Arboricultural Report BS5837 (2012) Including Landscape and Visual Impact Assessment and Method Statement

Ref: Battledown Court, Ashley Road, GL52 6NS

Report carried out on 2nd December 2022

[redacted]

ARBORICULTURAL REPORT

BS5837: 2012 'Trees in relation to design, demolition and construction - recommendations'

[redacted]

SUMMARY

• The Tree Survey – 2nd December 2022, Arboricultural Impact Assessment and Method Statement and Draft Tree Protection Plan has been completed.

• It is our opinion that the construction of the new property in the rear grounds of Battledown Court will have negligible detrimental affect upon the existing trees, habitat and wildlife as identified in this report. This is however dependent on the correct use of all methods of protection and construction as recommended in the attached Arboricultural Visual Impact Assessment and Method Statement.

A chronology of events for arboricultural issues has been detailed in section 5 of this report and an Arboriculturalist Michael Hartnell of MDH ltd has been appointed to act as a watching brief during any construction work.

CONTENTS

1. INTRODUCTION

1.1 ASSIGNMENT

We have been instructed by Mr R Deacon on behalf of a planning pre application Battledaown Court, Cheltenham to carry out an Arboricultural Visual Impact Assessment and Method Statement and Draft Tree Protection Plan for development purposes in accordance with BS5837:2012 'Trees in relation to design, demolition and construction - recommendations'.

1.2 THE DEVELOPMENT PROPOSALS

This report has been prepared in order to support a planning pre application for the construction of a new dwelling within the open site identified in this report.

1.3 REPORT METHODOLOGY

The methodology for preparing this report is in accordance with BS5837:2012 'Trees in relation to design, demolition and construction - recommendations' is as follows:-

Tree Survey Plan

The purpose of this overview Tree Survey is to identify any tree structures that may require special management during the proposed development. Also to evaluate the health, age and condition of main trees located on the site.

Arboricultural, Visual Impact Assessment and Method Statement

The purpose of this part of the report is to identify, evaluate and possibly mitigate the extent of any direct and indirect impacts on the trees. It will also identify any potential impacts of the trees during the proposed development.

Tree Protection Plan

The Tree Protection Plan shows all necessary aspects of tree protection that is required during the development process.

1.4 DOCUMENTS AND INFORMATION PROVIDED

We were provided with plans of the site; also, we have taken the comments from the Cheltenham District Council case officer into account.

1.5 LIMITATIONS AND DISCLAIMER

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are only valid for one year. Any changes carried out to the site as it stands at present, prior to planning approval, eg building of extensions, excavation works, importing of soils, extreme weather events etc will invalidate this report.

Visual tree assessment has been undertaken from ground level utilising aids such as binoculars, sounding hammer and probes where necessary.

We have no personal connection with any of the parties involved in this situation that could influence the opinions expressed in this report.

2. THE SITE

2.1 SITE VISIT

We carried out the site visit on 2nd December 2022 on a clear day.

2.2 SITE DESCRIPTION

Set in a typical well established landscaped property with mature trees / scrub and other landscape features on all sides. The location of the site is set on an elevated platform typical with properties on the ANOB rolling hills. The extended mature tree stock retained in neighbouring properties all contribute to the overall feature of the area.

2.3 LEGAL CONSTRAINTS

If this property is located in a Conservation area or any of the trees are designated with a Tree Preservation Order, the Local Planning Authority will need to be consulted before any work commences.

Conservation Area

In Conservation Areas, trees of a diameter greater than 75mm, measured at 1.5m from ground level are automatically protected (except in certain circumstances) under the Town and Country Planning Act 1990. Notice of intent is required to be given to the Local Planning Authority (LPA) before work is carried out. An application form can be downloaded from the LPA website. The LPA has six weeks to decide whether the tree should be made subject to a Tree Preservation Order. If the LPA do not respond within the six-week period, then the tree work that has been applied for may proceed.

If an application for work is refused and a Tree Preservation Order is designated to the trees, the applicant has a right of appeal to the Secretary of State under the provisions of section 78 of the Town and Country Planning Act 1990 (as amended).

Tree preservation Order (TPO)

A Tree Preservation Order is made by the Local Planning Authority which in general makes it an offence under the Town & Country Planning Act 1990, to cut down, top, lop, uproot, wilfully damage of wilfully destroy a tree without the planning authority's permission.

It will be necessary to apply to the Local Planning Authority (LPA) for permission to carry out any work on these trees. The LPA has eight weeks to respond to the application to either refuse or permit the work applied for. The LPA can also make alternative work recommendations.

If an application for work is refused, or allowed subject to conditions, or if the council fails to decide the application within 8 weeks, the applicant has a right of appeal to the Secretary of State under the provisions of section 78 of the Town and Country Planning Act 1990 (as amended)

Carrying out work on protected trees without permission from the LPA can result in fines of up to £20,000 per tree, if convicted in a magistrate's court and you have destroyed the tree or up to £2,500 for other offences.

3. ARBORICULTURAL VISUAL IMPACT ASSESSMENT AND METHOD STATEMENT

3.1 DIRECT LOSS OF TREES

Numerous as report

In order to access and construct the proposed property numerous trees will need removing and all remaining trees will require protection. This decision has been documented in the tree survey and schedule based on the trees age, health and tree quality assessment. The Arboricultural plan with tree location has also been included.

PLEASE NOTE

During my recent inspection the main concern will be the protection all proposed retained trees whilst construction works is carried out on the site. The owners have made it clear that they wish to retain all healthy trees and all those trees/shrubs that will contribute to the landscape and screening of both old and the new proposed property.

3.2 TREES TO BE REMOVED FOR ARBORICULTURAL REASONS

Tree No 1802, 1803, 1811, 9869, 9870 all detailed in tree survey also
Tree No 1804, 1805, 1809 to be considered for removal based on access also the roadside silver birch owned by the council should be removed for site access.

