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Title:	**BS5837 Tree Report**
Site:	**Infiniti School** **The Street** **Doddington** **Kent** **ME9 0BG**
Client:	**Infiniti School**
Survey Date:	**21st June, 2022**
Report Issue Date:	**4th July, 2022**
Reference:	**R837AIA**
Based upon Design Layout:	**1635/2 Rev A**

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1. Arboricultural Impact Assessment Summary

Suitability of current design layout in relation to trees

1.1 There is a risk that limited space to demolish and carry out the construction process will put pressure on protected areas. **Mitigation: Liaison with the design team has allowed the proposed site layout to be adjusted to largely avoid the RPA and crown spread of retained trees.**

1.2 It will be necessary to remove 1No. C category tree (T20) to allow the proposed design layout. **Mitigation: T20 is not significantly visible from outside of the site and its removal is unlikely to detract from the general amenity value of the area. In addition the removal of T20 tree will allow the temporary access route to largely avoid the lower branches of T21 thus minimizing the degree of necessary crown lifting tree surgery.**

1.3 There will be 3No. individual U category trees (T2, T6 and T19) and 1No. U category group of trees (G5) removed within the site boundaries. **Mitigation: Due to their poor quality or the damage they are likely to cause in the next ten years these trees are likely to have been removed irrespective of development within the next 10 years. In addition there is scope for replacement planting that will increase biodiversity in respect of G5 and T6**

1.4 Providing the measures outlined in this report are followed it should be relatively straight forward to protect the remaining trees.

1.5 I am therefore led to the conclusion that the current design layout is acceptable for development in relation to trees.

2. Overview

This BS 5837 (2012) tree report consists of the following:

- A Tree Survey. This records the tree details and assigns a category in accordance with BS5837. The tree survey schedule (See Appendix 2) supplies the information that is shown on the Tree Constraints Plan.

- Tree Constraints Plan (TCP). A scale drawing showing the crown spread, tag number, BS5837 category and nominal Root Protection Area of each surveyed tree. This should be used to inform a basic design layout that takes account of important trees (see attached Appendix 6).

- An Arboricultural Impact Assessment (AIA). Study undertaken by an Arboriculturist, to identify, evaluate and aim to mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of the current design layout proposal (see item 3 below).

- An Arboricultural Method Statement (AMS). Methodology for the implementation of any aspect of development that has the potential to result in loss or damage to a tree (see item 4 below).

- A Tree Protection Plan (TPP). A Scale drawing showing the current design layout proposals, tree retention and tree and landscape/protection measures (see attached Appendix 7).

3. Arboricultural Impact Assessment (AIA)

Scope of the AIA

- To superimpose the proposed site layout Drawing No 1635/2 Rev A onto the Tree Constraints Plan R837TCP.
- Assess the conflict between existing trees/replacement planting and the proposed site layout.
- Outline specific mitigating measures on the Tree Protection Plan (See Appendix 7) that will reduce impact to an acceptable level and will inform the preparation of tree surgery requirements (see Appendix 4) and an Arboricultural Method Statement (AMS) detailed enough for planning application purposes.

General Impact Assessment and Mitigating Measures

The specific mitigating measures shown on Tree Protection Plan R837TPP included as Appendix 7 should reduce the risk of damage to an acceptable level. In addition the following general impacts are considered and mitigated accordingly:

3.1 There is a risk that limited space to demolish and carry out the construction process will put pressure on protected areas. **Mitigation: Liaison with the design team has allowed the proposed site layout to be adjusted to largely avoid the RPA and crown spread of retained trees.**

3.2 It will be necessary to remove 1No. C category tree (T20) to allow the proposed design layout. **Mitigation: T20 is not significantly visible from outside of the site and its removal is unlikely to detract from the general amenity value of the area. In addition the removal of T20 tree will allow the temporary access route to largely avoid the lower branches of T21 thus minimizing the degree of necessary crown lifting tree surgery.**

3.3 There will be 3No. individual U category trees (T2, T6 and T19) and 1No. U category group of trees (G5) removed within the site boundaries. **Mitigation: Due to their poor quality or the damage they are likely to cause in the next ten years these trees are likely to have been removed irrespective of development within the next 10 years. In addition there is scope for replacement planting that will increase biodiversity in respect of G5 and T6.**

3.4 I have been informed that it will be possible to run new services into the site or connect to existing services without crossing the RPA of retained trees. **Attenuation tanks and soakaways will not be within the RPA of retained trees.**

3.5 There is a risk that trees may cast prohibitive shade on the finished development: **Mitigation: Due to the use of the site shade caused by trees is unlikely to become prohibitive.**

3.6 There is a risk that the relatively close proximity of existing large or potentially large deciduous trees to the proposed development may impose an onerous future requirement for leaf clearance from gutters. **Mitigation: Fit gutter guards as part of the construction process.**

3.7 There is a risk that new planting will fail or not flourish due to a poor growing environment. **Mitigation: Ensure that sufficient planting area is prepared to *BS4428: (1989), Code of Practice for General Landscape Operations.* Decontaminate and de-compact subsoil before the addition of topsoil. Replacement trees will be maintained and replaced if they die or appear to be dying for 3 years after planting.**

3.8 There is a risk that boundary walls would require strip foundations within the RPA of retained trees. **Mitigation: There will no new boundary treatments as part of this development.**

3.9 Replacement Planting Scheme

Drawing R837TPP indicates sufficient space for relatively extensive replanting. Full details to be confirmed by a landscape architect.

3.10 Regular inspections

In the long term regular inspections would maximise the safe useful life expectancy of the trees and ensure that tree owner's discharge their duty of care. The trees on this site would benefit from inspections on a 3 yearly basis or after severe weather.

3.11 Wildlife

Over recent years there has been new legislation concerning the protection of wildlife.

