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Arboricultural survey and impact assessment

Redwood Sandown Park Tunbridge Wells

| | |
|---------------------|--|
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| Inspector: | B.Larkham, Dip.Arb.(RFS), Tech.Cert.(Arbor.A), F.Arbor.A. |
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Introductions

Instructions

I was instructed by Mr and Mrs Mclean to provide arboricultural survey, constraints and impact assessment in respect of the proposed development to provide a new four bedroom detached residential property, garage and associated access and parking within land to the northeast end of Sandown Park.

Purpose of report

To identify and survey those trees within and immediately adjacent to the subject site. The survey will assess current condition, grade the trees according to their size and vigour, and make recommendations for any pruning or remedial action that may be necessary. The report will provide comment on the implications to trees from the proposed construction to provide a new four bedroom residential property.

This report follows previous submission as part of planning approval 20/00072/FULL – *‘Division of an existing residential garden to create and establish a new 4 bed dwelling house with vehicular access and separate garage’*. Planning permission was issued by Tunbridge Wells Borough Council on 1st May 2020. The new application is broadly in line with the consented scheme with small changes to the building orientation, internal arrangements, profile, insulation and proposed treatment of surface water runoff.

Note: Further to response from the Tunbridge Wells Borough Council’s Tree Officer the recommendations of the report accompanying application 22/00169/FULL have been revised. This report reference tr-1597-21 Rev A (April 2022) supersedes that previously submitted.

Documents Supplied

The survey uses the topographic drawing reference M1402 prepared by Acad Mapping, Frenches Farm House, Mark Cross, East Sussex TN6 3NS.

Drawing ‘Ground floor plan’ reference 2103/10N prepared by Studio Bloom Architecture.

Foundation designs ‘Proposed Ground Floor GA’ reference 21156-DR-S-01-010 Rev 02 and ‘Proposed sections’ 21156-DR-S-02-020 Rev 02 prepared by Braemar Structural Design.

Landscape General Arrangement plan reference RBA-RTW-101 Rev B prepared by Robert Bray Associates.

1.0 Scope of survey

- 1.1 The survey is concerned with the arboricultural aspects of the site identifying those existing trees, assessing their current condition and their relationship to the redevelopment of this site, as detailed above.
- 1.2 The survey was conducted in accordance with the guidance contained within British Standard 5837: 2012 ‘Trees in relation to design, demolition and construction - recommendations’ [BS5837]. It should be understood that the standard provides recommendations and that there remains opportunity for discussion and negotiation between the professions involved to find the most appropriate balance between the existing trees, proposed development and new landscape planting.

- 1.3 The survey has included in detail those trees within, or just beyond the boundary, of the subject site. Following the issue of planning approval 20/00073/FULL the five trees consented for removal have been felled. The current application would have involved the same detail of tree removal. The re-survey relates to those trees present on 9th June 2021. A total of sixteen trees have been recorded as individual schedule entries and include one Sweet Chestnut, Holly and Laurel not indicated on the original survey. The tree numbering has been rescheduled to the current situation; therefore tree numbers do not correspond between the consented scheme and the current application.
- 1.4 Recommended pruning works will need to be undertaken in accordance with British Standard 3998:2010 Tree Work and current best practice.
- 1.5 Considerations relating to existing and proposed underground and over ground services are outlined within this report at paragraphs 7.28 and 7.29.

2.0 Survey method

- 2.1 The survey was conducted from ground level with the aid of binoculars.
- 2.2 Normal arboricultural measurement practices were followed.
- 2.3 No soil samples were taken from site.
- 2.4 The positions of the subject trees can be found at Appendix B. This plan utilises the topographic drawing as its base. Tree positions have not been verified. Tree numbers corresponding with the schedule of trees at Appendix A have been added and colour coded. All tree dimensions should be taken from the schedule at Appendix A.
- 2.5 Tree height has been estimated.