3.3 FACILITATION PRUNING

None

All tree work should be carried out to BS 3998:2010 'Tree work - Recommendations'

3.4 REMOVAL OF TREE STUMPS

Tree no 1802, 1803, 1811,

The removal of tree stumps near to retained trees can result in root damage, leading to possible structural and physiological decline. To minimise the risk of this occurring, any tree stumps requiring removal within the root protection areas should be carried out using a mechanical stump grinder. This will be carried out by a suitably qualified and competent person. The depth of grinding should be kept to a minimum so as to avoid contact with tree roots from adjacent trees. The tree stumps may require chemical treatment prior to grinding, the herbicide used must not be systemically transferable to any retained trees.

3.5 TREEWORK AND ECOLOGY

Bats, nesting birds and some mammals are protected under the Conservation of Habitats and Species Regulations 2010, Wildlife and Countryside Act 1981 and (as amended) Wildlife and Countryside Act 2000. A risk assessment will be required prior to commencement of any tree work or felling to assess the likelihood of disturbing or endangering any protected wildlife or habitat. If any protected species are present in any of the trees, or if the tree has a known bird or bat roost, then consultation with the Statutory Nature Conservation Organisation (SNCO) must be undertaken prior to commencement of work.

3.6 TREE PROTECTIVE BARRIERS

Trees are often damaged both above and below ground level and soils compacted as a result of construction activity. In order to minimise this risk, tree protective barriers will be erected to prevent construction activities that may have a detrimental affect on any retained trees within influential distance of the construction area.

The barriers will be erected prior to the start of any construction or demolition activities and remain in place until all construction works are complete.

The area protected by barriers will be considered sacrosanct and will not be entered into by construction contractors without consultation with the commissioned Arboriculturalist Michael Hartnell of MDH ltd and Local Authority Tree Officer.

Barriers will be erected in accordance with both the default specifications detailed in figure 3 of BS5837:2012 'Trees in relation to design, demolition and construction -

recommendations' and in accordance with the specification in figure 3 of the British Standard.

The protective barriers will enclose the root protection areas of the following trees (hedge) as detailed on the **Tree Protection Plan B** The only trees likely to be affected during the construction phase is the activity of construction machinery and vehicles, although it should be noted that any storage area or site compounds will be constructed on the original hard standing area.

Trees to be protected using Heras fencing and stabilised in accordance with Figure 3 of BS5837: 2012

Where the site circumstances and associated risk of damaging incursion into the root protection area do not necessitate the default level of protection, an alternative specification such as Heras site fence panels can be used.

These weldmesh panels should be 2m tall and mounted on rubber or concrete feet. The panels should be joined together using a minimum of two anti-tamper couplers, installed so as they can only be removed from the inside of the fence. The distance between the couplers should be at least 1m and should be uniform throughout the fence. The panels should be supported on the inside by stabiliser struts, which should normally be attached to a base plate secured with ground pins (figure 3a). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabiliser struts should be mounted on a block tray (figure 3b).

All weather notices will be attached to all protective tree barriers with the words:

"CONSTRUCTION EXCLUSION ZONE – KEEP OUT"

3.7 GROUND PROTECTION

Protection area, it would significantly restrict construction operations. In order to resolve this situation and create a working zone around the proposed structure, the protective fencing can be moved back providing there is adequate ground protection to protect tree roots and prevent damage.

Surface soils are often compacted on construction sites as a consequence of heavy equipment moving over the surface. Soil structure can be affected to some depth. Compaction reduces air and moisture content and increases the likelihood of erosion.

Trees can be affected by physical damage to roots leading to decay and roots are unable to penetrate the soil. The results are poor vitality and stress.

If protective tree barriers were installed to enclose the entire root protection area, it would significantly restrict construction and access operations. In order to resolve this situation and create a working zone close to the proposed structure, suitable ground

protection will be installed to cover any section of exposed root protection area not protected by barriers.

In order to allow access for construction operations and minimise ground compaction from traffic, suitable ground protection will be installed to cover the root protection areas where they extend beyond the protective barriers.

This temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soils. The ground protection might comprise one of the following:

1. *a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*
2. *b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*
3. c) *for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*

3.8 POSITIONING OF TEMPORARY SITE FACILITIES

The siting of temporary site facilities has not been identified on the existing site plans. Any temporary site facilities such as site huts, offices, toilets and car parking must be positioned outside the root protection areas and construction exclusion zones of any retained trees.

The siting of temporary site facilities has not been identified on the existing site plans. If these facilities are required the following tree protection measures will be needed:

Any temporary site facilities such as site huts, offices, toilets and car parking must be positioned outside the root protection areas and construction exclusion zones of any retained trees.

Temporary buildings such as site huts can be used as protective barriers to the construction exclusion zone, if this is the case, a site specific Arboricultural Method Statement will be required prior to the siting of temporary structures.

The installation of temporary services such as water and electricity must be installed and routed in such a way so as not to damage any part of the retained trees. If installation of services is required inside the identified root protection area, a site specific Arboricultural Method Statement will be required prior to the start of any installation work.

If possible, any vehicle or pedestrian access required to and from the site facilities must be positioned outside the root protection area of any retained trees. If access has to be positioned within any root protection areas, a site-specific Arboricultural Method Statement detailing ground protection measures will be needed.

3.9 ON SITE STORAGE OF SPOIL, BUILDING AND TOXIC MATERIALS

Prior to and during construction works on site, no spoil or construction materials will be stored within the root protection area of any tree on site or within the adjacent land.

Any facilities for the storage of oils, fuels or chemicals will have to be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound will have to be at least equivalent to the capacity of the tank plus 10%. In case of accidental leakage, the compound will have to be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks plus 10%. All filling points, vents, gauges and sight glasses will have to be located within the bund. The drainage system of the bund will have to be sealed with no discharge to any watercourse, land or underground strata. Associated pipe-work will have to be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets will have to be detailed to discharge downwards into the bund.

3.1.0 CHANGES IN GROUND LEVEL

There will be no ground level changes within any identified root protection areas or construction exclusion zones, which are identified on the Tree Protection Plan.

