascade chart, which is given as Table 1 in BS5837:2012. A copy of this table is provided within this report as Appendix 2.

Tree information recorded includes the species identification, tree height, stem diameter, crown spread radius to all cardinal points, crown clearance, height to first significant branch, age classification, physiological condition, observations and structural condition of tree, preliminary works recommendations, categorisation of their retention value and estimated remaining contribution to the landscape within years.

Trees included within the survey are those which have a stem diameter of 75mm or greater at a height of 1.5m above ground level. Additionally, trees within third-party properties which are estimated to be within a distance equivalent to 12 times their stem diameter will be included.

The survey is of a preliminary nature and is based on the Visual Tree Assessment (VTA) methodology (Mattheck and Breloer, 1994). The findings are not to be taken as a detailed assessment of tree health or risk.

All information is recorded using Pear Technology tree mapping and management software on a handheld tablet device and topographical survey map. The locations of trees not included on the topographical survey map have been plotted using GPS reference systems, with a reported accuracy of approx. 1.0m to 3.0m. Where possible, the locations of trees have been calibrated using measurements recorded on site from fixed datum points.

2.3 Details of Tree Constraints Plan

The Tree Constraints Plan (TCP) identifies constraints posed by trees on and adjacent to the proposed development site. This information is then used to advise the areas where development can be considered.

In addition to showing the locations of trees, the Tree Constraints Plan depicts their calculated root protection area (RPA). The RPA is plotted as a circle from the centre of the main stem and is calculated from measurements recorded during the tree survey. The RPA is created to limit access to the surrounding areas of the trees, in relation to construction and development.

Where details regarding the development, such as location have already been defined, the trees included within the survey and TCP are evaluated regardless of this information.

The TCP is provided as an attachment to this report and should be viewed alongside the information within this document.

3. Limitations

3.1 Limitations of the Arboricultural Impact Assessment

The inspection and survey were based on visual observations as recorded and described within the report.
A climbing inspection was not carried out, unless stated otherwise within the report.
No below ground inspections were carried out, unless stated otherwise within the report.
All observations were made from within the boundaries of the property, or from public land unless otherwise stated. Trees within third-party properties are inspected from within the boundaries of the permitted property access or public land.
All measurements are estimated, unless stated otherwise stated within the report.

3.2 Management recommendations

The management recommendations in this report are valid for one year, any alterations or amendments render this report invalid. Management recommendations will become invalid if changes develop to the site that affect the condition of the tree, the site as evaluated, or the hazards as identified at the time of the survey.
It is recommended that a new tree survey/report is undertaken if such changes occur to any of the aforementioned details.
The recommended works stated above are deemed necessary for the appropriate management of the tree(s) and should be acceptable to the local authority. The local authority does have the right to refuse the recommendations made in this report.

3.3 Trees subject to statutory controls

If the tree(s) are covered by a Tree Preservation Order or are located in a Conservation Area it will be necessary to contact the local authority before any form of tree work operations, other than particular exemptions, can be carried out.

3.4 Provided information

Any information provided to Greenacre Arboriculture Ltd in relation to this report is assumed to be accurate.

3.5 Trees in relation to subsidence or heave

Assessment of the risks of indirect damage occurring or associated with the development or third-party properties is not covered within this report.

3.6 Trees in relation to change outside human control

Trees are a form of living organism which are subject to changes outside of human control and susceptible to failure even when considered sound (Mattheck and Breloer, 1994). Phenological changes influence and impact trees' growth when in dormancy and in leaf. Extreme changes in weather can warrant inspection or re-inspection of trees to assess their associated health and safety.

3.7 Copyright

4. Site Details

4.1 Property and site description

53 Balgores Lane is a two-storey detached residential dwelling with off road parking and garden areas to the front and rear. The property is located in Gidea Park and is accessible from Balgores Lane, which typically experiences moderate traffic usage.

The site is predominantly level with no adverse topographical features.

The current tree population located within the site consists of both native and non-native species, which range in age from early-mature to mature.

Figure 1. Site overview (highlighted in red). Image referenced from Google Earth and accurate as of 08.03.2022.

4.2 Tree Preservation Order (TPO) and Conservation Areas (CA)

Searches carried out using the London Borough of Havering website and interactive mapping service accessed on 30.07.2024 indicated three trees within the property of 53 Balgores Lane are subject to a Tree Preservation Order, ref. TPO 08/04 (Figure 2).

Searches also confirmed the site is situated within the Gidea Park Conservation Area (Figure 3).