3.0 The Site

- 3.1 The subject site comprises land to the north east end of Sandown Park, Tunbridge Wells, Kent. The application area (red boundary) is approximately 0.1 hectare.
- 3.2 The application site is well treed and dominated by broadleaved trees including Oak – *Quercus robur*, Beech – *Fagus sylvatica* and Sweet Chestnut – *Castanea sativa*. A mature Giant Redwood – *Sequoiadendron giganteum* stands to the south end of the application area. There is occasional understorey of Yew – *Taxus baccata*, Holly – *Ilex aquifolium* and Laurel – *Prunus laurocerasus*.
- 3.3 The application proposes the construction of a four bedroom detached residential property, with associated new vehicle access and detached garage. The proposal as set out on drawing 2103/10N has evolved through numerous design iterations to this submission.
- 3.4 Following the detail of the approved scheme the new dwelling would sit within the existing treescape, treading lightly on the ground and in harmony with the retained trees. The design ethos of this house remains quite unique in its approach and breaks with many design and construction conventions. This report has been prepared to explain the rationale behind this process and the design and construction detail required to achieve it without detriment, in both the short and long term, to the wellbeing of the important on and off site trees.

4.0 Subject trees

- 4.1 A schedule of the sixteen subject trees is included at Appendix A.
- 4.2 Checks undertaken with the Tunbridge Wells Borough Council online mapping resource identifies two tree preservation orders applicable to the site - tree preservation order 13/2003 - woodland W1 designation and also area A1 of tree preservation order 011/1981. Whilst this duplication and extent of these orders requires clarification from the local authority it is clear in its intent. The report is therefore prepared on the understanding that all the trees recorded within the survey are likely to be the subject of preservation order. The consent of the Local Authority should therefore be sought prior to undertaking any works recommended within the schedule at Appendix A. The consent of the respective owner should be sought with regard to undertaking any future works recommended works to offsite tree T16.
- 4.3 The trees have not been tagged as their respective positions are readily distinguished on site and from the plan at Appendix B.
- 4.4 Each of the trees surveyed has been given a lettered category in accordance with the recommendations of table 1: BS5837. These letters are also colour coded for plan purposes.
- 4.5 In brief the four categories are described within the standard as:
- A – High quality and value: trees whose retention is most desirable (green), a remaining contribution of more than 40 years is suggested.
 - B – Moderate quality and value: trees where retention is desirable (blue) a remaining contribution of a minimum of 20 years is suggested.
 - C – Low quality and value: trees of adequate condition which could be retained (grey)
Adequate condition to remain until new planting is established. A remaining contribution of a minimum of 10 years is suggested, or trees with a stem Ø below 150mm.
 - U – Fell category: trees for removal (dead, dying or dangerous) (red)
- Further subcategories to grade A, B and C trees are provided as suffix 1, 2 or 3. The definitions of each are simply described as –
- 1 – Mainly arboricultural values
 - 2 – Mainly landscape value
 - 3 – Mainly cultural values - including conservation
- 4.6 Of the sixteen trees I have categorised two trees as A grade, eight trees as B grade, six trees as C grade and no trees as U grade.
- 4.7 The grading of trees in this manner can be subjective and there will often be a degree of variance between an individuals allocation of category. The broadleaf tree cover makes a good contribution to the street scene of Sandown Park which continues with the woodland to the north of the site. The mature Giant Redwood stands to the southern part of the application site alongside a developing Beech. Prior to subdivision the application site previously formed part of the rear garden of Tanners to the south. Most of the domestic garden features associated with that use, such as paths and other small landscape features have been removed. The applicant has already planted native mix hedging to the southern boundary.

5.0 Potential impact from development – general considerations

- 5.1 Aside from direct removal the process of development can place a number of pressures on existing trees and these are recognised within BS5837. These can include damage from demolition, excavation, movement of site plant, construction methods, site storage and general operations.
- 5.2 The above problems can be overcome through the adequate protection of the canopies, stems and root zones of the subject trees. This protection can be achieved through the provision of a root protection area enclosed by appropriate protective fencing. The quality and construction of the protective fencing will depend upon site-specific characteristics. The details of the protective fencing recommended for this site are detailed at section 6.0 below.
- 5.3 The distance that the protective fencing, as given at table 2 of BS5837, should be erected from the subject trees is detailed as the Root Protection Area or RPA. This distance is converted to a radial measurement to be taken from the stem centre of each tree. The radius dimension is provided in the schedule at Appendix A. This gives a benchmark distance within which no construction should ideally occur, as well as other specified operations. Should construction be necessary within the protection area then further discussion would be required to establish acceptable points of compromise, including possible revision of constructional methods to minimise damage to the retained trees with consideration to temporary working access as defined within paragraph 6.2.3.3 of the standard.
- 5.4 Trees are living organisms and whilst often of significant longevity, they do have a finite lifespan. Tree loss can be mitigated by suitable new planting often providing greater opportunities to soften new development and provide future continuity.