3.1.1 INSTALLATION OF SERVICES

It is not expected that there will be the need for any service runs within the root protection areas of any retained trees on site.

If there were a need to install services within the root protection area of any trees on site, specialist measures would have to be employed to minimise damage to trees. An Arboriculturalist will be employed to prepare a site-specific method statement and carry out a watching brief.

The following methods will minimise the potential for root damage, although it should be considered that some root disturbance and minor damage might occur:

The preferred method of installing the services through Root Protection Areas is to employ trenchless techniques in the form of guided thrust boring. This system uses a steerable drilling head and above ground detector to bore a pathway below ground for ducts and pipes. The following tree protection methods shall be adhered to when employing this system:

• Pits will be required to insert and retrieve the boring equipment. If these pits are to be located within a Root Protection Area, they must be excavated with the use of hand tools and an air spade under the supervision of a competent Arboriculturalist. Where possible all roots over 25mm in diameter will be retained. The Arboriculturalist will be consulted if roots over 25mm require removal and will, if agreed, prune these roots using proprietary tools.

• The thrust boring will take place at a depth of below 650mm from the surface level, to avoid the principal rooting horizon.

• In order to avoid contamination of the soils, it is recommended that water is used for lubrication of the drilling head and boring equipment. No toxic substances will be used for lubrication. Where boring is not possible, incursions into the Root Protection Areas for the provision of services installation may be achieved by careful excavation techniques. This will involve excavating the service trenches with the use of an air spade and hand tools to minimise any damage to significant tree roots. Where it is necessary to excavate service trenches within the Root Protection Area of any trees, the following procedures will be employed:

• The trench will be excavated using an air spade and hand tools by a suitably qualified operator experienced in ground excavations around tree roots. Care must be taken to avoid any form of damage to any retained tree roots.

• All tree roots 25mm in diameter and over will be retained. An attempt must be made to retain all tree roots below 25mm in diameter but where this cannot be achieved these smaller roots can be pruned by the Arboriculturalist using sharp secateurs.

• The service pipes, cables or ducts will be installed into the trench using a method that will prevent any damage to the retained tree roots.

MDH ltd will be employed to carry out a watching brief of all trenching operations within the Root Protection Area of any trees.

It should be noted that there may be restrictions in the use of both these services installation methods due to poor compacted soil conditions, density of roots and the presence of underground debris and structures. The feasibility of using these methods, in relation to the site conditions, should be fully assessed prior to any work-taking place.

A site specific Arboricultural Method Statement will be prepared by MDH ltd and approved by the Local Planning Authority prior to any installation of underground services within a tree root protection area.

3.1.2 LANDSCAPING

The area will be left natural and there are no landscaping plans for the site. However the preparation of any ground for landscaping purposes within the root protection areas will be carried out in conjunction with site specific Arboricultural Method

Statements, prepared by the appointed Arboriculturalist MDH ltd. All Construction Exclusion Zones will remain sacrosanct, with tree protection retained in place, until landscaping detail has been approved and any relevant method statements have been prepared.

3.1.3 FUTURE CONSIDERATIONS

All of the retained trees are going to be in close proximity to the proposed structures. Most of the trees are classed as semi maturity and are well maintained. There are several factors that should be considered by having trees close to any construction.

1. Trees are mechanical structures and can be subject to structural failure, particularly in high winds and if they have faults or are under stress. This has obvious implications and a structured method of monitoring all trees on site during any construction should be in place.

3.1.4 ROOT SEVERANCE

None

Although the footprint of the proposed development is within the root protection area of T2, there may be some minor root severance and compaction when excavation is undertaken. It must be noted the footprint of the new property close to T2 is exactly on the old footprint, this does mean that there will be minimum disturbance but should be monitored by an arborist during the development.

All construction traffic should be kept out of the root protection areas where possible, especially when excavation by machines is in process.

3.1.5 GROUND COMPACTION

Surface soils are often compacted on construction sites as a consequence of heavy equipment moving over the surface. Soil structure can be affected to some depth. Compaction reduces air and moisture content and increases the likelihood of erosion.

Trees can be affected by physical damage to roots leading to decay and roots are unable to penetrate the soil. The results are poor vitality and stress.

It should be made clear that the root protection zones are minimum distances and more protection should be given where possible. Root protection zones are not guarantees against damage.

3.1.6 CONSTRUCTION WITHIN ROOT ZONES

None

3.1.7 CONSTRUCTION OF ACCESS ROADS

Depending on which option of development is decided, an access road will need to be constructed close to minor trees.

HARD SURFACES OVER ROOT AREAS

A permanent access road will need to be installed to facilitate the proposed new build, fortunately this will only be adjacent to young tree stock therefor an installation of a shallow root protection matting should be used. These are ready available and instructions on how to install are well documented.

GENERAL CONSTRUCTION OUTSIDE RPA

1. Care should be taken when planning site operations to ensure that wide or tall loads, or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can results in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times.
2. Material which will contaminate the soil, eg concrete mixings, diesel oil and vehicle washings should not be discharged with 10m of the tree root protection area..
3. Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. This will depend on the size of the fire and wind direction.
4. Notice boards, telephone cables or other services should not be attached to any part of the tree.
5. It is essential that allowances should be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards the trees.

4. SITE MONITORING

Once planning permission has been granted it is important that an open line of communication is maintained between the Contractors, the appointed Arboriculturalist (MDH ltd) and the Local Planning Authority.

The Arboriculturalist (MDH ltd) should be called upon to give advice and act as a watching brief where the trees are likely to be impacted by construction operations.

Protective tree barriers will be inspected by the Arboriculturalist (MDH ltd) before the start of any demolition or construction operations and the site inspected prior to the removal of the barriers following construction.

During the period of intensive construction, it is advisable that regular two weekly random site visits are carried out by the Arboriculturalist (MDH ltd) to ensure tree protection has not been contravened and to provide general advice. Site visit inspection sheets should be completed and made available to the developer, tree officer and contractors.