The Wildlife and Countryside Act 1981 and Countryside and Rights of Way act 2000 mean that it is an offence to wilfully or recklessly harm a bird nesting site, bat roost, certain mammals and some rare plants.

There did not seem to be any evidence of nesting birds or bat roosts on this site but a further inspection should be made by a suitably qualified agent of the developer or tree surgery contractor before any tree-work is carried out. If a nest or bat roost becomes evident the developer should contact Natural England wildlife Licensing Unit (0845 601 4523) for further advice.

3.12 Other considerations

If full planning consent is granted after the Local Authority have considered the recommendations in this report then work to trees required to fulfil either permission, or a condition attached to permission granted under the Town and Country Planning Act by the Local Authority does not need any additional authorisation. However before full planning permission is granted it would be necessary to apply to the Local Authority to work on trees covered by a TPO or in a Conservation Area

4. Arboricultural Method Statement (AMS)

The purpose of this Arboricultural Method Statement (AMS) is to demonstrate that it will be possible to carry out development without causing unacceptable damage to trees, and vice versa, in sufficient detail to gain planning permission. At this stage there is limited information available in relation to the exact construction process.

Once planning permission has been granted, and it is clear that there will be a requirement for Arboricultural Supervision, a "pre-submission of details" meeting will be arranged with the Arboricultural Consultant, the Main Contractor and ideally the LPA Tree Officer. This will resolve design and logistical details and inform a refined order of works. In addition it will allow the AMS and Tree Protection Plan to be revised and issued as working documents along with a Schedule of Supervision agreed by all parties.

General AMS

- Site equipment and storage areas for material will be outside the Construction Exclusion Zone (CEZ) formed by protective fencing indicated on Drawing R837TPP

- Any construction activity required within the CEZ will be carried out under Arboricultural supervision.

- Material which will contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, will not be discharged within the RPA of retained trees indicated on Drawing R837TPP. Impermeable membrane and sand bag bunds will be used to prevent contaminants entering the RPA where sites slope towards trees.

- Fires will not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk.

- The jib or arms of machinery will not cross the line of protective fencing. Machinery with a height clearance greater than 5m will not be used on this site beneath the crown spread of retained trees.

- No additional below ground services or connections to existing services, temporary or permanent, will cross into the RPA of retained trees indicated on drawing R837TPP. This will include the positioning of rainwater gulleys to soakaways or attenuation tanks. Soakaways and attenuation tanks will not be positioned within the RPA of retained trees.

Order of Works in Relation to Trees with Site Specific AMS for Each Operation

4.1 **Carry out a pre-commencement meeting to refine Arboricultural Method Statement**

- Arboricultural Consultant to meet with main contractor and ideally the Local Authority Tree Officer to resolve design and logistical details and inform a refined order of works.

- Mark out position of permitted buildings and hard surfaces adjacent to retained trees.

- Confirm exact tree surgery requirements.

- Revise AMS and Tree Protection Plan and issue as working documents along with a Schedule of Supervision agreed by all parties.

4.2 **Carry out an induction meeting**

- Arboricultural consultant to revisit site to induct main contractor Project Manager and run through Arboricultural Method Statement. Main contractor Project manager will sign induction sheet to confirm that they understand the implications of protective measures not being followed.

- Issue main contractor Project Manager with standard sheets that they will use to induct sub- contractors. Sub-contractors will sign induction sheet to confirm that they understand the implications of protective measures not being followed.

4.3 **Carry out tree surgery**

- All tree-work will be carried out to BS3998, by a reputable, fully insured contractor. Tree surgery will not be undertaken by untrained construction operatives.

- Refer to schedule included as Appendix 4 for a tree by tree specification of tree surgery requirements.

- Stumps will be removed by stump grinder within the RPA of retained trees or treated to prevent regrowth with the appropriate herbicide by qualified operatives.

4.4 **Erect protective fencing**

Protective Fencing

- BS5837: (2012) *Trees in Relation to Development* stipulates the following:

  6.2.2.1 Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

- This will be achieved by erecting road pins at 2.5m centres and fixing hazard tape to the pins to form a 1.2 m high fence.

- Signs will be fixed to the construction side of the fence with the wording indicated in Fig. 1 below:

Fig. 1:

4.5 **Lay Temporary Ground Protection in the position shown on drawing No R837TPP**

- The light blue area indicated on the Tree Protection Plan R837TPP will require temporary ground protection to allow works or storage of materials within the RPA of retained trees. Temporary ground protection will be laid before demolition, construction or access to site by heavy plant. If machinery is required to spread woodchips this will use temporary ground protection already laid to avoid crossing unprotected RPA of trees.

- Temporary ground protection will consist of Trakmats or similar laid over a permeable geotextile membrane and 150mm of woodchips within the RPA of retained trees. It will be necessary to position timber edging (38x150x2000 long treated timber held in place with metal pins or 50x50x500 long pointed stakes at 1m centres) to retain woodchips.

- Areas of small level changes will be made up with sharp sand beneath the Geotextile membrane. Areas of greater level changes (across existing footpaths) will be bridged with a sufficiently strong structure, possibly constructed with scaffolding and scaffold boards.

- The following companies provide suitable Geotextile membrane:

  Terram Ltd, (Terram 1000) 01495 757 722, www.terram.com
  Geosynthetics, (Fibretex f4m), 01456 617139, www.geosyn.co.uk

- The following companies provide suitable temporary ground protection sheets:

  Eve-Trakway, 08700 76 76 76, www.evetrakway.co.uk
  Nixon Ground Guard Hire, 0844 477 2909, www.groundguards.com

- Temporary ground protection will remain in position until the contract is complete. A qualified Arboriculturalist will be consulted before re-location or re-positioning of temporary ground protection near the RPA of retained trees.