6.0 Protective fencing – general considerations

- 6.1 The detail of protective fencing will depend upon the requirements of the Local Authority but should be erected prior to any site development and to meet the requirements of the standard should comprise a horizontal and vertical framework of scaffold poles securely clamped and internally braced. To this panels of weldmesh at a minimum of 2.0 metres height should be securely fixed and tied on the inside face from within the protection area. The fencing should accord with the detail inset at Appendix E.
- 6.2 The fencing should be installed to encompass the protection radius from the centre of the stem of the tree, prescribed within the schedule at Appendix A. These protection areas have been indicated on the plan at Appendices B, C and D with an orange line. The recommended position for the protective fencing is shown at Appendix D with a blue line.
- 6.3 The protective fencing should be erected at the earliest opportunity following the recommended tree works and prior to any other site works. It is recommended that the installation of the fencing and any special surfaces within the protection areas should be overseen by a person competent in Arboriculture.
- 6.4 Awareness should be raised of the importance of the retained trees on and off site amongst the operatives undertaking the construction. They should have a full understanding of the purpose of the protective fencing and ideally a permanent member of site staff should be allocated specific responsibility for tree issues on site. They can then liaise directly with the Tree Officer, or Planning Officers, of the Local Authority and also any retained Arboricultural specialist should any problems arise.

7.0 Assessment of the proposed redevelopment of the subject site on existing trees

- 7.1 Following broadly in line with the previously consented scheme the redevelopment for this site proposes the construction of a detached 4 bedroom house, double garage and new access within an existing treed landscape.
- 7.2 The design of the building has evolved to maximise retention of existing higher grade trees.
- 7.3 The proposal has been set out over the survey and constraints data at Appendices C + D.
- 7.4 Those five trees previously requiring removal for the development approved under planning permission 20/00072/FULL were removed following issue of that consent. All five trees removed were C graded.
- 7.5 It was noted within the previous arboricultural impact assessment that *“Tree T5 – Beech, graded C, is shown to be retained and the applicant is also keen to retain this tree. However its proximal relationship to the structure and outlook from the kitchen window together with the installation of services identified within paragraph 7.22 may make this position unviable. The position regarding T5 would be monitored throughout the build program”*.
- 7.6 The position regarding this tree has been reassessed as part of the current application. Firstly it should be noted that the tree had been initially recorded incorrectly as a Beech when it is a Lime. The considerations in relation to its form, condition and relationship to the application remain the same. The Lime tree is now numbered T3.
- 7.7 Whilst the application seeks to retain the existing tree cover and integrate the building into that setting it was considered appropriate to propose the removal of tree T3, principally due to its form and also its immediate and future relationship with the proposed building. The Local Authority Tree Officer has requested the retention of this tree as part of this application. As such tree T3 - Lime is now shown retained with reduction to the width of the access path to the property to accommodate the tree. Trees T4 – Yew and T5 - Holm Oak remain proposed for removal due to poor form and proximal relationship to the building.
- 7.8 Additional tree removal to that previously consented is not made lightly and the client and the design team are keen to ensure a green frontage is maintained between the new build and Sandown Park. Robert Bray Associates have prepared a comprehensive landscape scheme for the site to accompany the application, this includes details of new Beech hedging to the western boundary of the site which will be allowed to develop to around 3.0 metres and be kept topped and faced replacing the existing stark timber fencing. In addition to the retention of tree T3 – Lime, the new hedging will provide a ‘green’ contemporary foil to the front of the building with a break provided for access.
- 7.9 Whilst the additional tree removal will have a short term impact on the street scene the additional tree and hedge planting will provide an attractive boundary to Sandown Park and continue to provide a contribution to visual amenity. Further tree and landscape planting is proposed across the site to further integrate the building into the site and maintain the treed setting of the development.
- 7.10 Those two trees requiring removal have been indicated in red at Appendix C and deleted from the plan at Appendix D.