Under the Town and Country Planning (Tree Preservation) (England) Regulations 2012, you cannot undertake any works on trees which are subject to a Tree Preservation Order before obtaining formal written permission as issued by the appropriate Local Planning Authority.

Permission can be sought with the submission of a Tree Preservation Order planning application (1APP) or an application for full planning permission for development.

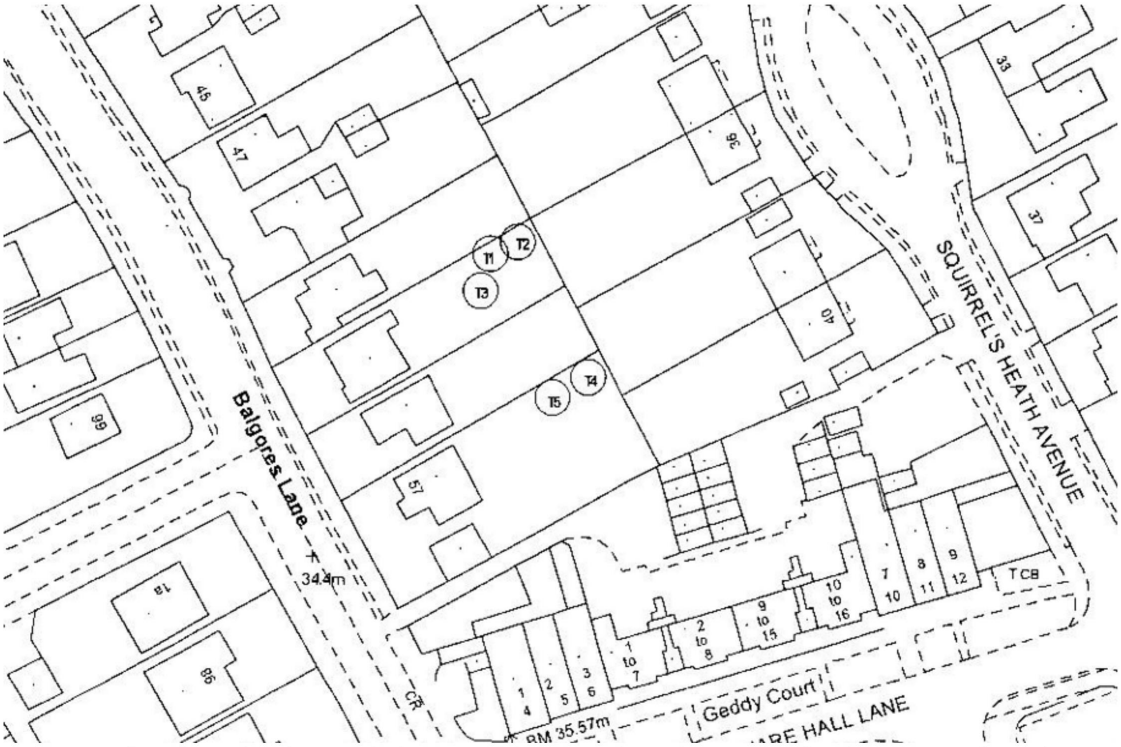

Figure 2. Screenshot of site plan showing the location of three trees (T1-T3) situated within the property of 53 Balgores Lane, which are subject to Tree Preservation Order, ref. TPO 08/04.