4.6 **Carry out construction phase**

4.7 **Carry out Replanting Scheme**

- After all other external works have been completed requiring heavy plant and wet trades the area sufficient for species selected will be de-contaminated and de-compacted in accordance with BS4428 to a depth of 1m to provide good growing conditions for future planting. Depending on the level of contamination it may be necessary to replace topsoil with a clay loam to BS3882: 2015. De-compaction will be carried out by backhoeing to a depth of 1m and tilling the top 150mm to mix in composted organic soil amendment.

- The following rooting environment will be provided for replacement trees:

  Small trees (100-200mm ultimate stem diameter): 6 cubic metres.

Medium trees (200-400mm ultimate stem diameter): 25 cubic metres.

Large trees (400-600+mm ultimate stem diameter): 40 cubic metres.

If trees can share rooting environment in large planting pits the above requirements will be reduced by 33 percent. For example, if 6 No. medium size trees are being planted in a shared linear planting pit their normal soil requirement of 6x25 cubic metres would equal 150 cubic metres but because trees can share rooting environment this would be reduced to 100 cubic metres.

- Trees will be selected and handled in accordance with BS4043: 1989 – Recommendations for Transplanting Root Balled Trees.

- Any trees that are dead or dying within 3 years of planting will be replaced.

4.8 **Fit gutter guards**

- Fit gutter guards to reduce the frequency of gutter clearance due to leaf fall. The following companies supply gutter guards:

- Hedgehog Gutter Brush and drain Leaf Guard, Truly PVC Supplies, 0161 339 4982, www.trulypvc.com

- Poly-net Leaf Guard System, Marley, www.marley-germany.com.

4.9 **Remove protective measures**

- After all external works or works that could cause harm to trees are finished and with permission from the Arboricultural Consultant remove protective fencing.

4.10 **Monitor health of trees.**

- Arboricultural consultant or Landscaping contractor will re-visit site annually for three years to monitor replacement tree and suggest remedial action of necessary.

- In the long term regular inspections would maximize the safe useful life expectancy of the trees and ensure that tree owners discharge their duty of care. The trees on this site or surrounding this site would benefit from inspections on a 3 yearly basis or after severe weather.

Appendix 1

Qualifications and Experience

Qualifications in date order

1. ONC and HNC in Construction Management. Between 1987 and 1992. Although I have not studied this subject recently, I still retain a general knowledge of construction techniques.

2. Royal Forestry Certificate in Arboriculture.

3. Completion of Trees and Mortgage/Insurance reporting module 2002. (Member of AMIUG, 2005)

4. Arboricultural Association Technicians Certificate in Arboriculture.

5. Lantra approved Professional Tree Inspector since 04 July 2006.
   Most recent refresher course 19 September 2019

6. Licensed Quantified Tree Risk Assessment (QTRA) user since 04 May 2007.
   Most recent QTRA Advanced Training course 24 April 2019

QTRA Quantified Tree Risk Assessment

Quantified Tree Risk Assessment Limited
Registered Office: 9 Lowe Street, Macclesfield, Cheshire, SK11 7NJ, United Kingdom
T: +44 (0)1625 618999 | W: www.qtra.co.uk E: admin@qtra.co.uk

Experience

1. Quantity Surveyor for a national builder between 1987 and 1992.

2. Owning and managing a Tree Surgery Company between 1994 and 2006 after working for other tree surgery companies for approximately 2 years.

3. In this time compiling a portfolio of tree ailments and failures.

4. Carrying out various individual tree inspections and surveys for domestic and commercial clients since 2001.

5. Attending courses on tree and woodland surveys, surveys for mortgage purposes, report writing and BS 5837 2005.

6. Attending court as an expert witness.

Appendix 2

Tree Survey and Methodology Information

Tree Survey

1.0 Scope of the survey

Carry out a tree survey in accordance with BS 5837:2012 Trees in relation to Construction. This involves the following:

- Make a visual, “from the ground” inspection of all trees with a stem diameter greater than 75mm at a height of 1.5 that may be affected by the design or construction processes of the proposed development.
- Complete a schedule of information for each tree.
- Indicate preliminary recommendations for works to maximise the likelihood of retained trees having a Safe Useful Life Expectancy (SULE) of at least ten years.
- Categorise the trees.
- Plot the trees on drawing R837TCP and indicate the Root Protection Area (RPA), crown spread, tag number and BS5837 category.

The survey is based upon information that was available at the time of the inspection. Further inspections are necessary over time to give a fuller picture of the health of trees.

1.1 Brief instruction

I have been instructed by Nick Rogers on behalf of Infiniti School to carry out a BS5837 tree survey in relation to a planning application for development at Infiniti School, The Street, Doddington, Kent. ME9 0BG.

1.2 Qualifications and experience

I have based this report on my site observations. I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and construction and list the details in Appendix 1.

1.3 Documents and information provided

I was provided with the following information:

- Sitech Topographical survey No. 10718-16
- Alpha Design Studio Design Layout No. 1635/2

