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Title:	**BS5837 Tree Report**
Site:	**Sidcup Library** **Hadlow Road** **Sidcup** **Kent** **DA14 4AQ**
Client:	**Hill-Wood & Co. (Kent) Limited**
Survey Date:	**8th July, 2021**
Report Issue Date:	**22nd October 2021**
Reference:	**L812AIA**
Based upon Design Layout:	**20217-STCH-XX-ZZ-DR-A-600**

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Appendices

1. Arboricultural Impact Assessment Summary

Suitability of current design layout in relation to trees

1.1 It will be necessary to remove 1No. C category tree (T16) and 1No C category hedge (G17) to allow the proposed design layout. **Mitigation: G17 is not significantly visible from outside of the site and its removal is unlikely to detract from the general amenity value of the area. T16 is a large tree that, although in the centre of the site equidistant from highways may be visible to some degree by the wider public. However previous management and the likely presence of roots that are behind a retaining wall that would largely require removal to allow access to the finished development suggests that it would be more pragmatic to remove and replace with a fastigiate specimen requiring less onerous and frequent future tree surgery in a difficult space to access.**

1.2 There will be negotiations to remove 1 No. U category tree (T19) and to reduce the size of 4No. U category trees (T1-T4) outside 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 or require tree surgery irrespective of development.**

1.3 Providing the measures outlined in this report are followed it should be relatively straight forward to protect the remaining retained trees and in particular ensure that there is little effect on the street scene on both sides of the site.

1.4 I am therefore led to the conclusion that the current design layout is reasonably 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).

- Tree Removal Plan (TRP)
  A Scale drawing showing the trees to be retained and the trees to be removed (see attached Appendix 8).

3. Arboricultural Impact Assessment (AIA)

Scope of the AIA

- To superimpose the proposed site layout Drawing No 20217-STCH-XX-ZZ-DR-A-600 onto the Tree Constraints Plan L812TCP.
- 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

3.1 There is a risk that limited space to demolish and carry out the construction process will put pressure on protected areas. **Mitigation: Ensure that demolition, the deliveries and storage of materials, site accommodation and construction processes are well planned prior to commencement of the project.**

3.2 It will be necessary to remove 1No. C category tree (T16) and 1No C category hedge (G17) to allow the proposed design layout. **Mitigation: G17 is not significantly visible from outside of the site and its removal is unlikely to detract from the general amenity value of the area. T16 is a large tree that, although in the centre of the site equidistant from highways may be visible to some degree by the wider public. However previous management and the likely presence of roots that are behind a retaining wall that would largely require removal to allow access to the finished development suggests that it would be more pragmatic to remove and replace with a fastigiate specimen requiring less onerous and frequent future tree surgery in a difficult space to access.**

3.3 There will be negotiations to remove 1 No. U category tree (T19) and to reduce the size of 4No. U category trees (T1-T4) outside 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 or require tree surgery irrespective of development.**

3.4 There is a risk that new services entering the site will damage roots of retained trees. **Mitigation: Where possible services will enter the site or** connect to existing services **outside the RPA of retained trees. Preliminary assessments of RPA's and likely service routes suggest that this should be achievable however if excavations are required they will be carried out in accordance with NJUG regulations. Attenuation tanks and soakaways will not be within the RPA of retained trees.**

3.5 Due to the proximity of trees to the development and the amount of trees that have been removed or replaced, it will be necessary to consider the possible effect on soil conditions. **Mitigation: At this preliminary stage British Geological Society information seems to suggest that soils in the area are unlikely to be shrinkable. A Structural Engineer could advise further on this using the species and proximity information from this report.**

3.6 There is a risk that trees may cast prohibitive shade on the finished development: **Mitigation: Due to the orientation of the site shade cause by trees is unlikely to be prohibitive. In addition, the majority of trees, surrounding, or on the site are deciduous. They will cast less shade in the winter months. If the recommendation to cut ivy on retained trees is followed this will also reduce shade. If T1-T4 are retained their dimensions will be somewhat reduced to allow the erection of scaffolding. Due to the species these trees are unlikely to grow back on this elevation after being reduced to this degree. Regular pollarding of T5-T9 will reduce shade on the adjacent elevation however it will be necessary to implement a management plan for future residents to ensure that this is carried out.**

3.7 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.**

3.8 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.**

3.9 There is a risk that the increase in girth of stem and buttress roots of neighbour's trees adjacent to adjacent parking spaces will significantly disturb hard surfaces. **Mitigation: This damage would occur to existing parking spaces irrespective of development. If it occurs it will be necessary to seek Arboricultural advice and negotiate remedial action with the owner of the trees.**

3.10 There is a risk that boundary walls would require strip foundations within the RPA of retained trees. **Mitigation: Use a 2m high fence with posts at 1.8m centres. Post holes will be excavated by hand and moved if roots over 25mm in diameter are encountered. Trees will be crown lifted to 2.5m to allow the erection of fencing if necessary.**

3.11 Replacement Planting Scheme

Drawing L812TPP indicates sufficient space for relatively extensive replanting. Full details to be confirmed by a landscape architect.

3.12 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.

3.13 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.

3.14 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-commencement 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 L812TPP

- 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 L812TPP.

- 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 L812TPP unless excavations are carried out under Arboricultural supervision and in accordance with NJUG regulations (see more detail in item 4.8 below). 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.

4.1 **Confirm Service routes**

4.2 **Confirm whether U category tree T19 will be removed and reduction recommendations will be carried out in relation to T1-T4 with tree owners**

- Negotiate with tree owners to either make reasonably safe or remove trees.

4.3 **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.

4.4 **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.

4.5 **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.

- It may be necessary to negotiate access with tree owners to carry out tree surgery to BS3998 in relation to T19 and T1 to T4.