- 7.11 In considering the approach there are two principle elements of construction – the main house and the double garage. Both elements of new build have been designed to ‘tread lightly’ on the ground, effectively providing the appearance of floating above the ground with a grid of screw piles spread across the footprint of the buildings. The screw pile will be the only point of contact with the ground.
- 7.12 Of the fourteen recorded trees remaining on site the development footprint for the house, by its very nature of being designed to sit within the trees, conflicts with the RPA’s of seven of the trees to be retained, namely T1, T3, T6, T7, T8, T9 and T13. The garage and access conflicts with the RPA’s of seven of the recorded trees, namely T6, T8, T12, T13, T14, T15 and T16. Given the nature of the scheme the extent of conflicts to the individual RPA’s has not been calculated and all operations will be undertaken with full regard to the potential presence of roots.
- 7.13 Given the unique nature of this design proposal full consideration will be given to the construction process to ensure the house and garage are built without detriment to the well being of both the above and below ground parts of the trees.
- 7.14 Prior to any works taking place, including marking out and the removal of outbuildings and any hard landscaping, the stems of the retained trees are to be protected. This will take the form of stem wrapping with carpet, underlay or similar soft padded sheet material secured with cable ties. Alternatively chestnut paling may be wrapped around the stem. The stems are to be protected to a minimum height of 2.0 metres from ground level. This protection is to remain throughout the build process and only be removed following practical completion.
- 7.15 Following stem protection additional protective fencing is to be installed to the position indicated with a dark blue line at Appendix D. The fencing is to accord with the specification indicated at fig 2 Appendix E. The fencing is to be installed under the supervision of the retained arboricultural consultant and remain in place throughout the build. Adjustment to the fencing is to only occur with the agreement of the retained arboricultural consultant.
- 7.16 Foundation design prepared by Braemar Structural Design will utilise a galvanised steel screw pile to the positions set out on the drawing submission which will support a beam and block detail. Trial excavation by hand will be undertaken to the pile positions under the supervision of the retained arboricultural consultant and any roots with a diameter greater than 25mm are to be retained in situ and the pile position adjusted. The engineers design allows for flexibility of pile position should larger roots be encountered. The retained arboricultural consultant will work closely with the structural engineers and groundwork contractors throughout this process.
- 7.17 It is proposed that the screw piles will be installed with a hand auger. In this instance the surrounding ground can be protected with timber sheet material which can also be used for placement of the excavated material. If small mechanical plant is required to install the piles then this plant will need to be supported on a working mat. This will be in accordance with paragraph 6.2.3.3 of BS5837 and comprise timber or metal sheet over 150mm of bark chip over a geotextile membrane. Any mechanical plant is to be kept below 2 tonnes gross weight.
- 7.18 The installation of the piles is to form part of the main contractor’s construction program and will be installed from ‘back to front’ of site to reduce requirements for access. Working mat protection is to remain to the outside of the building footprint. Any temporary working mat provision within the footprint of the building is to be removed as pile installation progresses.

- 7.19 The same construction approach, utilising screw piles and beam and block, will be employed for the garage. The approach access to the garage will be formed from a cellular confinement surface such as Cellweb. The Cellweb will be protected with timber sheet, following the infill of voids, to allow access for construction of the garage. It is proposed that the garage and house are constructed as individual operations with limits to access between the structures being imposed by the protective fencing. All phasing of works is to be set out clearly within the main contractor construction schedule. Their document is to have specific regard to tree constraints on site and accord with this report tr-1597-21 AIA Rev A and the pending arboricultural method statement.
- 7.20 Following installation of the screw piles the small ground berms should be installed beneath the footprint of the structures. The detail of these berms is set out within the Robert Bray Associates SUDS plan which provides a more holistic approach to surface water and drainage on this site than that formally proposed within the approved scheme. These low soil berms will not have detrimental impact on the root environment of the trees nor will the proposed temporary holding of water. The installation of the berms are to be the subject of arboricultural supervision.
- 7.21 The installation of the steel foundation frame and beam and block floor will be supervised as required by the retained arboricultural consultant. A spider crane with suitable reach to minimise site movement will be used for the placement of the steel foundation frame. The crane is to be sited on a working mat at all times when positioned within the RPA's. The crane operative is to be made aware of the importance of the trees on site to avoid contact injury. If available and appropriate to the action a skew limiter is to be set.
- 7.22 Once the floors to the house and garage are in place this will provide additional work space for access and storage. Prior to this any required storage would be provided 'on road' or on a storage platform. The storage platform would be created from a low scaffold frame supporting scaffold boards. Given the low impact form of construction it is acceptable for this to occur within the RPA of the retained trees. There should be a vertical return to the storage areas adjacent to any trees to limit material movement. A potential area for storage is indicated at Appendix D with an indication of storage detail at Appendix E. Alongside storage, the program of material deliveries is to be scheduled on a Just-in-Time (JIT) basis.
- 7.23 Additional working access will be required around the footprint of the buildings during construction. The extension of the working mat identified at paragraph 7.17 overlaid with scaffold boards or timber sheet material will provide an adequate working surface for pedestrian access.
- 7.24 The building will be constructed using pre-formed SIPS panels. Materials and sheet panels are to be carried through site where possible or through the use of the spider crane, suitably supported to minimise ground compaction at all times. The retained arboricultural consultant will also make unscheduled inspections throughout the build process to ensure tree protection measures are being maintained.
- 7.25 Given the change to rainwater access to the rooting environment below the new buildings it is proposed to collect surface water and distribute this beneath the structures. The detailing of berms and temporary holding areas and excess outfall for 1 in 100 year events has been provided on the Robert Bray Associates submission. No additional excavation for surface water drainage is proposed within the RPA's.