1.4 Tree Protection Order (TPO) /Conservation Area/ Ancient Woodland Status

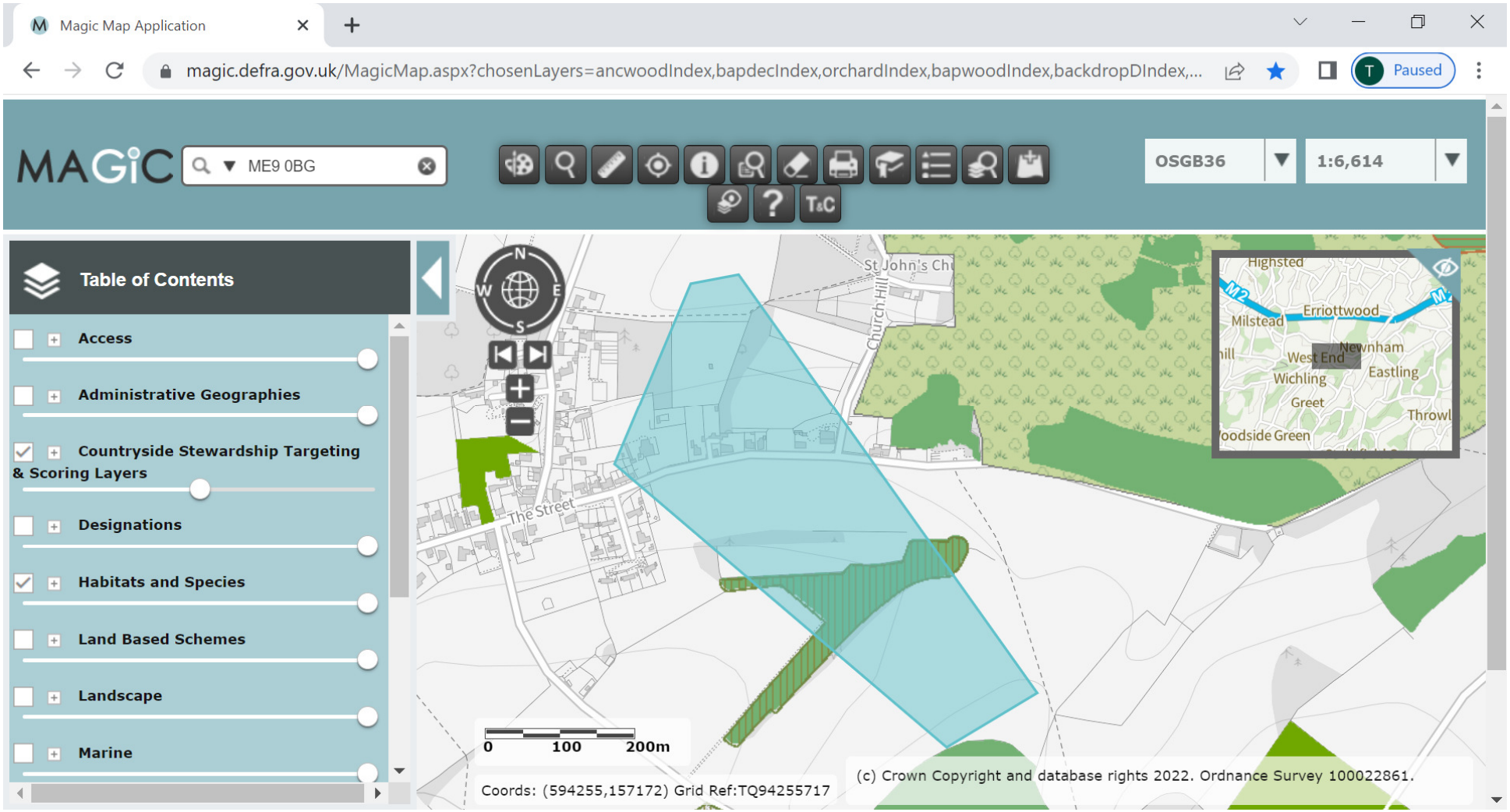
At the date of the survey status of the site is as follows:-

- Swale Borough Council's website indicates that the site is within a Conservation Area
- Individual tree TPO Status T.B.A.

1.5 Ancient Woodland Status

- Natural England's Website and the "Magic Map Viewer" indicate that trees within (or adjacent) to the site are not in an area classified as Ancient Woodland

https://magic.defra.gov.uk/MagicMap.aspx?chosenLayers=ancwoodIndex,bapdecIndex,orchardIndex,bapwoodIndex,backdropDIndex,backdropIndex,europeIndex,vmlBWIndex,25kBWIndex,50kBWIndex,250kBWIndex,miniscaleBWIndex,baseIndex&box=207763:417195:576753:592195&useDefaultbackgroundMapping=false


Magic Map Application
magic.defra.gov.uk/MagicMap.aspx?chosenLayers=ancwoodIndex,bapdecIndex,orchardIndex,bapwoodIndex,backdropDIndex,...
Paused
MAGIC
ME9 0BG
OSGB36
1:6,614
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Milstead
Newnham
West End
Eastling
Wichling
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Throwl
oodside Green
0
100
200m
Coords: (594255,157172) Grid Ref:TQ94255717
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2. Site Visit and Observations

2.1 Site visit

I surveyed the trees on the 21st June, 2022. The weather was clear and sunny with no wind.

2.2 Brief site description

The site is currently occupied by a school and associated playing fields. The site is in a rural area with vehicular access to The Street in the south east corner.

The site slopes down from north to south.

2.3 The Trees

24 No individual trees and 2 No groups of trees (G5 and G12) were surveyed. It was possible, after inspecting early design proposals to limit the extent of the survey because it was obvious that it would be possible to erect protective fencing without conflicting with the large majority of trees and still ensure sufficient space for the very limited construction process requirements.

T26 is in neighbouring property and I was therefore not able to carry out a full 360 degree survey of this tree.

Several trees that have been removed since the topographical survey was issued in December 2016 have been removed by Treeventures Ltd during the process of producing the Tree Constraints Plan.

Specific details of each tree surveyed are recorded in the tree survey schedule included as Appendix 3 and on the Tree Constraints Plan R837TCP included as Appendix 6.

2.4 The Soils

Detailed soil investigations were not carried out. However the British Geological Survey website (https://mapapps.bgs.ac.uk/geologyofbritain/home.html) indicates that the area is on the boundary of “Head – Clay and Silt” and “Lewes Nodular Chalk Formation – Chalk”. This suggests there maybe be a significant effect on the load bearing capacity of soils by the retention, replacement or removal of trees. A Structural Engineer could advise further on this using the species and proximity information from this report.