4.6 **Erect protective fencing**

Protective Fencing

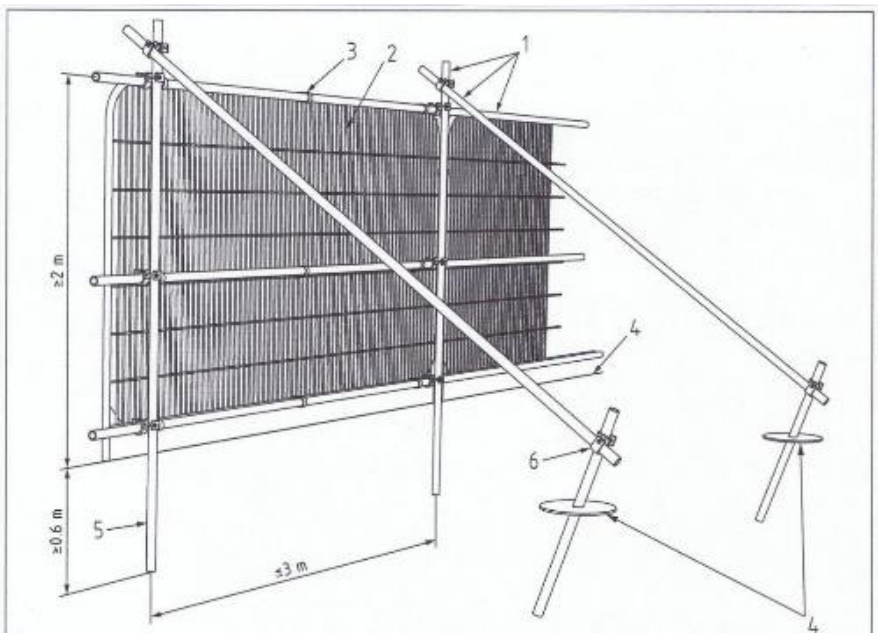
- BS5837: (2012) *Trees in Relation to Development* stipulates the following:

  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 2.3m high Heras fencing fixed to scaffold supports at 3m centres as shown in the following drawing from BS5837 (2012)).

- Signs will be fixed to the construction side of the fence with the wording indicated in Fig. 2 below:

Fig. 1:



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Fig. 2:

4.7 **Lay Temporary Ground Protection in the position shown on drawing No L812TPP (T1-T4)**

- The areas hatched in light blue on the Tree Protection Plan L812TPP will require temporary ground protection to allow works or storage of materials within the RPA of retained trees. Temporary ground protection will be laid under Arboricultural supervision before demolition, construction or access to site by heavy plant. at a maximum distance of 300mm from the proposed above ground build line.

- Due to the uneven nature of the area to be covered with temporary ground protection a scaffold framework will be constructed to support a level surface that can be used by foot traffic and to allow the erection of additional scaffolding later in the contract. The temporary ground protection will effectively be a “block lift”.

- No excavations beyond those required to position a minimum number of scaffold sole boards will be carried out to construct the scaffold framework. Scaffold sole boards will be positioned at least 1m from tree stems and buttress roots.

- Remove the upper organic layer of soil by hand digging (Approximately 50-100mm) beneath the proposed position of scaffold sole boards. Any roots encountered under 25mm in diameter will be cut back to the edge of the excavation with a sharp saw or secateurs. The significance of any roots over 25mm in diameter will be considered by the Arboricultural consultant. If a significant number of this size root are encountered it may be necessary to sleeve or bridge these roots within the proposed structure.

- Arisings should be wheel barrowed out of the tree protection area or carried by hand. Machinery (even low ground pressure tracked vehicles) should not be used due to the risk of soil compaction.

- Level ground beneath proposed scaffold sole boards with sharp sand if necessary and position sole boards.

- Construct scaffold framework. The temporary ground protection platform will consist of 2 No layers of scaffolding board. A layer of impermeable membrane (250 micron, 1200 gauge dpm) will be positioned between the scaffold boards to reduce the risk of soil contamination by wet building materials. The dpm will be integrated into a toe-board upstand around the perimeter of the temporary ground protection to reduce the risk of wet materials from running off the edge of the temporary ground protection.

- Wet building materials that fall onto the temporary ground protection will be scraped off and removed from site.

- 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.

4.8 **Position new service routes in accordance with NJUG regulations under Arboricultural supervision if it is necessary to impinge upon RPA of retained trees**

Excavations and Laying of services (if necessary) within the RPA of retained trees in accordance with NJUG regulations

- Excavations and laying of services etc. will be supervised by the Arboricultural Consultant.
- Excavations must comply with NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees, Volume 4. Summarized as:
- After careful removal of hard surfaces (if present) material digging must proceed with hand tools. Clumps of roots less than 25mm in diameter (including fibrous roots) should be retained in situ without damage. Throughout the excavation works great care should be taken to protect bark around the roots.
- Any cut root ends or exposed roots will be temporarily covered with damp Hessian until the excavation is backfilled.
- Backfilling should be carefully carried out to avoid direct damage to roots and excessive compaction of the soil around them. The backfill should, where possible, include the placement of an inert granular material mixed with top soil or sharp sand (not builder's sand) around the roots. This should allow the soil to be compacted for resurfacing without damage to the roots securing a local aerated zone enabling the root to survive in the long term.
- Generally areas adjacent to excavations will be protected by "Trakmat" or similar ground protection during excavations. In addition work will be carried out in a methodical manner by a small workforce to reduce the frequency of footfalls across otherwise unprotected ground.

4.9 **Demolish structures within the RPA of retained trees (T26-T30)**

- Under Arboricultural supervision dismantle enough protective fencing to allow the demolition of existing buildings (existing bin store) and hard surfaces near or within the RPA of retained trees.
- Demolition will be carried out under Arboricultural Supervision.
- Machinery will not enter the RPA of retained trees but long armed machines could be used provided their tracks or wheels do not enter the RPA.
- Structures will be demolished within their own footprint and away from retained trees.
- Foundations will be broken up and removed by hand or by carefully using a machine from outside the RPA of the retained trees.
- The area of ground beneath the existing hard surface sub-base that is now shown as soft landscaping will be carefully loosened by hand with a garden fork and back-filled with good quality topsoil ready for grass seed or turf.
- Protective fencing will be re-erected in the position shown on drawing L812TPP.

4.10 **Complete main construction phase**

4.11 **During construction phase erect scaffolding adjacent to RPA of retained trees.**

- Cover outside of scaffolding with netting to prevent waste materials falling into the RPA of retained trees and contaminating soil.