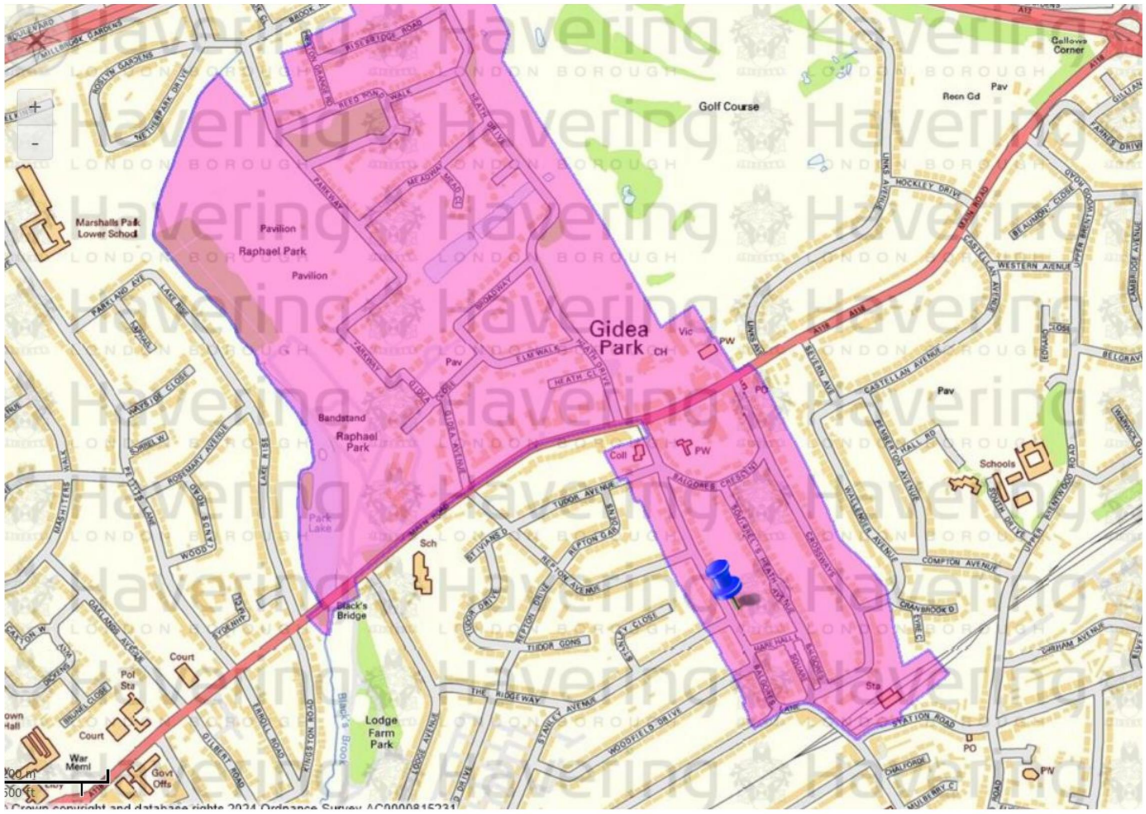

Figure 3. Screenshot from the London Borough of Havering interactive mapping service showing the location of the Gidea Park Conservation Area in relation to 53 Balgores Lane.

5. Impact Assessment

5.1 Purpose of impact assessment

Following the Tree Survey, an Arboricultural Impact Assessment (AIA) can be undertaken on the proposed development site. This will consider the impacts posed by the proposed development and consider how this may affect the surrounding trees in the present and future.

The AIA will seek to address the following:

- Constraints posed by the development, above and below ground.
- Infrastructure requirements.
- Issues relating to the proximity of the trees to the development.
- Issues relating to the requirement to prune trees due to encroachment and to facilitate access.
- Options for mitigating tree loss through planting within the development.

5.2 Development description

My understanding is that the proposed development includes the following works:

1. Demolition of existing single-storey rear extension.
2. Construction of a new single-storey rear extension.
3. Hard landscaping including new patio area.

5.3 Details of trees to be affected by the proposed development

The table below details which trees are required to be removed to facilitate the development and those which can be retained. Included are the preliminary details of the mitigation required for the retained trees to accommodate the development, along with any pruning works to facilitate construction or access.

This is the result of an assessment based on the proposed site plan whilst referencing data included within the tree survey.

Table 1. Details of the proposed development, how it impacts the surrounding trees and the preliminary details of the mitigation required

Tree no.	Species	Cat (BS5837)	Removal due to		Pruning required	Mitigation required	Details of impacts posed and preliminary mitigation required
			Works	Cond.			
T001	Common hornbeam	B1	n/a	n/a	n/a	n/a	No issues.
T002	Common beech	A1	n/a	n/a	n/a	n/a	No issues.
T003	Common pear	B1	n/a	n/a	n/a	n/a	No issues.
H001	Mixed species hedgerow	C2	n/a	n/a	n/a	n/a	No issues.
T004	Southern magnolia	B1	n/a	n/a	✓	n/a	<u>Development access</u> Crown clearance - Approx. 2.0m Pruning is required to facilitate the installation of protective barriers. <u>Outline of works</u> - Crown lift to approx. 2.5m above ground level.
H002	Privet hedgerow	C2	n/a	n/a	n/a	n/a	No issues.
G001	Mixed species group	C2	n/a	n/a	n/a	n/a	No issues.
H003	Elm hedgerow	C2	n/a	n/a	n/a	n/a	No issues.
T005	London plane	A1	n/a	n/a	n/a	n/a	No issues.