- 7.26 The construction of the pedestrian link between the parking area and house, the decking to the south side of the property and also the seating area will utilise a timber/steel support frame requiring nominal excavation for posts. Additional ground protection measures are to be put in place locally during installation. The path linking the decking and the seating area is to be formed above ground using timber edging, geotextile membrane overlaid with a granular fill and a gravel finish maintaining permeability to the RPA of tree T1.
- 7.27 The detail of service installation has not been finalised but can be made a condition of consent. However, the services in, and out, of the site are to follow the 'shortest path' along the approach to the front door of the property. Where falling within the RPA's services will be supported on cradles beneath the structure avoiding the need for excavation.
- 7.28 Where excavation is required within the RPA's of retained trees then these should be installed by hand, or using no dig principles, in accordance with the National Joint Utilities Group Publication No: 10 [NJUG 10] - Guidelines for the planning, installation and maintenance of utility services in proximity to trees.

8.0 Conclusions

- 8.1 The development proposes a new detached four bedroom property which sites uniquely amongst a mature treed setting, in line with planning approval 20/00072/FULL.
- 8.2 Minor tree removal occurs under the proposal but both trees proposed for removal are C graded only.
- 8.3 The development respects the mature tree cover and provides a symbiotic relationship between living space and trees. The construction is to be undertaken in accordance with the recommendations of this report. Provided the recommendations are implemented in full this proposal can be achieved without detriment to the retained trees, providing a unique living environment within a treed setting.
- 8.4 Provision of new tree and landscape planting through the garden will ensure this site retains its existing level of tree cover and that the new build is integrated and softened into the local landscape.

9.0 Recommendations for tree works

- 9.1 Tree works are recommended within the schedule of trees at Appendix A regardless of the development ambition for this site.
- 9.2 It is recommended that a climbing survey of all trees is undertaken prior to construction with any action appropriate to findings. This will establish the presence of deadwood, defects (safety to be balanced against ecological contribution) with any management works recommended appropriate to the future use of the site.
- 9.3 Tree inspection should be undertaken on a biennial basis to ensure the trees are maintained in line with best practice and British Standard 3998:2010 Tree work - Recommendations given their proximity to the new property and garage.

- 9.4 The tree work should be carried out by a competent Arboricultural contractor in accordance with BS3998 2010 and current best practice. The consent of the Local Authority should be sought before any tree pruning or removal can take place due to the presence of Tree Preservation Orders.

The details of this report are based upon the condition of the subject tree/s present on the date of the inspection. Responsibility cannot be held for the subsequent effects of extremes of weather, vandalism or damaging acts either negligent or wilful. Liability cannot be held for any subsequent physical undertaking to the canopy, stem or roots of the tree/s. This report is valid for a period of two years from the date of the survey unless the site conditions change or works unspecified in this report are undertaken.