4.12 **Lay "No-dig" permeable patio within the RPA of Retained Trees (T1-T4) and beneath the proposed bin store.**

At the end of the main construction when the majority of heavy plant has left site a suitable cellular confinement system of adequate depth to provide support for anticipated traffic will be used to cover the area indicated on drawing No L812TPP. The following companies provide cellular confinement systems:

- Terram Ltd, (Geocell cellular system with Terram 1000 geotextile), 01495 757 722, www.terram.com
- Geosynthetics, (Cellweb cellular confinement system with Fibretex f4m geotextile), 01455 617139, www.geosyn.co.uk

Geosynthetics provide a full engineering service, including the provision of surveys, structural designs, CAD drawings and installation supervision at no cost to the client. However as an indication of likely process that will be required the following is based on Terram's recommendations for the "no dig" installation of a cellular confinement system:

The following process will be carried out under Arboricultural supervision.

- Remove sufficient temporary ground protection and fencing. Remove grass and other vegetation and the upper organic layer of soil by hand digging (Approximately 50-100mm). Any roots encountered under 25mm in diameter will be cut back to the edge of the excavation with a sharp saw or secateurs. The significance of any roots over 25mm in diameter will be considered by the Arboriculturalist. If a significant number of this size root are encountered it may be necessary to sleeve or bridge these roots within the proposed structure.

- Arisings should be wheel barrowed out of the tree protection area. Machinery (even low ground pressure tracked vehicles) should not be used due to the risk of soil compaction.

- Small depressions may be filled with sharp sand to establish a level base for the ground protection. Create a fall away from the RPA of retained trees.

- Position edging. Edging should be positioned with minimum excavation but be sufficient to prevent the lateral spread of the cellular confinement system and wearing course. One form of edging might consist of 38x150x2000 long treated timber held in place with metal pins or 50x50x500 long pointed stakes at 1m centres. Alternatively more substantial bulk timbers could be laid on the surface and integrated into a series of short posts. To reduce damage it is important that the posts are at a minimum of 2m centres and post holes are as small diameter as possible. Post-holes will be excavated to the minimum depth required for the ground conditions. Holes will be made with a manually operated post-hole digger. Where roots over 25mm in diameter are encountered the post hole will be moved to a different location and edging cut to fit. Posts will be no closer than 500mm from tree stems or buttress roots. The structural requirements of the edging should be verified with a Structural Engineer.

- Lay out Terram Permeable Geotextile (T1000).

- Lay out Terram Geocell and carefully peg in place. (100mm deep for pedestrian and cycle traffic, 150mm deep for light vehicles and 200mm deep for heavier or more frequent vehicles.)

- Fill the cells with a well graded, 4/20 or 20/40 crushed, angular stone. Over fill the cells by 25mm with no compaction with whacker plates. Further filling should be carried out using the filled Geocells as a platform

- Add a further layer of Terram Permeable Geotextile (T1000) to prevent fines from mixing with the granular fill below.

- Add the required layer of 2-6mm graded angular material to provide a bed for the permanent permeable wearing course. 2-6mm will also be used as jointing material.

- The permeable joints and granular bedding course for is a good environment for future weed growth. It may be necessary to spray the area with a Glyphosate based herbicide once or twice per year. This will be carried out by a suitably qualified operative.

4.13 **Resurface existing parking spaces within the RPA of T21, T22 and G23**

- If necessary a machine will be used to scrape off the existing hard surface. The existing sub-base will not be excavated or disturbed without further advice from an experienced Arboriculturalist.

4.14 **Install new bin stores within the RPA of T26-T30**

- Ensure bin stores are of a light weight structure.

- Bin stores will rest on and be fixed to the top of the cellular confinement system wearing course.

- Bin stores will be covered but slatted and sufficiently permeable to allow ingress of rainfall and will have open sides to allow gaseous exchange through the permeable hard surface they are mounted on.

4.15 **Carry out Replanting Scheme**

4.15.1 Prepare ground for planting within the RPA of retained trees

- Do not rotovate ground.

- Use a garden fork to manually loosen soil and mix in well composted organic waste.

- Where possible slit plant small specimens instead of excavating large planting pits.

4.15.2 Prepare ground for planting outside the RPA of retained trees

- 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.

- There will be 500mm diameter clearance from tree centre to adjacent hard surfaces for small trees, 1000mm for medium trees and 1500mm for large trees. Alternatively a 450mm 1m deep root barrier will be installed at 1m from stem centres. Terram Ltd, (Root Guard Plus), 01495 757 722, www.terram.com are one company that provide flexible root barrier.

- It is important that the top edge of the root barrier is slightly above finished ground level to reduce the risk of roots growing over the barrier.

  The manufacturer's instructions should be complied with where joints in the barrier are required.

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

- Due to relatively large planting sizes it will be necessary to ensure that trees are regularly watered throughout the dry period of each year for 3 years after planting. I recommend providing 90 litres of water per tree every 2 weeks between 1St May and 30th September unless weather conditions dictate otherwise. It may be necessary to commence watering earlier during a dry spring.

- Trees will be anchored below ground using a system such as:

  Platipus Systems Rootball Fixing Kit
  Supplied by Platipus Anchors Ltd
  Kingsfield Business centre
  Philanthropic Road
  Redhill
  RH1 4DP
  01737762300
  www.platipus-anchors.com

- Trees planted in paved areas will have a tree grille over the planting pit that can be gradually removed as the girth of the tree increases in girth.

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

4.16 **Erect Permanent fencing within RPA of retained trees**

- 2m high panels or railings will be fitted between posts at 1.8m centres.

- Post-holes will be excavated to the minimum depth required for the ground conditions. Holes will be made with a manually operated post-hole digger. Where roots over 25mm in diameter are encountered the post hole will be moved to a different location and the fence panels cut to fit.

- Fence posts will be no closer than 500mm from tree stems or buttress roots.

- New fence panels will clear stem and buttress roots by 50mm. There will be scope for future adjustment to maintain a 50mm clearance.

4.17 **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.

4.18 **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 any remaining protective fencing.

4.19 **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

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 L812TCP 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 Lucy McCloskey on behalf of Hill-Wood & Co. (Kent) Limited) to carry out a BS5837 tree survey in relation to a planning application for development at Sidcup Library, Hadlow Road, Sidcup, Kent. DA14 4AQ.