5.4 Overview of impacts posed by the proposed development

Table 2. Overview of the number of trees impacted by the development

	Category A	Category B	Category C	Category U	Total
No. of trees, groups or hedges present on site:	2	3	4	0	9
No. of trees, groups or hedges required to be removed for development:	0	0	0	0	0
No. of trees, groups or hedges proposed to be removed for arboricultural reasons:	0	0	0	0	0
No. of trees, groups or hedges required to be pruned:	0	1	0	0	1
No. of trees, groups or hedges requiring mitigatory works:	0	0	0	0	0

5.5 Consideration of below ground utilities

Currently, no details regarding changes to infrastructure relating to the development have been provided. Where practically possible, existing drainage locations should be used. Any new installations of underground services should be located outside the RPA of retained trees.

5.6 Assessment of growth potential from retained trees within the next 10 years

Currently, there are no significant impacts identified from the potential of growth from the retained trees.

6. Conclusion

In relation to the proposed development, five individual trees, one group and three hedgerows have been assessed. This included trees which range in retention value from ‘A Category’ to ‘C Category’.

As a result of the proposed development, no trees are required to be removed. Of the retained trees, one individual will require minor pruning works to facilitate the installation of protective barriers prior to development works commencing. However, the works proposed are not considered to significantly impact their health or structural condition.

The design proposal has sought to consider the existing trees and vegetation both within and adjacent to 53 Balgores Lane, resulting in minimal impacts to the trees and landscape.

It is considered that there will be minimal impact to the retained trees and surrounding landscape provided that the details within the Arboricultural Method Statement are adhered to throughout the construction process.

7. Arboricultural Method Statement

7.1 Purpose of method statement

The Arboricultural Method Statement (AMS) is produced following the Arboricultural Impact Assessment (AIA). It includes work methodologies suitable to mitigate and prevent damage posed by aspects of the proposed development to trees which have been identified as suitable for retention.

The AMS considers activities such as construction and installation within the surrounding areas of retained trees, as well as issues relating to site access and storage of materials.

Outlined within the report are tree works necessary to facilitate the development as well as the sequence of events in relation to phases of construction affecting the retained trees.

7.2 Details of Tree Protection Plan

Along with the AMS, the Tree Protection Plan (TPP) depicts trees that are to be retained, pruned or removed during the development, as well as preliminary locations of protective measures such as protective fencing and ground protection.

The TPP is provided as an attachment to this report and should be viewed alongside the information within this document.

7.3 Details of personnel involved

The table below includes contact details of the personnel involved with the development:

Table 3. Site contact information

Name	Role/ Organisation	Contact information
TBC	Tree Officer/ London Borough of Havering Council	01708 434 343
TBC	Site Manager	TBC
Jan Mazierski	Architect/ Essex Design Studio	07515 283 665 jan@essexdesignstudio.co.uk
Christopher Jones	Project Arboriculturist/ Greenacre Arboriculture Ltd	07857 296 620 chris@greenacrearboriculture.co.uk

8. Site Management and Monitoring

8.1 Site management

The protective measures set out within this document must be available and recognised by all of those involved with the management and construction of the development.

It is the site manager's responsibility to make all personnel working on the site at any stage, aware of and understand the details within this AMS. It is advisable that the details within the AMS are included during all site inductions. Those who are working within or adjacent to the canopies or RPAs of retained trees on site must be provided with a copy of this method statement and accompanying tree protection plan.

It will be the site manager's responsibility to ensure all tree protective measures in place at the development are maintained and monitored accordingly, on a daily basis.

It is recommended that the protective measures on site are checked at regular intervals, with details of the checks recorded and documented. This may be done using a basic check sheet accompanied with photographic evidence and undertaken by the site manager, or other designated individual.

In the absence of the site manager, another individual will be designated to ensure protective measures are being retained until the site manager returns.

Any incidents of damage to retained trees on site or to the tree protective measures must be recorded and documented by the site manager. The information relating to these incidents will then be provided immediately to the project arboriculturist, with any form of development work within this area ceasing until an inspection of the damage can be made by the project arboriculturist. At this stage, the local authority must be notified so that a suitable mitigation plan can be agreed upon with the local tree officer.

It is the site manager's responsibility to ensure that the conditions attached to the planning consent are always adhered to and that scheduled monitoring and supervision of any works associated with the development within or adjacent to the RPAs are applied.