This may also have a bearing on the compactability of the soil within the RPA of retained trees.

Survey maps only indicate a general trend in an area. They do not take account of pockets of different types of soil that may be present.

2.5 Services

There did not appear to be any conflict between overhead services and trees. Below ground services were not considered.

2.6 Shade

Due to the current use and orientation of the site, trees are unlikely to cast prohibitive shade at present.

2.7 Identification and location of trees

The trees surveyed are identified by referring to drawing R837TCP.

3.0 Tree Categorisation

3.1 Retention and Removal

The category for each tree is ascertained by following the guidelines in the cascade chart for tree quality assessment included with the TCP tree schedule in Appendix 3.

It should be noted that the categories given to the trees in this survey assume the tree work specified in the schedule included as Appendix 3 is going to be carried out in the short term as part of the development or by the tree owners independent of the development. If this work is not carried out as recommended the category of the trees would be reduced to reflect a shorter Safe Useful Life Expectancy (SULE).

A brief summary of each category is outlined as follows:

3.2 **Category A trees**

This category signifies trees that are of a high quality and value. Occasionally a veteran tree, although not in the best condition may warrant this category because of its wildlife and cultural value. It is essential to retain these trees. The design of the proposed development should take into account the retention of category A trees.

A category trees are coloured green on drawing R837TCP.

3.3 **Category B trees**

This category signifies trees that are of a moderate quality and value. It is important to retain these trees. The design of the proposed development, where feasibly possible, should take into account the retention of category B trees. A design layout that suggests the removal or impingement of category B trees has an increased risk of planning refusal. If affecting B category trees is unavoidable it may be possible to negotiate their replacement with similar size specimens providing adequate consideration is given to supplying sufficient future growing conditions.

B category trees are coloured blue on drawing R837TCP.

3.4 **Category C trees**

This category signifies trees that are of low quality and value. They could generally remain and be expected to have a safe useful life expectancy of between 10 and 20 years if no development were to occur. However, because of their low quality it should not be prejudicial to remove them if they are likely to be a significant constraint to the design or construction process. Particular attention is drawn to the phrase “significant constraint”. Although it should not be necessary, I would suggest that replacement of removed category C trees, where possible, would assist in obtaining planning permission

C Category trees are coloured grey on drawing R837TCP.

There are no C category trees on this site.

3.5 **Category U trees**

This category signifies trees that are in such a condition that any existing value would be lost within 10 years and which may, in the current context, generally be removed for reasons of sound Arboricultural management.

U category trees are coloured red on drawing R837TCP.

4.0 Root Protection Areas (RPA)

4.1 Approximately eighty percent of a tree’s roots are in the top 600 mm of soil. Therefore any changes in this vital environment including: ground level, soil compaction, physical damage to roots, moisture or levels of contaminants can have a dramatic effect on the health of a tree. At deeper strata alterations in water table and routing of services can cause detrimental, long term, effects.

4.2 The area of roots that a tree generally needs to survive is called the Root Protection Area (RPA). The RPA is calculated using a formula based upon the diameter of the tree or tree stems at 1.5 metres high.

At this stage it is generally represented by a circle centred on the trees stem. However the RPA of T21 has been maintained but offset to account for the likely constraint to root spread by the foundations of the adjacent structure.

The RPA of groups of trees has been defined by the largest edge tree or in the case of hedges by the average size of individual trees stems.

5.0 Survey Conclusion

The schedule included as Appendix 3 and the Tree Constraints Plan included as Appendix 5 indicates the position and quality of each tree on or adjacent to the site. Section 3 of this Appendix further indicates the implications that the BS5837 category of individual trees will have on the proposed site layout.

Trees that are of particular importance or worthy of comment are as follows:

5.1 To ensure planning permission is granted, in relation to trees, it would be necessary to design the layout to avoid impingement on all A, B and C category trees. U category trees do not normally need to be considered because they are likely to require removal within the next ten years irrespective of development.

5.2 If this cannot be achieved without making the site non-viable for development it should be appreciated that the likelihood of gaining planning permission will be reduced if retainable trees are encroached upon.

5.3 Notwithstanding this there is often room for negotiation depending on the category of the trees on site, the degree of encroachment and whether it is possible to mitigate damage by using engineering solutions or even replacement planting if removal of high category trees is unavoidable.

5.4 From a planning perspective I would therefore suggest that, where possible, neighbour's trees are for the purpose of design layout considered to be important to retain and impingement upon their RPA or crown spread avoided. The exception to this may be where the survey considers a neighbour's tree to be unsafe. In this situation it may be necessary to negotiate with the tree owner over its removal or consult the Local Authority concerning the Miscellaneous Provisions Act 1976 that can be used to ensure that the tree is made safe at the tree landowners eventual cost. There are no neighbour's trees that fall into this category at present.

5.5 As the property is within a conservation area or if trees are covered by a tree preservation order it will be necessary to consult the local authority before any pruning works other than certain exemptions can be carried out. The works specified in the "preliminary management recommendations to ensure SULE is at least 10 years irrespective of development" column of the tree survey schedule included as Appendix 3 are necessary for reasonable management and should be acceptable to the local authority. However, applicants should appreciate that the local authority may take an alternative point of view and have the option to refuse consent.

5.5 An Arboricultural Implication Assessment, Tree Protection Plan and Arboricultural Method Statement will consider proposed design layouts and clarify further whether there is a significant conflict between trees and proposed development.

6. References

BS5837:2012. Trees in Relation to Construction.
SULE. Jeremy Barrell.
BS3998: (2010) Recommendations for tree work

Appendix 3

BS5837 Tree Survey Schedule

Tree schedule explanatory notes

Evaluating the information gathered in the attached schedules

1. Tree no.

   The Tree number (T), Shrub (B) or Group number (G).