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:

- Hook Surveys Topographical survey Drawing No. S21/8305/01.

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

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

- Bexley Borough Council's website indicates that the site is not within "The Green" Conservation Area
- Bexley Borough Council's website indicates that trees within the site are not covered by a Tree Preservation Order (TPO)

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

2. Site Visit and Observations

2.1 Site visit

I surveyed the trees on the 8th July, 2021. The weather was occasionally overcast with light winds.

2.2 Brief site description

The site is currently occupied by a library and council offices with associated parking, a public convenience and electricity sub-station.

The site is generally level but is approximately 500mm above Hadlow Road to the north west and the adjacent residential property to the north. There is also a raised section of the site to the south west near the southern corner of the existing library and where the site meets the raised commercial premises loading bay on this elevation.

2.3 The Trees

29 No individual trees and 1 No. group of trees (G17) were surveyed.

9 No. individual trees (T1, T10, T11, T12, T15, T19, T21, T22 and T24) and 1 No. group of trees (G23) are in neighbouring property and I was therefore not able to carry out a full 360 degree survey of these trees.

T11, T12, T13, T14, G17 and T29 were missed from the topographical survey. Their position was found using a tape measure or handheld laser rangefinder. The same method was used for correcting the position of T28 and T30.

Specific details of each tree surveyed are recorded in the tree survey schedule included as Appendix 3 and on the Tree Constraints Plan L812TCP included as Appendix 6.

2.4 The Soils

Detailed soil investigations were not carried out. However the British Geological Survey websitehttps://mapapps.bgs.ac.uk/geologyofbritain/home.html indicates that the area is on "Harwich Formation – Sand and Gravel". At this preliminary stage this suggests there is unlikely to 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.

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 was a conflict between T3, T5 and T6 with an overhead telephone cable. Underground 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 L812TCP.

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.

There are no A category trees on this site.

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 L812TCP.

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 L812TCP.

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 L812TCP.

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 T1-T4, T5-T9, T13, T14 and T17 has been maintained but offset to account for the likely constraint to root spread by the foundations of the adjacent highway/structures.

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 Generally it is considered that providing neighbour's trees are not covered by a tree preservation order or in a conservation area there is nothing to stop the site owner from removing overhanging branches or roots encroaching across the site boundary. This may however cause unnecessary friction with the tree owners and have a possible long term effect on the health of the trees. If a tree that has suffered such damage were to fail and cause harm it may be possible for those responsible for the damage to be held liable in negligence. I would therefore suggest that, where possible, these 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. T1-T4 and T19 are approaching this condition and it would be prudent to consider informing the owner of the trees and negotiating their removal or making relatively safe irrespective of development.

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 L812TCP

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	Leylandii	16	400	1	2	5	2	5	3	M	Fair.	Poor. Neighbour's tree. Previously suppressed to south east by tree that has been removed. Poor buttress development due to constrained rooting environment from adjacent concrete drive. Leverage from height of tree and continuing large growth potential and poor buttress development suggest a relatively high risk of failure in high winds within the next 10 years. Previous crown lifting has removed low and medium height screening benefits. Stem very close to boundary pavement.	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	>10	U	4.8
T2	Leylandii	16	400	1	1	4	1	1	10	M	Fair.	Poor. Neighbour's tree. Previously suppressed to south east and north west by tree that has been removed. Poor buttress development due to constrained rooting environment from adjacent concrete drive. Leverage from height of tree and continuing large growth potential and poor buttress development suggest a relatively high risk of failure in high winds within the next 10 years. Previous crown lifting has removed low and medium height screening benefits. Stem very close to boundary pavement.	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	>10	U	4.8

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)
T3	Leylandii	16	350	1	2	4	1	3.5	2.5	M	Fair.	Poor. Neighbour's tree. Previously suppressed to south east and north west by tree that has been removed. Poor buttress development due to constrained rooting environment from adjacent concrete drive. Leverage from height of tree and continuing large growth potential and poor buttress development suggest a relatively high risk of failure in high winds within the next 10 years. Previous crown lifting has removed low and medium height screening benefits. Stem very close to boundary pavement.	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	>10	U	4.8
T4	Leylandii	16	500	1	5	5	1	1	2.5	M	Fair.	Poor. Neighbour's tree. Previously suppressed to south east by tree that has been removed. Poor buttress development due to constrained rooting environment from adjacent concrete drive. Leverage from height of tree and continuing large growth potential and poor buttress development suggest a relatively high risk of failure in high winds within the next 10 years. Previous crown lifting has removed low and medium height screening benefits. Stem very close to boundary pavement.	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	>10	U	4.8

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)
T5	Lime	16	400	1	3	5	5	2	4	M	Fair.	Fair. Expansion in girth of buttress roots may be contributing to minor vertical crack in low level boundary wall. Extensive epicormic suckers. Tree previously pollarded at 4 metres and allowed to re-grow. Likely to require re-pollarding within 10 – 20 years to reduce the risk of failure at potentially weak re-growth points. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	Monitor damage to boundary wall.	10 – 20	C	4.8
T6	Lime	16	300	1	3.5	3	3	1	5	M	Fair.	Fair. Extensive epicormic suckers. Tree previously pollarded at 4 metres and allowed to re-grow. Likely to require re-pollarding within 10 – 20 years to reduce the risk of failure at potentially weak re-growth points. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	None at present.	10 – 20	C	3.6