5. CHRONOLOGY OF EVENTS FOR ARBORICULTURAL WORK

PLANNING STAGE

1. Tree Survey and tree quality assessment for tree retention or removal - completed.
2. Arboricultural Visual Impact Assessment, Method Statements and Tree Protection Plan – completed. Preparation of further site specific method statements, if required

PRE-CONSTRUCTION PHASE

Supply all main contractors with a copy of the Tree Survey report including the Arboricultural Impact Assessment, Arboricultural Method Statement and the Tree protection Plan. Inform all site staff and contractors of tree protection implications and restrictions, within the site induction system.

Initial meeting between - Construction Contractors, Owner and the appointed Arboriculturalist (MDH ltd) to clarify tree issues.

Prepare any further sit specific Arboricultural Method Statements that may be required.

Erect protective fencing and install ground protection as detailed on the Tree protection Plan in 3.5 and 3.6 of the Arboricultural Impact Assessment and Method Statement.

Site inspection by the Arboriculturalist (MDH ltd) before construction begins.

CONSTRUCTION PERIOD

Inspection of tree protective barriers and ground protection prior to start of construction or site clearance.

Carry out an auditable system of arboricultural site monitoring on a weekly basis during periods of intensive construction near to retained trees.

Site inspection by appointed the Arboriculturalist (MDH ltd) following completion of construction and prior to the removal of tree protective barriers.

On completion of the main construction period remove protective fencing and ground protection. Carry out landscaping, replanting and light construction work and ameliorate any soil root area compaction.

POST CONSTRUCTION Continue regularly inspect of the trees as before and continue monitoring condition and assess for any change in health.

6. CONCLUSION

The Tree Survey, Arboricultural Visual Impact Assessment and Method Statement and Tree Protection Plan have been completed.

It is our opinion that this development can be constructed with minimal detrimental affect upon the retained trees identified in the tree survey. This is however dependent on the correct use of all methods of protection and construction as recommended in the attached Arboricultural Landscape and Visual Impact Assessment and Method Statement.

At this stage as there are no future landscape plans, we have not been supplied with landscape designs or tree planting proposals.

- Tree protective fence barriers will be erected around and to enclose the calculated root protection areas of any trees within influential distance of the construction area, as identified on the tree protection plan.

- Tree protective barriers will be installed prior to the start of any building works or site clearance works.

- Tree protective barriers will be erected to create a construction exclusion zone in order to prevent construction activities that may have a detrimental effect on any retained trees within influential distance of the construction area.

- All construction exclusion zones, as identified on the Tree Protection Plan, are classified as sacrosanct areas and must not be entered or utilized for any construction purposes, unless suitable tree protection is in place and the Arboriculturalist (MDH ltd) has been consulted beforehand.

- Construction vehicles will be of a size to enable them to access the existing driveway and site, without causing damage to any parts of the retained trees both above and below ground level.

- All site facilities and storage materials will be positioned outside any root protection area of any retained trees unless the ground is protected by existing hard surfaces or suitable ground protection measures.

- There will be no ground level changes within any root protection area or construction exclusion zone

- No vehicles, machinery or plant will be parked within any root protection area of any retained trees on site.

NOTE; It is recommended that all underground services be routed outside the Root Protection Area of any retained trees. Where routing of services through Root Protection Areas cannot be avoided, methods to minimise the potential for root damage will be employed.

The preparation of any ground for landscaping purposes within the root protection areas will be carried out in conjunction with site specific Arboricultural Method Statements, prepared by the appointed Arboriculturalist (MDH ltd).

An appointed Arboriculturalist (MDH ltd) will carry out weekly site inspections to ensure tree protection has not been compromised and to give any necessary advice. These visits will be logged and made available to the local authority conservation officer and planning department.

An Arboriculturalist (MDH ltd) has been appointed and will be called upon to give advice and act as a watching brief where the trees are likely to be impacted by construction operations. The appointed person will inspect the protective barriers prior to construction and inspect the site following completion. Site monitoring sheets will be supplied to all relevant parties.

APPENDIX 1 TREE SCHEDULE KEY

The trees and groups of trees at the site have been assessed as per the recommendations set out in BS 5837 2012.

Type	Represents the type of vegetation being assessed. These are Tree (**T**)
Tag No	Each area has been marked been identified for on site identification. Where possible this number is related to, or similar to the given tree number. There may be occasions when the tag number bears no relationship to the tree number, but is still useful for on site identification
Common Name Botanical Name	The tree species have been identified with common names.
Age	**Young** – (Shown as **Y** in the schedule) juvenile tree with dominant leading shoot growth and short side branches. Vigorous growth and often of conical form. **Semi-mature** – (Shown as **SM** in the schedule) young adult tree, leading shoot growth may not always be dominant but side branches are usually ascending. Vigorous growth, flower and seed production. Minimal deadwood. **Early maturity** – (Shown as **EM** in the schedule) adult tree with the main framework of the crown formed. Not yet at full dimensions. Vigorous growth and some shedding of inner branches and deadwood. Horizontal side branches. **Mature** – (Shown as **M** in the schedule) adult tree at full crown volume and dimensions. Maximum flower and seed production. Dead wood likely within the crown and reiteration growth in the lower canopy. **Over mature** – (Shown as **OM** in the schedule) loss of overall vigor and reduction of full dimensions due to limb loss and branch tip die back. Major dead wood within the crown and possible hollowing and cavities. Retrenchment of the crown through increased reiteration growth on the lower branches. **Veteran / Ancient** – (Shown as **V** in the schedule) a tree that has passed beyond maturity and is old in comparison with other trees of the same species. They often have decayed or hollow stems and branches and abundant deadwood. They are important for heritage, landscape and ecological value.