8.2 Site supervision

At certain stages during the development, it may be deemed necessary that arboricultural supervision is required. This allows for advice to be provided as issues arise during the relevant stage of works, and to ensure working methods are adhered to.

A report summarising the details of supervision will be produced to document the works undertaken and provided to the Local Planning Authority.

Details of the relevant stages requiring supervision are stated within section 10.1 of this method statement.

9. Works Schedule

9.1 Tree work schedule

The table below details the list of tree works to be undertaken prior to the installation of protective fencing and ground protection.

Development construction is not to commence, including the delivery of construction materials, until the scheduled tree work has been completed and protective measures installed.

All tree work is to be undertaken in accordance with British Standard BS3998:2010, Recommendations for Tree Work. All arisings produced from the tree work carried out are to be removed from the site, leaving the site in a safe and tidy condition.

When undertaking tree surgery operations, there is potential to disturb and/ or compact the soils surrounding retained trees. No plant machinery or vehicles shall be used, driven, or positioned beneath the crowns of any retained trees. This will prevent physical damage to any part of the tree, above or below ground and prevent subsequent compaction of soils.

Table 4. Tree work schedule

Tree no.	Species	Category (BS5837)	Works to be carried out
T004	Southern magnolia	B1	Crown lift to approx. 2.5m above ground level.

10. Development Details

10.1 Sequence of development phases

The table below includes the sequence of the phase of works in relation to the development.

Table 5. Sequence of development phases and events

Sequence	Phase of works	Details of arboricultural input
1	Pre-commencement site meeting.	Yes – Project arboriculturist to discuss working methodologies, proposed timescales and tree protective measures with contractor via email or telephone.
2	Carry out tree works as specified in the tree work schedule (section 9.1).	n/a
3	Installation of protective barriers and to establish temporary storage areas.	Yes - Photographs to be provided to the project arboriculturist to confirm protective barriers are of adequate specification and within the correct locations.
4	Demolition of existing single-storey rear extension.	Yes – Photographs showing the location of protective barriers to be provided to the project arboriculturist to confirm they are being retained during the phase of demolition.
5	Construction of a new single-storey rear extension.	Yes – Photographs showing the location of protective barriers to be provided to the project arboriculturist to confirm they are being retained during the phase of construction.
6	Hard landscaping including new patio area.	Yes – Photographs showing the location of protective barriers to be provided to the project arboriculturist to confirm they are being retained during the phase of construction.
7	Removal of protective barriers and temporary storage areas following completion of works.	Yes - Site visit to check condition of retained trees.

11. Site Conditions and Protective Measures

Access to site

Access will be from Balgores Lane located west of the proposed development site. This is the only known access to the site.

Protective barriers

Prior to the commencement of any works on site (other than those outlined in the schedule of tree works), suitable protective barriers must be erected. The location of the barriers is depicted and shown on the Tree Protection Plan. The barriers are to be erected to create a 'Construction Exclusion Zone' (CEZ) around the RPA of retained trees. The barriers will remain in place until the main construction phase has been completed.

Other than works detailed within this method statement or approved in writing by the local planning authority, no works shall take place within these exclusion zones. No vehicles will be allowed to enter these areas protected by the barriers.

The specification for protective barriers is included in Appendix 4.

Ground protection

The location of ground protection is depicted and shown on the Tree Protection Plan. No excavations are to be carried out under any circumstances to facilitate the installation of ground protection, within the RPA of retained trees on site. Ground protection installed will remain in place until the main construction phase has been completed, unless otherwise stated within this document.

No vehicles or plant machinery will be allowed to enter or be used in these areas unless the ground protection installed is to a suitable specification. Should the project engineer determine any existing hard surfacing does not provide adequate protection from the expected loading, ground protection is to be installed to the specification provided by the structural engineer.

Should machinery be used or stored in the areas where ground protection is installed within the RPA of the retained trees, an impermeable material will need to be applied to the ground protection. This will prevent oils, fuel or chemicals leaching into the soil within or adjacent to the RPAs.

Should it be necessary to remove the debris, vegetation or the existing surfacing to accommodate the installation of ground protection on site, then this must be carried out using handheld tools only.

Examples of suitable ground protection are included in Appendix 5.

Demolition

Demolition will be carried out using hand-held power tools inwards from within the footprint of the existing building working away from retained trees.

In certain scenarios, it may be deemed more practical for an excavator to be used during demolition. Excavators used should be the smallest size practical for undertaking works, with their use to be agreed upon by the project arboriculturist prior to demolition commencing. Should it be deemed appropriate for an excavator to be used during demolition, arboricultural supervision may be required during works.