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)
T7	Lime	16	400	1	4	3	3	1	5	M	Fair.	Fair. Extensive epicormic suckers. Tree previously pollarded at 4 metres and allowed to re-grow. Likely to require re-pollarding within 10 – 20 years to reduce the risk of failure at potentially weak re-growth points. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	None at present.	10 – 20	C	4.8
T8	Lime	16	450	1	4	3	6	1	5	M	Fair.	Fair. Extensive epicormic suckers. Tree previously pollarded at 4 metres and allowed to re-grow. Likely to require re-pollarding within 10 – 20 years to reduce the risk of failure at potentially weak re-growth points. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	None at present.	10 – 20	C	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)
T9	Lime	18	800	1	4.5	2	6	6	5	M	Fair.	Fair. Extensive epicormic suckers. Tree previously pollarded at 4 metres and allowed to re-grow. Tree has put on considerably more growth than adjacent trees with more open unions. Close proximity of still developing buttress roots may be contributing to sideways movement of low level retaining/boundary wall. Damage is minor at present but if tree is retained large growth potential suggests damage will increase and remediation will not be possible without impinging on the highway or requiring damage to buttress roots. Regular pollarding every 2 to 3 years may slow down annual incremental growth and subsequent damage.	None at present.	10-20	C	9.6
T10	Gingko	6	120	1	1.5	1.5	1.5	1.5	2	Y	Fair.	Fair. Neighbour's tree. Recently planted street tree. Small tree relatively straightforward to replace if necessary.	None at present.	20+	C	1.44
T11	Cherry	5	75	1	1.5	1.5	1.5	1.5	2	Y	Poor. Sparse foliage and small dieback of central leader.	Fair. Neighbour's tree. Recently planted street tree. Small tree relatively straightforward to replace if necessary.	None at present.	10 – 20	C	0.9
T12	Cherry	7	120	1	2	2	2	2	2	Y	Fair. Small dieback in outer crown.	Fair. Neighbour's tree. Recently planted street tree. Small tree relatively straightforward to replace if necessary.	None at present.	20+	C	1.44

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)
T13	Euonymus	5	305	2	1	4	3	1	0	M	Fair.	Fair. Large shrub creating significant screen visible from road. Poor form. Very entangled with T14.	None at present.	20+	C	3.7
T14	Euonymus	5	234	2	1	4	3	1	0	M	Fair.	Fair. Large shrub creating significant screen visible from road. Poor form. Very entangled with T13.	None at present.	20+	C	2.8
T15	Sycamore	18	566	2	3	5	5	5	18	M	Fair.	Fair. Neighbour's tree. Very close to adjacent structure with large growth potential.	None at present.	10-20	C	6.8
T16	Norway Maple	18	800	1	7	7	7	7	7	M	Fair.	Fair. Pollarded in past at 5 metres and allowed to re-grow then topped at 16 metres and allowed to re-grow. Visible from outside of site but likely to require re-topping or very careful reduction within 10 – 20 years to reduce the risk of failure at potentially weak unions. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	None at present.	10 – 20	C	9.6
G17	Pyracantha	3	89	5	1	1	1	1	0	Y	Fair.	Fair. Significant low level screen from neighbouring property.	None at present.	10 – 20	C	1.1
T18	Pyracantha	4	89	5	1	3	0	3	0.5	Y	Poor. Dead.	Poor.	Remove tree.	<10	U	1.1

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)
T19	Sycamore	16	500	1	4	5	6	1.5	4	M	Poor. Appears to have been in decline for several years.	Fair. Neighbour's tree. Small deadwood at present but poor vigour suggests tree has less than 10 years before significant dieback occurs.	Negotiate removal with tree owner.	<10	U	6.0
G20	Cotoneaster	6	102	3	1	1	1	1	0	M	Fair.	Fair. Significant size shrubs offering limited screening for neighbouring property.	None at present.	20+	C	1.2
T21	Sycamore	9	160	1	3	3	1	3	4	Y	Fair.	Fair. Neighbour's tree. Close to boundary growing in a narrow bed likely to disturb adjacent hard surfaces in the near future.	None at present.	10 – 20	C	1.92
T22	Ash	10	300	1	3	5	1	5	2	Y	Fair. No evidence of Ash Dieback disease at present.	Fair. Neighbour's tree. Close to boundary growing in a narrow bed likely to disturb adjacent hard surfaces in the near future.	Monitor for Ash Dieback disease every 15 months.	10 – 20	C	3.6
G23	Sycamore	10	255	3	1	5	5	5	2	Y	Fair.	Fair. Neighbour's trees. Close to boundary growing in a narrow bed likely to disturb adjacent hard surfaces in the near future.	None at present.	10 – 20	C	3.1
T24	Golden Rain Tree	8	250	1	4	3	4	4	8	Y	Fair.	Fair. Street tree.	None at present.	20+	B	3.0
G25	Eleagnus	3.5	112	5	1	1	1	1	0	Y	Fair.	Fair. Southern end of hedge provides a significant mid-level screen from neighbouring property.	None at present.	20+	B	1.3

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)
T26	Lime	18	500	1	3	3.5	3.5	3.5	0	Y	Fair.	Very extensive epicormic suckers and ivy. Also close to boundary treatment. Appears to have been pollarded in past at 5 metres and allowed to re-grow then topped at 16 metres and allowed to re-grow. Likely to require re-topping or re-pollarding within 10 – 20 years to reduce the risk of failure at potentially weak unions. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	Cut ivy.	10 – 20	C	6.0
T27	Lime	18	500	1	3	3.5	3.5	3.5	0	Y	Fair.	Very extensive epicormic suckers and ivy. Also close to boundary treatment. Appears to have been pollarded in past at 5 metres and allowed to re-grow then topped at 16 metres and allowed to re-grow. Likely to require re-topping within 10 – 20 years to reduce the risk of failure at potentially weak unions. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	None at present.	10 – 20	C	6.0

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)
T28	Lime	18	500	1	3	3.5	3.5	3.5	0	Y	Fair.	Very extensive epicormic suckers and ivy. Also close to boundary treatment. Appears to have been pollarded in past at 5 metres and allowed to re-grow then topped at 16 metres and allowed to re-grow. Likely to require re-topping within 10 – 20 years to reduce the risk of failure at potentially weak unions. Re-pollarding would increase category to B but in the context of development requirement for frequent re-pollarding thereafter may be excessively onerous for future residents.	None at present.	10 – 20	C	6.0
T29	Elder	4	128	2	1	1	1	2	1.5	Y	Poor.	Fair.	None at present.	10 – 20	C	1.5
T30	Sycamore	16	500	1	6	6	4	6	1.5	M	Fair. Suppressed by T28.	Fair. Close to boundary treatment. Ivy recently cut.	None at present.	20+	C	6.0

Appendix 4

Tree Surgery Schedule- Also see drawing L812TPP

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	Leylandii	16	400	1	2	5	2	5	3	M	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	As previous but also ensure that crown spread is reduced to within 1m of boundary and crown lift over site to 5m.	
T2	Leylandii	16	400	1	1	4	1	1	10	M	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	As previous column	
T3	Leylandii	16	350	1	2	4	1	3.5	2.5	M	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	As previous column but also ensure that crown spread is reduced to within 1m of boundary and crown lift over site to 5m.	
T4	Leylandii	16	500	1	5	5	1	1	2.5	M	Inform Neighbour of condition of tree and negotiate to reduce height of trees by 3 – 4 metres and radial width by 1 -2 metres or remove.	As previous column	
T5	Lime	16	400	1	3	5	5	2	4	M	Monitor damage to boundary wall.	As previous column and re-pollard to previous points at approximate height of 4m.	