| No | Species | Hgt | Ø at 1.5m | Spread NSEW | Crown c/rance | Age | Condition and <u>Recommendations</u> | Erc | BS grade | RPA (rad) |
|----|---------------|------|-----------|--------------------|---------------|-----|---|-------|----------|------------|
| T1 | Giant Redwood | 29.0 | 151 | 6.5, 4.5, 4.5, 4.5 | 7.5 | Mat | Moderate deadwood through crown typical of age. May have lost apical dominance. Smaller short growth at 7.5 metres. <u>Recommend climbing inspection and removal of deadwood, hung up wood or branches with defects which compromise their retention.</u> | 40+ | A1 | 15.0 cap'd |
| T2 | Beech | 18.0 | e.65 | 6.0, 5.0, 5.0, 7.0 | 4.5 | Med | Asymmetric to west. | 40+ | B1 | 7.8 |
| T3 | Lime | 16.0 | 52 | 8.5, 3.0, 3.0, 8.5 | 3.0 | Med | Stem development to northwest. Bifurcated at 4.0 metres. Asymmetric canopy development to northwest. Deviated stem development at 9.0 metres to west. <u>Reduce by 40% lateral length or remove and replace as part of planning proposal.</u> | 20-40 | C1 | 6.0 |
| T4 | Yew | 5.0 | 6x7cm | 2.5, 2.0, 1.5, 3.0 | 2.0 | Med | Multi-stemmed Irish Yew. Minor Ivy development. Asymmetric to west. <u>Consider long term future and removal and replacement as part of planning proposal.</u> | 20-40 | C1 | 2.0 |

| No | Species | Hgt | Ø at 1.5m | Spread NSEW | Crown c/rance | Age | Condition and <u>Recommendations</u> | Erc | BS grade | RPA (rad) |
|-----|----------------|--------|-----------------|---------------------|---------------|-----|---|-------|----------|-----------|
| T5 | Holm Oak | 11.0 | 28 | 1.0, 4.0, -, 7.0 | 6.0 | Med | Asymmetric to west. Stem lean to west. Arising from side of stump. <u>Consider long term future.</u> | 10-20 | C1 | 3.2 |
| T6 | Sweet Chestnut | e.23.0 | 72 | e.8.0, 4.0, -, 10.0 | 6.0(w) | Mat | Asymmetric to northwest. Moderate deadwood. <u>Remove deadwood.</u> | 40+ | B1 | 9.0 |
| T7 | Oak | e.28.0 | 62 | Ø10.0 | 11.0 | Mat | Ivy removed. Moderate deadwood. Bifurcated at 17.0 metres. <u>Undertake climbing inspection of union. Maintain at existing dimensions to reduce loading on union.</u> | 40+ | B1 | 7.4 |
| T8 | Sweet Chestnut | e.23.0 | 62, 57, 58 + 56 | e.Ø12.0 | 8.5 | Mat | Coppice stool. Four stems. Moderate deadwood. Mulched to south side. <u>Remove larger deadwood.</u> | 40+ | A2 | 13.4 |
| T9 | Sweet Chestnut | 11.0 | 39+38 | 6.0, -, 7.0, - | 2.5 | Mat | Twin stemmed. Asymmetric to northeast. Third stem removed from ground level. Stem lean to northeast. No canopy over site. | 40+ | C2 | 6.5 |
| T10 | Holly | 8.0 | 20 | Ø6.0 | 2.0 | Mat | Deviated stem development at 4.0 metres. | 20-40 | C2 | 2.4 |

| No | Species | Hgt | Ø at 1.5m | Spread NSEW | Crown c/rance | Age | Condition and <u>Recommendations</u> | Erc | BS grade | RPA (rad) |
|-----|----------------|--------|-----------|--------------------|---------------|-----|---|-------|----------|-----------|
| T11 | Yew | 7.0 | 28 | Ø9.0 | 1.6 | Med | | 40+ | B2 | 3.2 |
| T12 | Sweet Chestnut | e.23.0 | 66 | 6.0, 3.0, 5.0, 4.0 | 6.5 | Mat | Asymmetric to north. Surface scar to stem northwest 1.2-2.5. Moderate deadwood. <u>Remove larger diameter deadwood.</u> | 40+ | B2 | 7.9 |
| T13 | Sweet Chestnut | e.24.0 | 72 | 7.0, 4.0, 5.0, 6.5 | 6.0 | Mat | Asymmetric to north. Bifurcated at 11.0+14.0 metres. Moderate deadwood. <u>Remove larger diameter deadwood.</u> | 40+ | B2 | 8.5 |
| T14 | Holly | 9.0 | 29 | 4.5, 4.5, 3.5, 3.5 | 1.5 | Mat | Bifurcated at 2.5 metres. Growing into T9. | 40+ | B2 | 3.7 |
| T15 | Laurel | 6.0 | 15.5 | 4.0, -, 2.0, 4.0 | 1.2 | Mat | Pair of outgrown shrubs to boundary. North stem Asymmetric to north. South tree Asymmetric to west. | 20-40 | C2 | 1.8 |
| T16 | Sweet Chestnut | 22.0 | e.55 +38 | 3.0, 3.0, 7.0, 7.0 | 7.0 | Mat | Offsite tree full inspection not possible. Twin stemmed from ground level. Moderate deadwood. Asymmetric to east and west. Scarring to north side of small stem 2.0-4.5 metres. <u>Remove larger diameter deadwood.</u> | 40+ | B2 | 8.0 |