Arisings shall be removed immediately for disposal off-site and not spread or placed in any RPA.

Where the crowns of retained trees are in close proximity to the demolition area, it could be possible for them to experience a significant build-up of dust on their foliage. Therefore, it may be deemed necessary to hose down the affected area of the crowns.

Storage of materials

No storage of materials is to take place within the RPA of trees included within this document, unless otherwise stated. Storage areas will be designated by the site manager, post discussion with the project arboriculturist. Existing hard standing surfaces should be utilised for storage areas to avoid compaction of soils.

Discharge of contaminants

No materials should be discharged within the RPA of trees that are to be retained. Examples of such materials include oils, cement and fuels, which would likely negatively impact the trees' health. These materials should be disposed of appropriately and following manufacturers' guidelines.

Contingency plans

Should any contaminants enter within or adjacent to the RPA there must be appropriate equipment available to deal with such situations. Assessment can then be made whether additional soils would need to be removed. This should be done with the consultation of the project arboriculturist. Protective barriers that are erected on site should be able to be dismantled with ease in case of this scenario.

Below ground utilities

Where practically possible, existing drainage locations should be used. Should existing services located within the RPA of retained trees require works to be carried out to them, it is essential that works are carried out in a cautious and caring method, minimising disturbance to these areas using trenchless techniques where practically possible.

Where new services are to be installed on the site, they should be located outside of RPAs. Should it be necessary to excavate within the RPA of any retained tree, they will need to be carried out using handheld tools only, under the supervision of the project arboriculturist in accordance with NJUG guidance. Prior to excavations commencing, finalised locations of the proposed services will need to be approved by the project arboriculturist and Local Planning Authority.

Plant and machinery

Under no circumstances is any plant or machinery to be operated or stored within the RPA of any retained trees on site, unless otherwise stated within this document. Refuelling of plant or machinery is to take place a minimum of 5m from the RPA of retained trees. Should machinery be operated within 5m of the canopies of retained trees, then this will need to be done under the supervision of a suitably qualified banksmen.

Lifting equipment

All lifting equipment, including cranes, should be positioned so they may operate without contacting retained trees. Lifting operations are to be guided by a suitably qualified banksman to ensure that no part of the crane or materials being transported come into contact with any part of retained trees.

Changes affecting the ground level

Certain works, including soft and hard landscaping, may require changes within the ground level. When undertaking the planning and carrying out of these operations, endeavour should be made to keep these changes in level to a minimum. Where the removal of soil may be necessary within the RPA of retained trees, this should be limited between 25mm and 50mm. Additionally, should the ground level within the RPA need to be increased, this should be limited to no more than 50mm in depth. Where soil and ground levels need to be increased, existing soils from the site or fresh topsoil should be used.

Appendix 1. Survey Terminology

Table 6. Arboricultural survey terminology

Tree no.	Reference number given to the tree in relation to the plan or drawing.
Species	Common name used for the species of tree with the scientific name given when considered relevant.
Height	The approximate height of the tree given in metres.
Stem dia.	This is the measurement of the stem diameter at 1.5m above ground level, given in millimetres.
Crown spread	Approximate spread of the crown measured from cardinal points/ directions (N, E, S, W) given in metres.
Height of crown clearance	This is the height of the clearance from ground level to the lowest point of the crown, given in metres.
Height to first major limb	This is the height of the first major lateral branch/ limb, which would be retained during crown lifting operations, when measured from ground level. The cardinal direction in which the branch is located is also specified, where necessary.
Age	Y – Young, in the first stages of the tree's life, less than a third of the tree's full life expectancy. SM – Semi-mature, approximately one third of the tree's life expectancy. EM – Early-mature, between one third and two thirds expectancy. M - Mature, over two thirds of the tree's life expectancy. OM – Over-mature, tree exceeding their life expectancy and now in decline.
Physical condition	This is a consideration based on the overall vitality of the tree and is assessed by the crown's condition. Words used to describe the vitality of the tree are: Good/ Fair/ Poor/ Dead, using intermediate descriptions of the same phrases, where necessary.
Observations and structural condition of tree(s)	These include comments and observations of the trees' structural and physical condition on the day of undertaking the survey. All comments and recordings are taken from the ground unaided, unless otherwise stated or mentioned.
Recommendation of works	Recommendations which have been identified as necessary remedial works, based on the structural observations of the tree. This is used to highlight potentially hazardous trees which require immediate attention. Other works which may be recommended would include the requirement for further detailed inspection of trees.
Estimated remaining contribution in years	The estimated remaining years that the tree will contribute to the surrounding landscape. The following grouping method is used: <10 years, 10+ years, 20+ years and 40+ years.
Category grading	The classification of trees following a qualitative assessment which is in accordance with the cascade chart given as Table 1 in BS5837:2012. A copy of this table is provided within this report as Appendix 2.