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
T6	Lime	16	300	1	3.5	3	3	1	5	M	None at present.	As previous column and re-pollard to previous points at approximate height of 4m.	
T7	Lime	16	400	1	4	3	3	1	5	M	None at present.	As previous column and re-pollard to previous points at approximate height of 4m.	
T8	Lime	16	450	1	4	3	6	1	5	M	None at present.	As previous column and re-pollard to previous points at approximate height of 4m.	
T9	Lime	18	800	1	4.5	2	6	6	5	M	None at present.	As previous column and re-pollard to previous points at approximate height of 4m.	
T10	Gingko	6	120	1	1.5	1.5	1.5	1.5	2	Y	None at present.	As previous column	
T11	Cherry	5	75	1	1.5	1.5	1.5	1.5	2	Y	None at present.	As previous column	
T12	Cherry	7	120	1	2	2	2	2	2	Y	None at present.	As previous column	
T13	Euonymus	5	305	2	1	4	3	1	0	M	None at present.	As previous column	
T14	Euonymus	5	234	2	1	4	3	1	0	M	None at present.	As previous column	
T15	Sycamore	18	566	2	3	5	5	5	18	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
T16	Norway Maple	18	800	1	7	7	7	7	7	M	None at present.	Remove tree to allow development	
G17	Pyracantha	3	89	5	1	1	1	1	0	Y	None at present.	Remove hedge to allow development	
T18	Pyracantha	4	89	5	1	3	0	3	0.5	Y	Remove tree.	Remove shrub to allow development	
T19	Sycamore	16	500	1	4	5	6	1.5	4	M	Negotiate removal with tree owner.	As previous column because of tree's poor condition over existing or proposed parking spaces.	
G20	Cotoneaster	6	102	3	1	1	1	1	0	M	None at present.	Remove to allow development	
T21	Sycamore	9	160	1	3	3	1	3	4	Y	None at present.	Crown lift to 5m over site	
T22	Ash	10	300	1	3	5	1	5	2	Y	Monitor for Ash Dieback disease every 15 months.	Crown lift to 5m over site	
G23	Sycamore	10	255	3	1	5	5	5	2	Y	None at present.	Crown lift to 5m over site	
T24	Golden Rain Tree	8	250	1	4	3	4	4	8	Y	None at present.	As previous column	
G25	Eleagnus	3.5	112	5	1	1	1	1	0	Y	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
T26	Lime	18	500	1	3	3.5	3.5	3.5	0	Y	Cut ivy.	As previous column plus remove epicormic growth and crown lift to 5m over site.	
T27	Lime	18	500	1	3	3.5	3.5	3.5	0	Y	None at present.	As previous column plus remove epicormic growth and crown lift to 5m over site.	
T28	Lime	18	500	1	3	3.5	3.5	3.5	0	Y	None at present.	As previous column plus remove epicormic growth and crown lift to 5m over site.	
T29	Elder	4	128	2	1	1	1	2	1.5	Y	None at present.	As previous column	
T30	Sycamore	16	500	1	6	6	4	6	1.5	M	None at present.	As previous column	

Appendix 5

Photographs

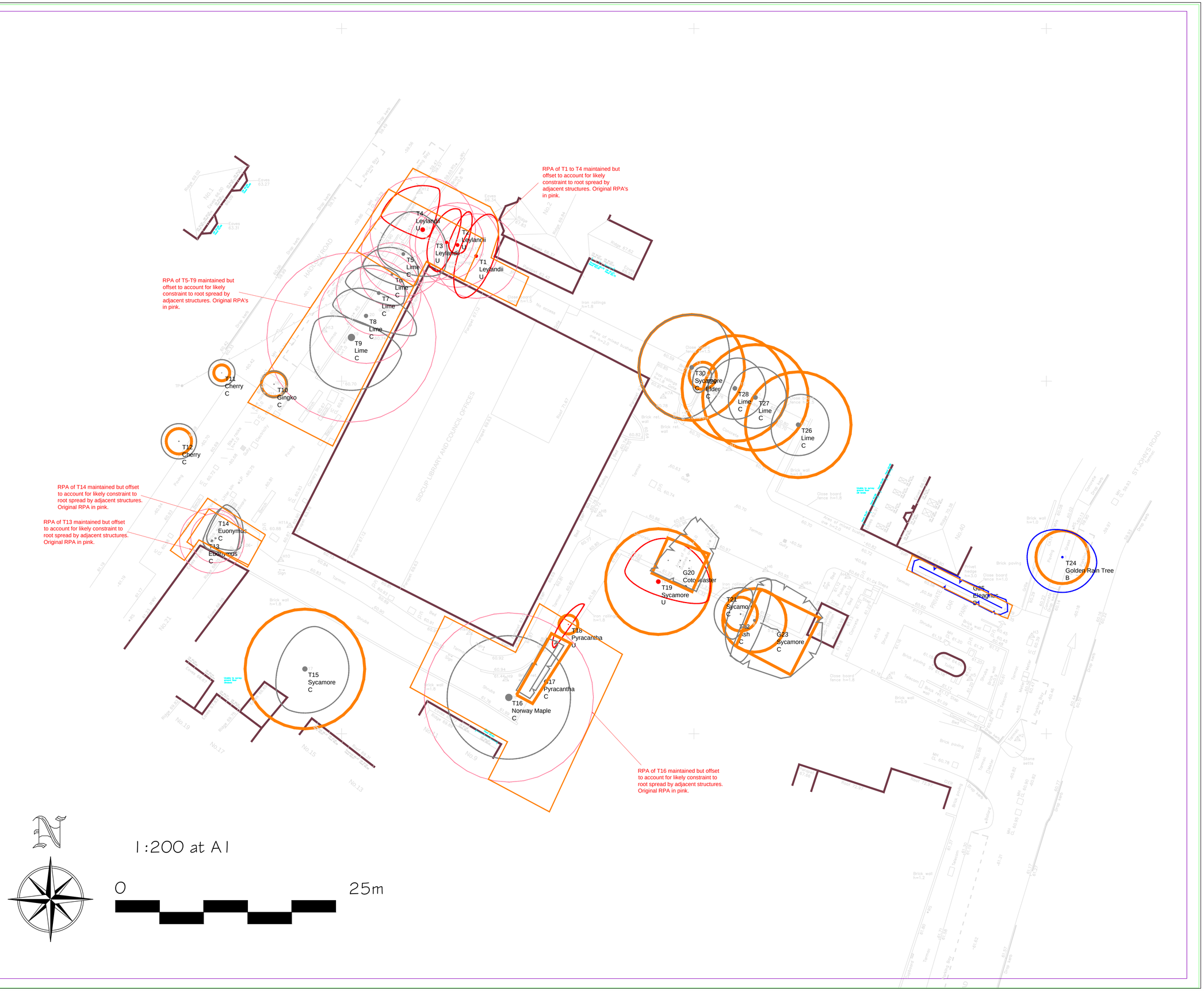
Photograph 1: T1-T4: Poor buttress development