See attached key and comments

Redwood, Sandown Park, Tunbridge Wells

General key and comments

| | |
|-------------------------------|---|
| T1 | Represents tree schedule number corresponding to number on constraints plan. |
| G1 | Represents schedule number of group corresponding to number on constraints plan. |
| Hgt | Height (estimated) |
| Species | Common name of surveyed tree |
| Stem Ø | Trunk diameter in <u>centimetres</u> measured at 1.5 metres above ground level. Multiple stems are identified and a compound stem value is calculated and shown in brackets, |
| Spread | Crown radii in metres to cardinal points or crown diameter suffixed Ø |
| Crown c/rance | Height in meters of crown clearance above adjacent ground level |
| Life stage | Life stage (Y – young, SM – semi-mature, EM – early mature, Mat – mature, OM – over mature) |
| Condition and | |
| <u>Recommendations</u> | Structural condition and record of defects together with any preliminary management recommendations as underlined. |
| Erc | Estimated remaining contribution in years (<10, 10+, 20+, 40+) |
| BS grade | A1-A3: Category A High quality, B1-B3: Category B Moderate quality, C1-C3: Category C Low quality, U –Low quality, declining or dead - Remove |
| RPA (rad) | Recommended Protection Area. Dimension in metres = radius of circle from the centre of stem. |
| Bifurcated | Main stem divides into two stems |
| Asy | Asymmetric canopy to compass direction |
| N S E W | Compass point direction, may also appear as mid direction e.g.NE |
| e. | Estimated dimensions of offsite trees, or where access is restricted |
| Remove deadwood | Remove deadwood, significantly diseased or decayed growth, crossing or torn branches. Branch stubs and tears to be cut clean. All work to be carried out in accordance with BS3998 and current best practice. |

continued over

Redwood, Sandown Park, Tunbridge Wells

Key and comments continued.

The survey relates to trees at Redwood, Sandown Park, Tunbridge Wells and uses as its base the topographic drawing reference M1402 prepared by Acad Mapping, Frenches Farm House, Mark Cross Rotherfield, East Sussex TN6 3NS. The survey data and position of subject tree have not been verified on site and should be checked before marking out.

No internal investigation of the tree was undertaken.