2. Species

   A visual assessment of tree species. Where species is questionable samples can be taken and sent off for laboratory analysis if necessary. The common name is usually indicated with the scientific name in brackets where necessary.

3. Height

   Height in metres from the base of the tree. Visually estimated unless indicated otherwise.

4. Stem diameter

   The diameter of the stem in millimetres at 1.5 m above adjacent ground level (on sloping ground, taken on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees. This is accurately measured using a girthing tape.

   MS = Multi stemmed

5. Branch spread in metres taken at the four cardinal points to derive an accurate representation of the crown and recorded on the attached drawing included as Appendix 3. This is generally paced out unless otherwise indicated.

6. Height of crown clearance

Height in metres of crown clearance above adjacent ground level at the base of the tree (to inform on ground clearance, crown stem ratio and shading).

7. Age class

N Newly planted or self-seeded sapling.
Y Young trees (less than 1/3 of normal life expectancy).
M Middle age trees (1/3 to 2/3 of normal life expectancy).
Ma Mature trees
OM Over mature (in decline or veteran)

8. Physiological condition

Good, fair, poor or dead.

9. Structural condition

This notes specific areas of the tree's condition that might require attention e.g. collapsing, the presence of any decay and physical defect.

10. Preliminary management recommendations to ensure SULE of at least ten years
Includes further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat.

11. Estimated remaining contribution

Estimated remaining contribution in years e.g. less than 10, 10-20, 20-40, more than 40. This is based upon Jeremy Barrells' system of SULE (Safe Useful Life Expectancy).

12. Cat.

R or A to C category grading recorded on the attached drawing included as Appendix 3. Trees are categorised in accordance with the following cascade chart. (Extract from BS 5837: 2005):-

Cascade chart for tree quality assessment (extract from BS 5837: 2012)

TREES UNSUITABLE FOR RETENTION

Category and definition	Criteria	Identification on plan
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use longer than 10 years.	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (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;	DARK RED

TREES TO BE CONSIDERED FOR RETENTION

Category and definition	Criteria — Subcategories			Identification on plan
	1 Mainly Arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Category A **Those of high quality** with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of group s or formal or semi-formal Arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B **Those of moderate quality and value** with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant remediable defects including unsympathetic past management and minor storm Damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a high collective rating than they might as individuals; or trees occurring as collectives but situated so to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.	MID BLUE
Category C **Those of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.	GREY

Tree Survey Schedule- Also see drawing R837TCP

Tree No.	Species	Height (m)	Stem Dia. (mm)	No. of stems	Branch Spread (m) N,E,S,W				Height of crown clearance (m)	Age class	Physiological condition	Structural condition And comments.	Preliminary management recommendations to ensure SULE is at least 10 years irrespective of development.	Estimated remaining contribution (years)	Cat.	RPA Radius (m)
T1	Elm	8	391	2	2	3	5	5	0	M	Fair.	Fair. Highly likely to succumb to Dutch Elm disease.	Monitor for Dutch Elm disease.	10 – 20	C	4.7
T2	Elm	8	300	4	1	3	2	0	0.5	Y	Poor. 75% dead from Dutch Elm disease.	Poor.	Remove tree.	<10	U	3.6
T3	Elm	9	287	3	1	2	5	3	0.5	Y	Fair. Tight unions at base.	Fair. Highly likely to succumb to Dutch Elm disease.	Monitor for Dutch Elm disease.	10 – 20	C	3.4
T4	Field Maple	10	342	3	0	4	6.5	6.5	0.5	M	Fair.	Fair. Hung up branch to south at 3 metres.	Remove hung up branch.	20+	B	4.1
G5	Leylandii	18	600	1	3.5	3.5	3.5	3.5	0	M	Fair.	Fair. Topped in past at 2 metres and 4 metres and allowed to regrow. The failure of a large leader on T6 has left tall attenuated growth exposed. Topping tallest stems would leave insufficient foliage for trees to photosynthesize effectively.	Remove trees.	<10	U	7.2
T6	Leylandii	18	650	1	3.5	0	3	1	0	M	Fair.	Poor. Topped in past at 2 metres and 4 metres. Recent failure of main leader has left other leader exposed with included bark unions.	Remove tree.	<10	U	7.8
T7	Hawthorn	5	250	1	2	4	4	4	0	M	Fair.	Fair. Suppressed by adjacent tree. Contributing to screen.	None at present.	20+	B	3.0

Tree No.	Species	Height (m)	Stem Dia. (mm)	No. of stems	Branch Spread (m) N,E,S,W				Height of crown clearance (m)	Age class	Physiological condition	Structural condition And comments.	Preliminary management recommendations to ensure SULE is at least 10 years irrespective of development.	Estimated remaining contribution (years)	Cat.	RPA Radius (m)
T8	Cherry	10	400	2	3	4	5	5	0.5	M	Fair.	Fair. Old decayed stem at base to north. However, contributing to screen.	Monitor base of tree every 15 months.	10 – 20	B	4.8
T9	Elder	5	177	3	2	1	4	4	0	M	Fair.	Fair. Suppressed by adjacent tree. Contributing to screen.	None at present.	10 – 20	B	2.1
T10	Hawthorn	6	424	2	3	0	3	3	1	M	Fair. Extensive ivy.	Fair. Cut back hard by Neighbour. Contributing to screen.	Cut ivy.	10 – 20	B	5.1
T11	Spruce	12	300	1	3	3	3	3	0.5	M	Fair.	Fair. Lower branches dying off in shade. Climber in crown.	Consider cutting climber.	20+	B	3.6
G12	Mixed Native	8	138	8	3	3	3	3	1	Y	Fair.	Fair. Mostly Hazel, with hornbeam and field maple. Grown out hedge.	Consider reinstating as a hedge to slow down expansion in girth and damage to adjacent footpath and to allow footpath to be used.	10 – 20	C	1.7
T13	Cherry	17	500	1	6	6	3	6	0.5	M	Fair.	Fair.	None at present	20+	B	6.0
T14	Oak	18	550	1	5	7	7	7	1.5	M	Good.	Good.	None at present.	40+	A	6.6
T15	Hazel	5	157	5	4	3	4	2	1.5	Y	Fair.	Fair.	None at present.	10 – 20	C	1.9
T16	Ash	18	350	1	10	2	5	6	5	M	Fair. Suppressed by T17.	Fair. No sign of Ash Dieback disease at present.	Monitor for Ash Dieback disease annually.	20+	B	4.2
T17	Sycamore	18	450	1	7	2	6	5	3	M	Fair. Ivy on main stem.	Fair.	Consider cutting ivy.	20+	B	5.4