Appendix 2. BS5837:2012 Cascade Chart

Table 7. Copy of Cascade Chart used for tree quality assessment provided in BS5837:2012

Category and definition	CRITERIA (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (i.e. where, for whatever reason, the loss of the companion shelter cannot be mitigated by pruning). Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby {e.g. Dutch elm disease), or very low-quality trees suppressing adjacent trees of better quality. NOTE- Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.			DARK RED
	1. Mainly arboricultural values	**2. Mainly landscape values**	**3. Mainly cultural values, including conservation**	**Identification on plan**
Trees to be considered for retention (see Note)				
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups).	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).	LIGHT GREEN
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested).	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage).	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality.	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm.	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.	Trees with very limited conservation or other cultural benefits	GREY
	NOTE- Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation; see 4.5.10.			

Appendix 3. Tree Survey Data

Table 8. Tree survey data

Tree no.	Species	Height (m)	Stem dia. (mm)	Crown spread (m)				Ht of crown clear. (m)	Ht to first major limb (m)	Age	Phys condition	Observations and structural condition of tree(s)	Recommendation of works	Est remaining con.	Cat	RPA radius (m)	RPA (m^2)
				N	E	S	W										
T001	Common hornbeam	14.0	560	6.5	6.5	6.5	2.0	3.5	3.0 all	M	Good	Located on site boundary. Access limited to north side of the main stem. Light ivy encroachment on main stem. Crown breaks at approx. 2.0m above ground level. Cavity on the stem to the north at approx. 2.5m above ground level. Crown predominates significantly to the east due to suppression from adjacent beech.	No works presently required.	40+	B1	6.7	141.0
T002	Common beech	17.0	760	6.5	5.0	6.5	6.5	4.5	6.0 all	M	Good	Located on site boundary. Access limited to north side of the main stem. Basal growth present. Light ivy encroachment on main stem. Crown trifurcates at approx. 3.5m above ground level. Unions appear currently stable. Good form and crown structure.	No works presently required.	40+	A1	9.1	260.2
T003	Common pear	9.0	490	3.5	3.0	3.0	4.5	2.0	2.5 all	M	Fair	Main stem has an approx. 80° lean to the west. No evidence of soil movement surrounding the base of the tree. Not currently considered significant. Crown breaks at approx. 1.8m above ground level. Union appears currently stable. Crown historically reduced at approx. 8.0m above ground level. Approx. 0.5-1.0m regrowth now present.	No works presently required.	20+	B1	5.9	109.4
H001	Mixed species hedgerow	2.0	50	0.5	0.5	0.5	0.5	0	n/a	EM	Fair	Species include predominantly beech with infrequent hornbeam and privet. Regularly maintained at approx. 2.0m above ground level.	No works presently required.	10+	C2	0.6	1.1

Tree no.	Species	Height (m)	Stem dia. (mm)	Crown spread (m)				Ht of crown clear. (m)	Ht to first major limb (m)	Age	Phys condition	Observations and structural condition of tree(s)	Recommendation of works	Est remaining con.	Cat	RPA radius (m)	RPA (m^2)
				N	E	S	W										
T004	Southern magnolia	7.0	210 190 150	2.5	4.0	4.0	4.5	2.0	2.0 all	M	Good	Multiple stems form at approx. 0.5m above ground level. Unions appear currently stable. Cavities associated with pruning on stems around 1.5m above ground level. Crown historically reduced at approx. 6.5m. Approx. 0.5m regrowth attached.	No works presently required.	20+	B1	3.8	46.5
H002	Privet hedgerow	1.8	50	0.5	0.5	0.5	0.5	0	n/a	EM	Fair	Regularly maintained at approx. 1.8m above ground level.	No works presently required.	20+	C2	0.6	1.1
G001	Mixed species group	8.0	250	2.0	2.0	2.0	2.0	0	n/a	EM	Fair	Third-party. Species include plum, apple, cypress and perennial shrubs. Stem measurement taken from largest tree in group. Approx. 5no. specimens in group. Evidence of historic pruning throughout crowns.	No works presently required.	10+	C2	3.0	28.3
H003	Elm hedgerow	2.0	50	0.8	0.8	0.8	0.8	0	n/a	EM	Fair	Regularly maintained at approx. 2.0m above ground level.	No works presently required.	10+	C2	0.6	1.1
T005	London plane	19.0	890	6.0	6.0	5.0	6.0	5.0	4.5 all	M	Good	Third-party. Local authority ownership. Historically pollard at approx. 15.0m above ground level.	No works presently required.	40+	A1	10.7	359.7