Photograph 2: T1- T4: Long lever arms above poor buttress development.

Photograph 3: T19: Poor condition and vigour

Appendix 6
Tree Constraints Plan L812TCP

Please see attached drawing L812TCP.



Legend

- Root Protection Area
- Category A tree Those of High quality and value.
- Category B tree Those of moderate quality and value
- Category C tree Those of low quality and value
- Category U tree. Likely to have a Safe Useful Life Expectancy of less than 10 years irrespective of development.
- Not inspected

Notes

Based upon Hook survey Partnership Topographical Survey Drawing No. S21/8305/01. The position of trees T11, T12, T13, T14, G17 and T29 added by Treeventures Ltd. The position of T28 and T30 corrected by Treeventures Ltd.

Also Please refer to Treeventures report ref: L812AIA

Rev:	Date:	Description:
-	-	-

Project:

Sidcup Library
Hadlow Road
Sidcup, Kent, DA14 4AQ

Title:

Tree Constraints Plan

Date: 08-07-2021

Scale: 1:200 at A1

Drawing No: L812TCP

Revision: -

Tree Ventures Limited
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Appendix 7
Tree Protection Plan L812TPP

Please see attached drawing L812TPP.

The comments on this drawing indicate mitigating measures that will be taken to reduce the impact of development on trees and vice versa. More details of how to achieve the mitigating measures are included within the Arboricultural Method Statement in Tree Report No. L812AIA.

All Boundary treatments within the RPA of retained trees to consist of fencing with fence posts at 1.8m centres. Post holes will be excavated by hand and moved if roots over 25mm in diameter are encountered. Crown lift retained tree to 2.5m to allow the erection of fencing if necessary.

Ideally any new services entering the site will be outside the RPA of retained trees. Any excavations required for new services within the RPA of retained trees will be carried out in accordance with NJUG regulations and under Arboricultural supervision. Soakaways or attenuation tanks will not be within the RPA of retained trees.

Soft landscaping within the RPA of retained trees will either be carried out under Arboricultural supervision or by a landscape contractor experienced in working near trees.

If T1 to T4 are retained negotiate with neighbour to reduce height by 3-4m and radial width by 1-2m irrespective of development because of their poor buttress root development. Their RPA will be protected with fencing and temporary ground protection (blue hatching) positioned before demolition, construction or access to site by heavy plant. Protective measures will only be removed under Arboricultural supervision to allow the positioning of "No-dig" permeable hard surfaces.

Any renovation of requiring removal of existing wall will be carried out Arboricultural excavation and will not require the removal of roots over 25mm in diameter.

Crown spread of T1 and T3 cut back to within 1m of the boundary and crown lifted to 5m over site.

T5-T9 re-pollarded at previous points (height of approximately 4m). Regular re-pollarding of these trees is likley reduce the increase in girth of roots adjacent to the low level boundary/retaining wall and also reduce the impact of shade on the proposed building.

Existing hard surface retained to protect RPA. If wearing course is replaced this will be carried out without removing or disturbing existing sub-base.

Protective fencing erected before demolition, construction or access to site by heavy plant to protect street tree from construction traffic.

Protective fencing (black dashed line) erected before demolition, construction or access to site by heavy plant.

Protective fence only to be removed under Arboricultural supervision to allow the demolition of existing bin store and removal of existing car parking spaces. Existing hard surfaces will be broken up and removed without excavating below existing sub-bases or foundations. Machinery will not enter the RPA of retained trees. New bin store will be a light weight structure fixed to a "No-dig" and permeable hard surface.

New open area ground will be backfilled with topsoil and laid to lawn or soft landscaping.

T26, T27, T28 and T30 to be crown lifted to 5 m over site. epicormic growth of T26, T27 and T28 removed.

Protective fencing erected before demolition, construction or access to site by heavy plant.

T21, T22 and G23 crown lifted to 5m over site. Existing boundary treatment will protect stems. Existing hard surface retained to protect RPA. If wearing course is replaced this will be carried out without removing or disturbing existing sub-base under Arboricultural supervision. The risk of damage to adjacent hard surfaces is likely to occur to existing hard surfaces irrespective of development. If proposed hard surfaces are damaged it will be necessary to seek Arboricultural advice and negotiate remedial action with the owners of the trees.