Tree No.	Species	Height (m)	Stem Dia. (mm)	No. of stems	Branch Spread (m) N,E,S,W				Height of crown clearance (m)	Age class	Physiological condition	Structural condition And comments.	Preliminary management recommendations to ensure SULE is at least 10 years irrespective of development.	Estimated remaining contribution (years)	Cat.	RPA Radius (m)
T18	Leylandii	18	760	40	5	5	5	5	5	M	Fair.	Fair. Many stems growing from ground level.	None at present.	10 – 20	C	6.32
T19	Lawson Cypress	6	200	5	2	2	2	2	1.5	M	Fair. Some ivy.	Poor. Multi-stem and stems have started to fall apart.	Remove tree.	<10	U	2.4
T20	Ornamental Apple	3	100	1	2	1	0	2	1	Y	Fair. Suppressed by adjacent trees.	Fair. Small tree relatively simple to replace if necessary.	None at present.	10 – 20	C	1.2
T21	Beech	??	800	1	9	6	10	7	2	M	Fair.	Fair.	None at present	20+	B	9.6
T22	Eucalyptus	5	110	8	2	2	2	2	0.5	Y	Fair.	Fair. Coppiced at 500mm and allowed to regrow. Likely to require re-coppicing every 10 – 20 years to reduce the risk of potential failure at re-growth points.	None at present.	10 – 20	C	1.3
T23	Walnut	7	180	2	3	3	3	3	1	Y	Fair.	Fair. Tight union at base.	Monitor tight union.	10 – 20	C	2.2
T24	Cedar	18	550	1	5	7	6	2	3	M	Fair.	Fair. Close to tarmac car park.	None at present.	20+	B	6.6
T25	Spruce	18	500	1	5	5	5	5	2.5	M	Fair.	Fair. Close to tarmac car park.	None at present.	20+	B	6.0
T26	Sycamore	18	500	1	6	4	3	6	3	M	Fair.	Fair. Neighbour's tree. Very close to rear of single story brick building.	Monitor building for damage due to increase of growth of buttress roots.	10 – 20	C	6.0

Appendix 4

Tree Surgery Schedule- Also see drawing R837TPP

Tree No.	Species	Height (m)	Stem Dia. (mm)	No. of stems	Branch Spread (m) N,E,S,W				Height of crown clearance (m)	Age class	Preliminary management recommendations to ensure SULE is at least 10 years irrespective of development	Tree Surgery required to allow development	Tree surgery contractor's notes
T1	Elm	8	391	2	2	3	5	5	0	M	Monitor for Dutch Elm disease.	As previous column	
T2	Elm	8	300	4	1	3	2	0	0.5	Y	Remove tree.	As previous column	
T3	Elm	9	287	3	1	2	5	3	0.5	Y	Monitor for Dutch Elm disease.	As previous column	
T4	Field Maple	10	342	3	0	4	6.5	6.5	0.5	M	Remove hung up branch.	As previous column	
G5	Leylandii	18	600	1	3.5	3.5	3.5	3.5	0	M	Remove trees.	As previous column	
T6	Leylandii	18	650	1	3.5	0	3	1	0	M	Remove tree.	As previous column	
T7	Hawthorn	5	250	1	2	4	4	4	0	M	None at present.	As previous column	
T8	Cherry	10	400	2	3	4	5	5	0.5	M	Monitor base of tree every 15 months.	As previous column	
T9	Elder	5	177	3	2	1	4	4	0	M	None at present.	As previous column	

Tree No.	Species	Height (m)	Stem Dia. (mm)	No. of stems	Branch Spread (m) N,E,S,W				Height of crown clearance (m)	Age class	Preliminary management recommendations to ensure SULE is at least 10 years irrespective of development	Tree Surgery required to allow development	Tree surgery contractor's notes
T10	Hawthorn	6	424	2	3	0	3	3	1	M	Cut ivy.	As previous column	
T11	Spruce	12	300	1	3	3	3	3	0.5	M	Consider cutting climber.	As previous column	
G12	Mixed Native	8	138	8	3	3	3	3	1	Y	Consider reinstating as a hedge to slow down expansion in girth and damage to adjacent footpath and to allow footpath to be used.	Reinstate as a 1.5m hedge to slow down expansion in girth and damage to adjacent footpath and to allow footpath to be used.	
T13	Cherry	17	500	1	6	6	3	6	0.5	M	None at present	As previous column	
T14	Oak	18	550	1	5	7	7	7	1.5	M	None at present.	As previous column	
T15	Hazel	5	157	5	4	3	4	2	1.5	Y	None at present.	As previous column	
T16	Ash	18	350	1	10	2	5	6	5	M	Monitor for Ash Dieback disease annually.	As previous column	
T17	Sycamore	18	450	1	7	2	6	5	3	M	Consider cutting ivy.	As previous column and crown lift over delivery route to 5 metres by removing 2nd and 3rd order branches.	
T18	Leylandii	18	760	40	5	5	5	5	5	M	None at present.	As previous column	
T19	Lawson Cypress	6	200	5	2	2	2	2	1.5	M	Remove tree.	As previous column	