Appendix 4. Protective Barrier Specifications

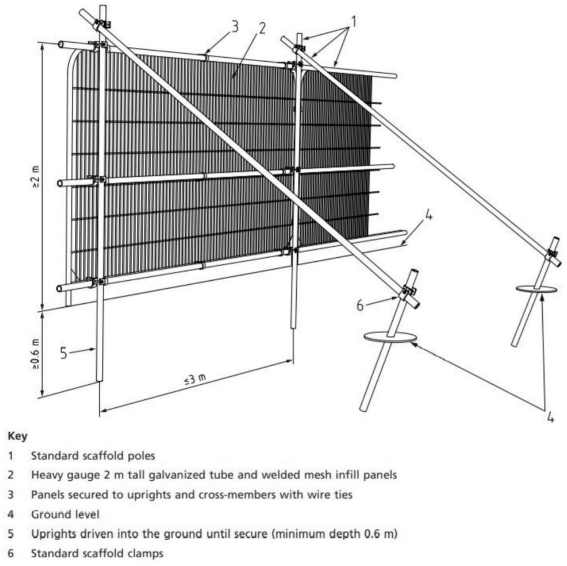

Figure 4. Example diagram of suitable protective barriers taken from BS5837:2012.

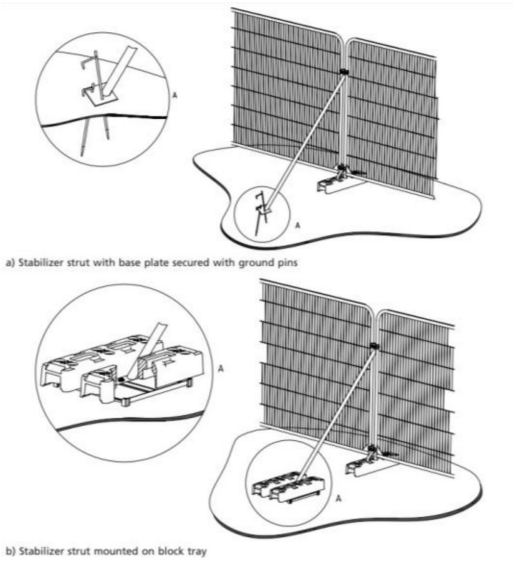

Figure 5. Example diagram of suitable protective barriers taken from BS5837:2012.

Figure 6. Example of suitable signage to be attached to protective fencing to create 'Construction Exclusion Zone'.

Figure 7. Example of suitable signage to be attached to protective fencing to create 'Construction Exclusion Zone'.

Barriers used should be fit for purpose in the creation of 'Construction Exclusions Zones'.

For this site, it is deemed suitable that 2.0m tall weld mesh fencing be used. The 2.0m tall weld mesh panels may be secured on rubber or concrete feet to provide an adequate level of protection from vehicles, pedestrians and manually operated plant. The panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence.

The distance between the fence couplers should be at least 1.0m and be uniform throughout the fence. The panels should be supported on the inner side by stabiliser struts, which would normally be attached to a base plate and secured with ground pins.

If on a hard surface area and ground pins are unfeasible, then they should be secured on block mounts.

All-weather notices should be attached to both specifications of protective barrier with words such as: "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

Appendix 5. Ground Protection Specifications

Temporary ground protection should be capable of supporting any traffic entering or being used in the site without becoming distorted or causing compaction of underlying soil.

A range of ground protection can be used on development sites depending on the weight of traffic and machinery proposed to be used.

Appropriate ground protection may include one of the following specifications:

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

- For pedestrian-operated plant up to a gross weight of 2.0t
  Proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.

  For wheeled or tracked construction traffic exceeding 2.0t gross weight
- An alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

Figure 8. Example of ground protection suitable for pedestrian operated plant up to a gross weight of 2.0t. Interlinked ground protection boards which are laid on top of a layer of woodchip with geotextile membrane below.