Height (m)	Where site lines allow, tree height has been calculated by means of a laser clinometer and recorded in metres. If the use of a laser clinometer is restricted due to confined space or obscuring vegetation, the height of the tree may be estimated based on the surveyor's experience. Adjacent trees or buildings with a clear view may be measured and used as a height scale. Where several trees are located in close proximity, one tree may be measured and the other trees estimated using the measured tree as a reference.
Ultimate Height	This is an estimation of the potential height the tree is expected to reach at full maturity, taking into consideration the present surrounding environment and condition of the tree.
Diameter (mm)	The stem diameter is measured in millimetres in accordance with Annex C of BS5837 2012.
Stems	The number of stems are recorded, eg 1, 2, 3 etc.
Crown Height (m)	Is the distance from the lowest point of the crown from ground level.
FSB Height (m) /Direction	The height of the First Significant Branch (FSB) is recorded in metres and the direction of growth is in relation to the cardinal points of the compass.

Comments	Structural Condition Any structural defects are noted such as splits, cracks, tight forks, rubbing branches, cavities, decay and the presence of pests or diseases. These may compromise the mechanical integrity of the tree's structure. (Veteran trees may pose many physiological and structural faults yet still be considered in good condition for their age.)
Recommendations	Following visual inspection preliminary recommended action, further detailed inspection, or maintenance may be prescribed.
RPR (m) Root Protection Radius	This is calculated from Annex D of BS 5837 2012 'Trees in relation to construction - Recommendations'.
RPA (m) Root Protection	This measurement is the total area of root protection. This can be modified if necessary by the Arboriculturalist.

APPPENDIX 2 -

RETAINED TREES AREAS AND GENERIC ROOT PROTECTION AREAS (RPA)

The area where trees are to be retained has been recorded on site plan. At this stage only basic details of the exclusion zones have been submitted (plan B) in this report. This is only necessary as the final draft may include landscape features including planting of further trees, shrubs and formal garden layout.

As far as my survey identified, all the development area may be within close proximity to numerous trees. However the owner has made it clear that they require the majority of mature trees to be retained as landscape features once the development is complete.

APPENDIX 3 - ARBORICULTURAL METHOD STATEMENTS

The construction of tree exclusion zones and erection of protective barriers

INTRODUCTION

All trees are to be retained on site. Protective fence to demark and protect root protection area should be identified by markers or barriers (please refer to separate ground protection method statement) Please refer to accompanying tree protection plan B for markers and fence positions.

1. METHODOLOGY

a) Protective barriers should be positioned so as to enclose as large an area around the trees as practically possible. This exclusion zone should contain the minimum root protection area specified by a radius figure identified in the survey schedule and the tree protection plan, or as amended by MDH ltd the appointed Arboricultural Consultant.

b) It should be made clear that the root protection area is a minimum distance of protection. Tree roots can often extend beyond this distance and more protection should be given where possible and secured as an exclusion zone.

c) Vertical tree protection barriers should be erected and any ground protection installed before any materials or machinery are brought on to site and before any demolition, development or stripping of soil commences.

d) All vehicles and/or plant involved in erecting the protective barriers should operate outside the root protection area.

e) Once erected barriers and ground protection should be regarded as sacrosanct. They should not be removed or altered without prior recommendations by the arboricultural consultant or by the approval of the Local Planning Authority.

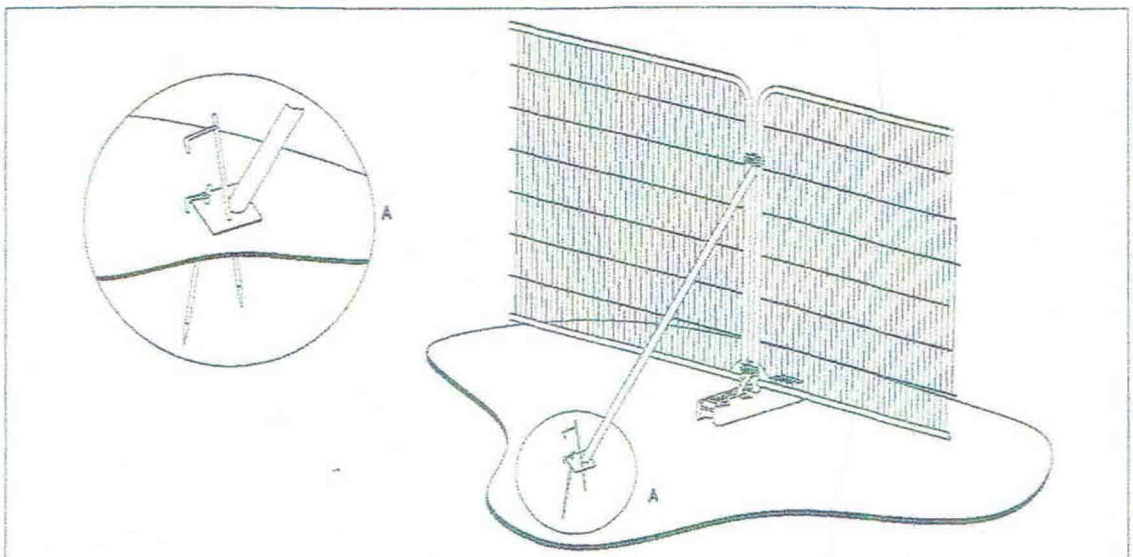
f) Once erected the protective barriers should be inspected by the arboricultural consultant before construction work proceeds.

g) In most cases, barriers should consist of fencing in accordance with figure 3 comprising of a weldmesh panels on rubber or concrete feet, they should be made resistant to impact by angled support scaffold poles secured into the ground. Weldmesh is preferred because it is readily available, it is resistant to impact, can be re-used and enables visual inspection of the protected area.