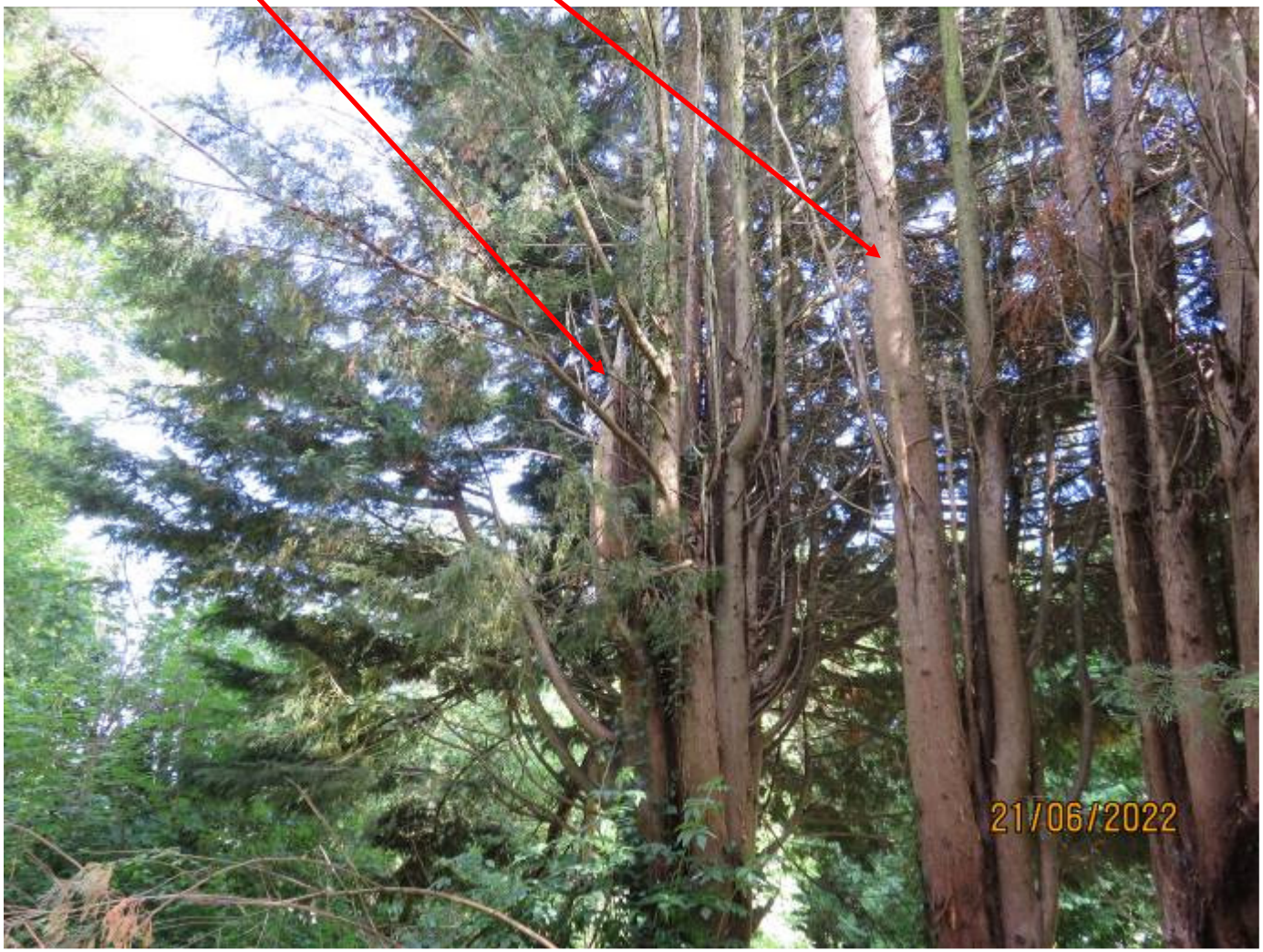
Tree No.	Species	Height (m)	Stem Dia. (mm)	No. of stems	Branch Spread (m) N,E,S,W				Height of crown clearance (m)	Age class	Preliminary management recommendations to ensure SULE is at least 10 years irrespective of development	Tree Surgery required to allow development	Tree surgery contractor's notes
T20	Ornamental Apple	3	100	1	2	1	0	2	1	Y	None at present.	Remove tree to allow development	
T21	Beech	16	800	1	9	6	10	7	2	M	None at present.	Crown lift over delivery route to 5 metres by removing 2nd and 3rd order branches.	
T22	Eucalyptus	5	110	8	2	2	2	2	0.5	Y	None at present.	As previous column	
T23	Walnut	7	180	2	3	3	3	3	1	Y	Monitor tight union.	As previous column	
T24	Cedar	18	550	1	5	7	6	2	3	M	None at present.	As previous column	
T25	Spruce	18	500	1	5	5	5	5	2.5	M	None at present.	As previous column	
T26	Sycamore	18	500	1	6	4	3	6	3	M	Monitor building for damage due to increase of growth of buttress roots.	As previous column	

Appendix 5

Photographs

Photograph 1: Poor condition of T6

Photograph 2: Poor condition and attenuated growth of G5



Appendix 6
Tree Constraints Plan R837TCP

Please see attached drawing R837TCP.

Appendix 7
Tree Protection Plan R837TPP

Please see attached drawing R837TPP.