T1 Leylandii U
T2 Leylandii U
T3 Leylandii U
T4 Leylandii U
T5 Lime C
T6 Lime C
T7 Lime C
T8 Lime C
T9 Lime C
T11 Cherry C
T10 Gingko C
T12 Cherry C
T14 Eucalyptus C
T13 Eucalyptus C
T15 Sycamore C
G17 Pyracantha C
T19 Sycamore U
T20 Lime C
T21 Lime C
T22 Lime C
T23 Lime C
G23 Sycamore C
T24 Golden Rain Tree B

61.5m

1:200 at A1

0 25m

Legend

- Root Protection Area
- Category A tree Those of High quality and value.
- Category B tree Those of moderate quality and value
- Category C tree Those of low quality and value
- Category U tree. Likely to have a Safe Useful Life Expectancy of less than 10 years irrespective of development.
- Not inspected
- BS 5837 Protective Fencing
- Trees to be retained

Notes

Based upon Hook survey Partnership Topographical Survey Drawing No. S21/8305/01and Stitch Proposed Ground Floor Plan 20217-STCH-XX-ZZ-DR-A_600. The position of trees T11, T12, T13, T14, G17 and T29 added by Treeventures Ltd. The position of T28 and T30 corrected by Treeventures Ltd.

Also Please refer to Treeventures report ref: L812AIA

Rev:	Date:	Description:
-	-	-

Project:

Sidcup Library
Hadlow Road
Sidcup, Kent, DA14 4AQ

Title:

Tree Protection Plan

Date: 08-07-2021

Scale: 1:200 at A1

Drawing No: L812TPP

Revision: -

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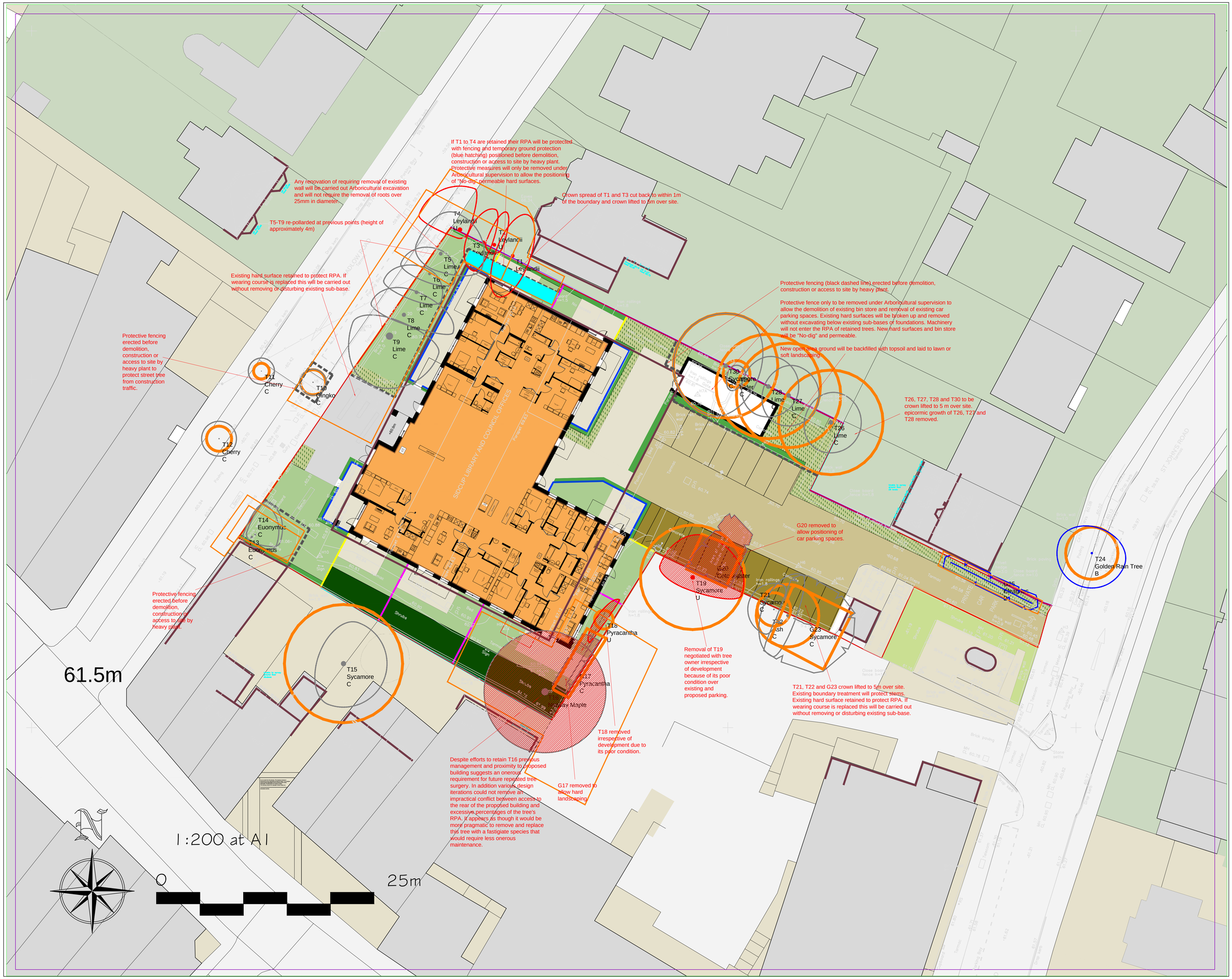
Appendix 8
Tree Removal Plan L812TRP

Please see attached drawing L812TRP.



Legend

- Root Protection Area
- Category A tree Those of High quality and value.
- Category B tree Those of moderate quality and value
- Category C tree Those of low quality and value
- Category U tree. Likely to have a Safe Useful Life Expectancy of less than 10 years irrespective of development.
- Not inspected
- Trees to be removed

Notes

Based upon Hook survey Partnership Topographical Survey Drawing No. S21/8305/01 and Stitch Proposed Ground Floor Plan 20217-STCH-XX-ZZ-DR-A_600. The position of trees T11, T12, T13, T14, G17 and T29 added by Treeventures Ltd. The position of T28 and T30 corrected by Treeventures Ltd.

Also Please refer to Treeventures report ref: L812MA

Rev:	Date:	Description:
-	-	-

Project:

Sidcup Library
Hadlow Road
Sidcup, Kent, DA14 4AQ

Title:

Tree Removal Plan

Date:	Scale:
08-07-2021	1:200 at A1

Drawing No:	Revision:
L812TRP	-

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