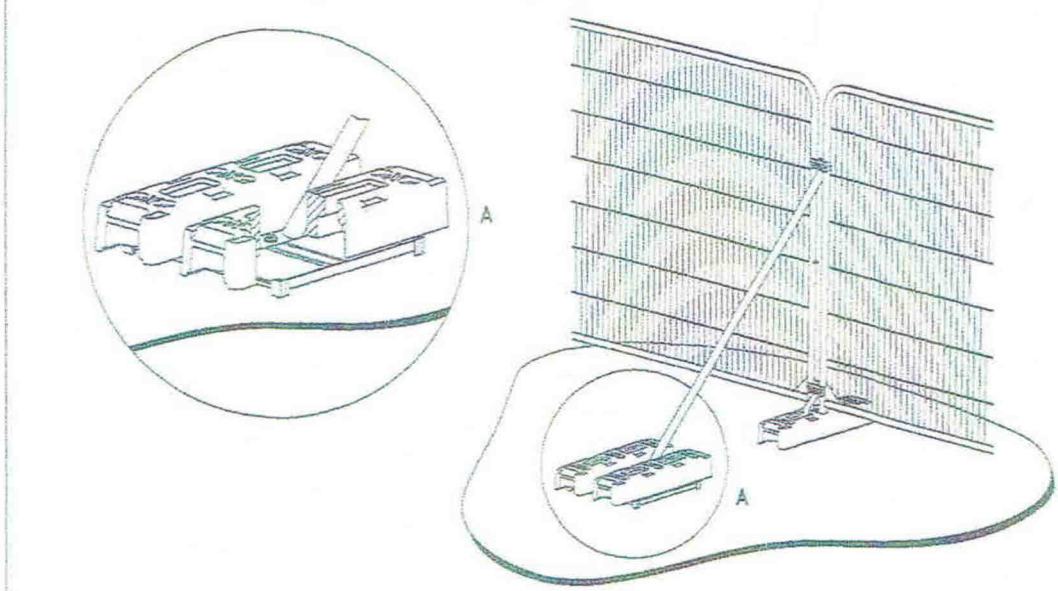
h) All weather notices should be erected on the protective barriers with the words:

Protected Tree – Construction Exclusion Zone
KEEP OUT

Figure 3 Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

The Construction of tree ground protection areas and temporary access roads.

1. INTRODUCTION

Where it has been agreed at the design and planning stage that vehicle and pedestrian access for the construction operations may take place within the root protection area, special ground protection measures should be taken. Protective fencing may be positioned within a tree's root protection area at the edge of the agreed working zone but the soil structure of the root protection area beyond the barrier should be protected with ground protection. Please refer to accompanying Tree Protection Plan, which clearly shows the working zones that require protection.

The purpose of protecting the ground within the root protection zone is to

a) Prevent physical damage such as abrasion, compaction and severing of roots during the construction phase.

b) Make provision for water and oxygen to reach the roots.

c) Protect the soil surface from contaminants.

d) Preserve the soil structure at a suitable bulk density for natural root growth and function.

2. METHODOLOGY

a) The soil surface should not be skimmed to establish a level surface. Loose organic matter or turf should be removed carefully using hand tools. The new level surface should be established above the former ground level using a granular fill where necessary.

b) If temporary ground levels are to be raised within the root protection area this should be achieved by using granular materials that do not inhibit vertical gaseous diffusion such as no fines gravel, washed aggregate or cobbles.

c) Prior to the installation of the temporary ground protection, any existing ground cover should be cut back to as near ground level as possible. This should not involve ground compaction, excavation or stripping of the soil. An acceptable method would be the use of a manually operated brush cutter operated by a competent person trained to NPTC A012 level and in accordance with industry best practice AFAG leaflet 203. The cut organic material should be raked away from the protection area to prevent the build up of anaerobic conditions, which might otherwise occur as vegetation begins to decompose.

d) All ground protection should be installed prior to the commencement of any operations within the root protection area with the exception of the erection of protective fencing.

e) All vehicles and/or plant involved in the laying of the temporary protective surfacing should operate outside the root protection area. The temporary ground protection should be laid so that it is sighted as close to the protective fence line as possible and extends to at least the outer edge of the root protection area (see figure1 ref BS 5837)

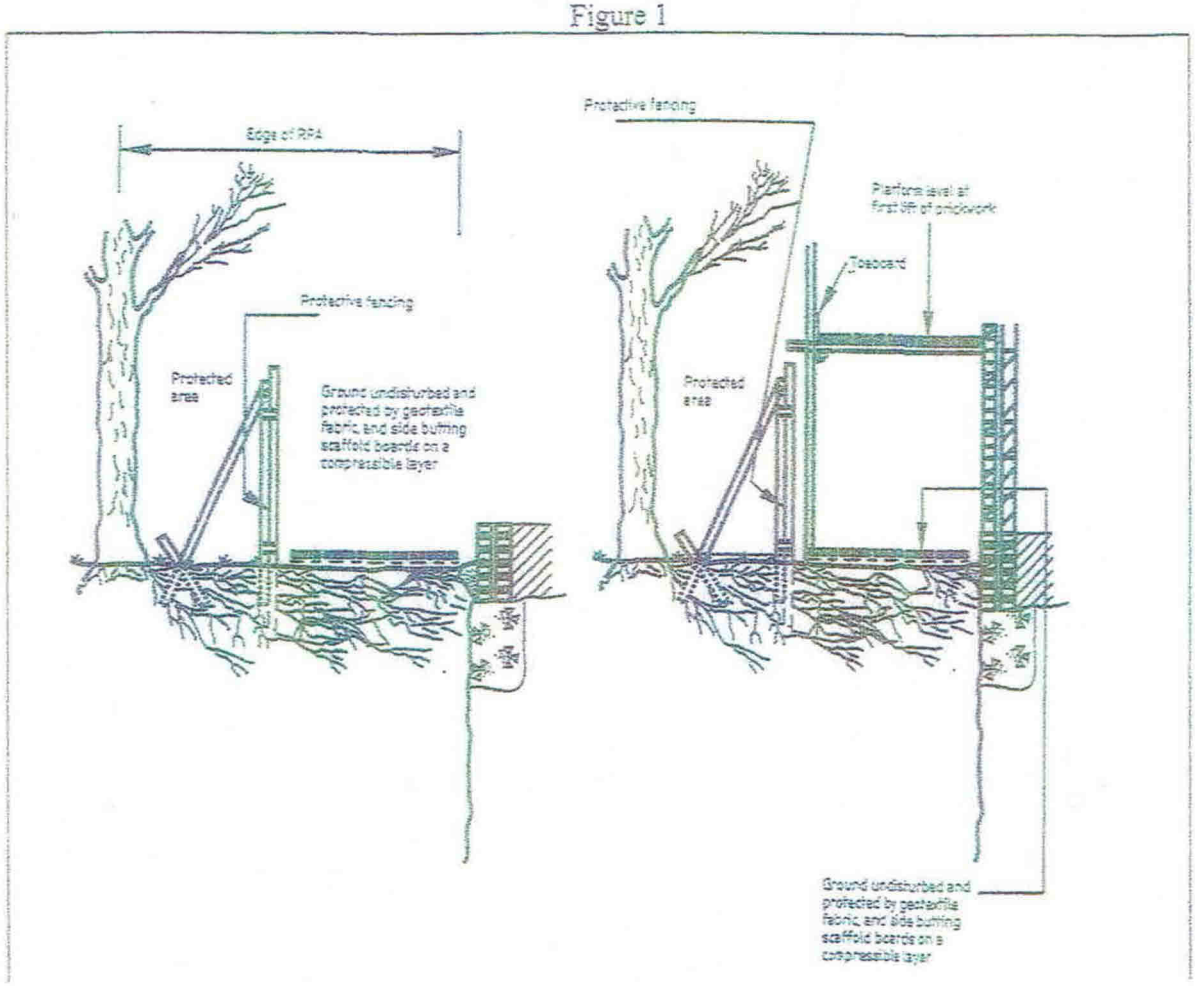
f) Once in place, the temporary ground protection should not be removed or altered without prior recommendations from an arboriculturalist and approval has been gained from the Local Planning Authority.

g) An arboriculturalist should supervise the laying and removal of the temporary protective surfacing.

h) Any system used for temporary protective surfacing should be designed specifically for the purpose intended and be able to withstand all loads likely to be placed on it whilst achieving its purpose of ground protection. A specialist engineer may be required to advise on this matter.

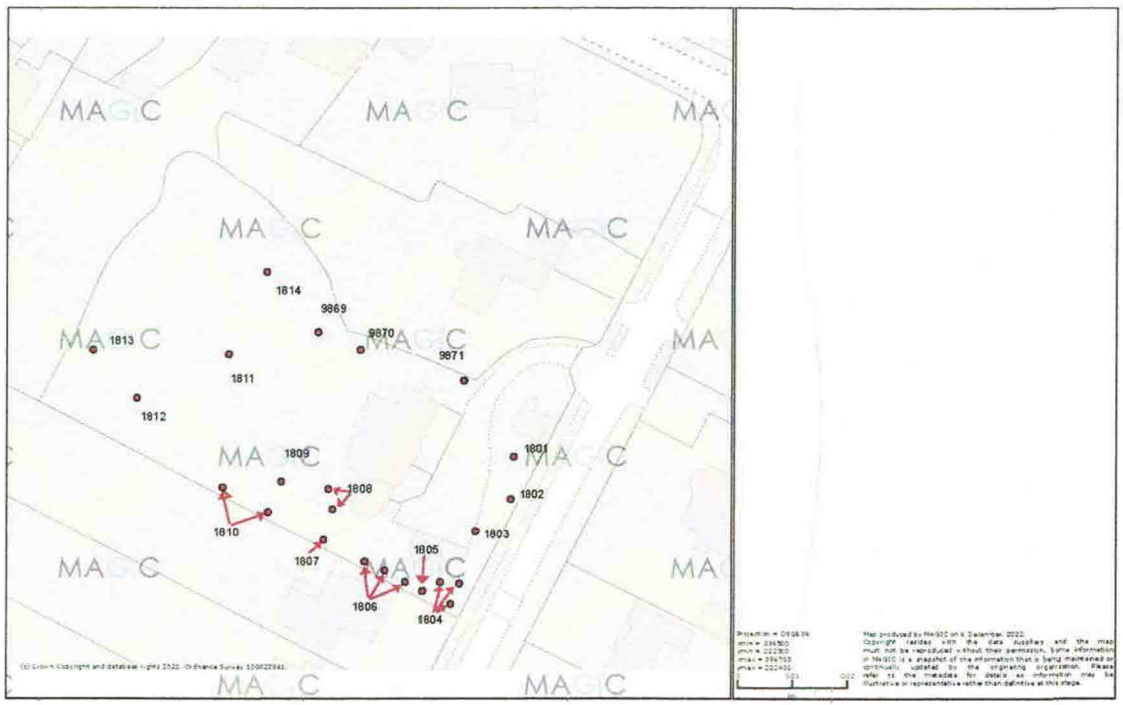
i) On final removal of the temporary protective surfacing, amelioration of the underlying surface should be implemented. Please refer to the method statement "Tree root area decompaction, aeration and amelioration"

Figure 1



MAGIC

Battledown Court, Tree survey plan



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Battledown Court - DRAFT tree protection fence

BS5837:2012 Table 1 – Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012]* ***4.5.7****.*		Those in such a condition that they cannot realistically be retained as living	
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	**FLAC Note** Trees that are particularly good examples of their species, especially if rare or unusual; or those that commemorative are essential components of groups or formal or wood-pasture) dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features or other value (e.g. veteran trees or semi-formal	Trees, groups or woodlands of significant conservation, historical, arboricultural features (e.g. the	
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	~~Trees that might be included in category A, but are~~ other downgraded because of impaired condition (e.g. presence of significant though remediable defects, occurring including unsympathetic past management and visual storm damage), such that they are unlikely to be retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	~~Trees present in numbers, usually growing as groups or~~ woodlands, such that they attract a higher collective rating than they might as individuals; or trees as collectives but situated so as to make little contribution to the wider locality suitable for	~~Trees with material conservation or~~ cultural value	
Category C ~~**Trees of low quality** with an estimated~~ remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher landscape value; and/or trees offering low or only	Trees present in groups or woodlands, but without this conferring on them significantly greater collective temporary/transient landscape benefits	Trees with no material conservation or other cultural value categories	

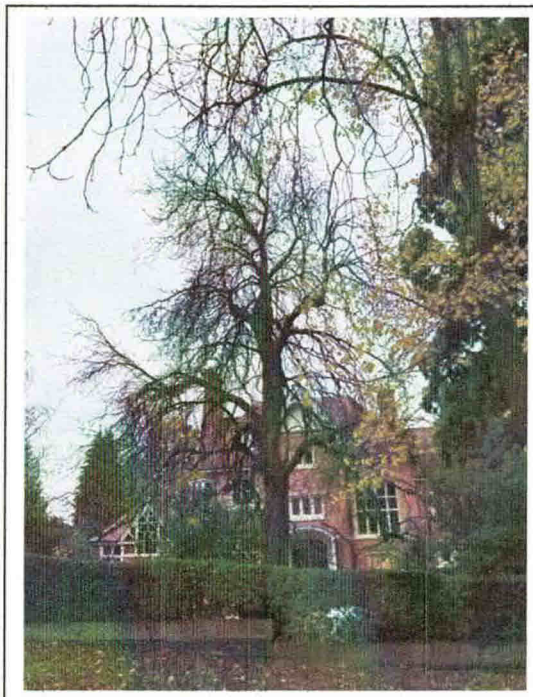
Tree ID	Species	DBH	Est Hieght	Age Class	Condition	Target	Recommendations	Category
1811	Poplar	61	24	M	Poor - major cavity in main stem	n/a	Fell	U
1812	Mixed	n/a	16	SM	Habitat mixed species of trees and shrubs	n/a	Retain for landscaping	B
1813	Cypress	46	24	SM	Good contrabutes to the screening of the property	Neighbouring property	Retain for landscaping	B
1813 understorey	Laurel	n/a	n/a	SM	Well established evergreen	n/a	Retain for landscaping	A
1814	Multi Stem Cypress	56 - 64	30 +	M	poor establishment - in decline	Neighbouring property	H & S work may be required	B
9869	Eucalyptus	60	28	M	Poor major lean	n/a	No contrabution to the property - Fell	U
9870	2 stem Willow	24	11	SM	poor establishment - in decline	n/a	No contrabution to the property - Fell	U
9871	Laurel	n/a	n/a	Y	Young trees that should be retained for screening	n/a		A
Road side	Silver Birch	16	n/a	Y	Poor species on major lean	highway	This tree belongs to council - consider removal = replacement	C

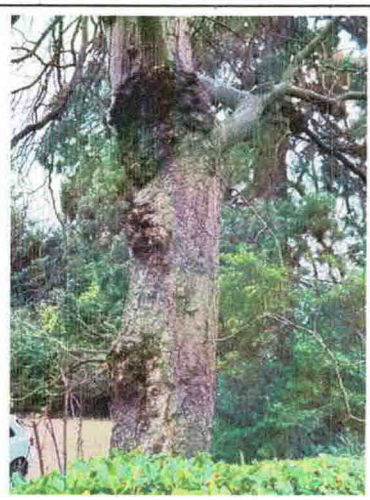
Tree ID	Species	DBH	Est Hieght	Age Class	Condition	Target	Recommendations	Category
1801	Wellintonia	184	44	M	Healthy	Public road	No work	A
1802	Horse Chestnut	53	16	SM	Poor, major canker growth in main stem 3m high, very prone to fail	Public road	Fell	U
1803	Norway Maple	27	16	Y	V split @ 1.5m high species prone to fail as establish	Public road	Fell	C
1804	3no Yew	24 - 32	16	SM	poor establishment - no maintenance	n/a	consider removal	C
1805	Holly	23	16	SM	poor establishment - in decline	n/a	consider removal	C
1806	3no Silver Birch	27 - 36	22	SM	Fair condition contrabutes to the landscape	n/a	No work	A
1807	Yew	36	11	SM	Healthy retain for screening	n/a	No work	A
1808	2no Yew	16 - 28	7	Y	Young trees that could be removed	n/a		C
1809	Cherry - multi stem	28-32-35	20	SM	Fair - garden feature only	n/a	consider removal	C
1810	2no Cypress	63	24	M	Goodcontrabutes to the screening of the property	Neighbouring property	Retain for landscaping	A

Tree Tagg 1802 Red Horse Chestnut

Gall canker infection within damaged stem this has occurred where damage to tree in past (limb loss) prone to fail as infection on major limb very deep. H&S concern near public footpath.

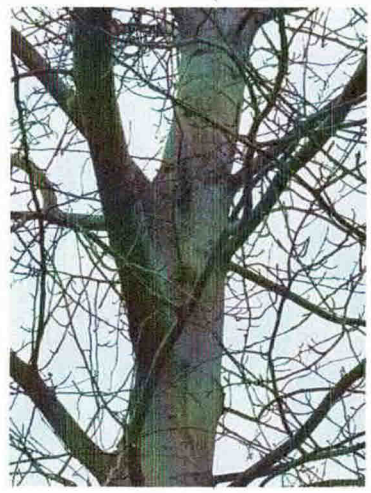
Recommendation – Fell and replace





Tree Tagg 1811 Poplar
Poor species for location also major decay in main stem – need removal to locate new dwelling
Recommendation – Fell consider replacements around new property during soft landscaping.

Tree Tagg 9869 Eucalyptus
Overgrown with major lean
Recommendation - Fell



1811

9869

Final statement.

During the tree inspection we have only listed the removal of those trees that are either in a poor health condition or are juvenile that need removal to accommodate the development or those which contribute little to the features of the property. It must also be noted that a lot of trees around the perimeter of the property cannot be identified for true ownership, (lack of boundary markers – fence) however the client has made it clear that they wish to retain all trees located outside the development area for its continuous screening attributes. On completion of the development the client will increase the new planting and landscaping to ensure the new build is well supported by new planting which will deliberately be planted in new locations so it will eventually replace the veteran screening which is in place at present.

All DBH measures have been recorded in preparation to calculate the RPA (root protection areas) and produce the final RPA plan once the final build location has been plotted.

MDH