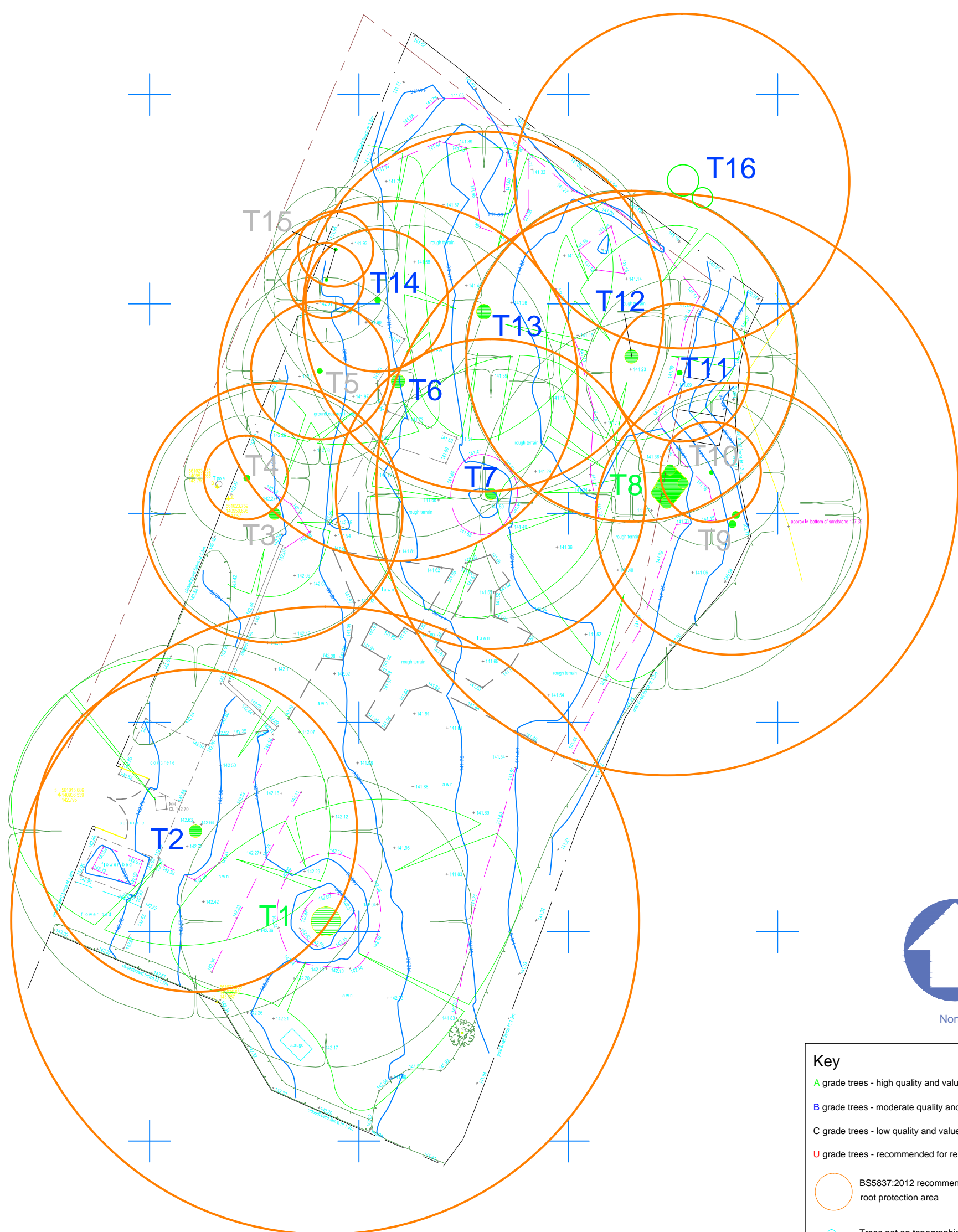
The site is the subject of tree preservation order 13/2003 - woodland W1 designation and also area A1 of tree preservation order 011/1981. The consent of the Local Authority should therefore be sought prior to undertaking any of the works recommended with the schedule. Further clarification should be sought from Tunbridge Wells Borough Council to establish the extent of protection and tree preservation order duplication to remove any ambiguity.

Birds and bats are protected by law and any works to trees recommended within this schedule should be undertaken with due consideration to current legislation. The assessment for the presence of bats should be undertaken by a qualified assessor.

The arboricultural survey was undertaken on 9th June 2021 and provides update to previous survey and report reference tr-1491-19.

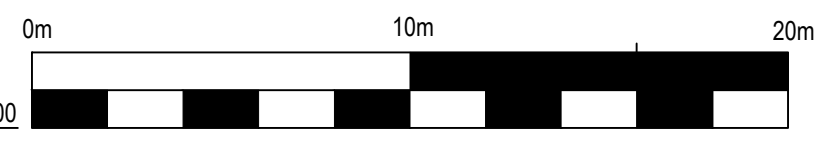
The details of this survey are based upon the condition of the subject tree/s present on the date of the inspection. Responsibility cannot be held for the subsequent effects of extremes of weather, vandalism or damaging acts either negligent or wilful. Liability cannot be held for any subsequent physical undertaking to the canopy, stem or roots of the tree/s. This survey is valid for a period of two years from the date of the site inspection unless the site conditions change or works unspecified in this report are undertaken.

- NOTES**
- Do not scale from this drawing
 - Report any discrepancies to the Architect
 - Check dimensions on site prior to starting work



Key

- A grade trees - high quality and value
- B grade trees - moderate quality and value
- C grade trees - low quality and value
- U grade trees - recommended for removal
- BS5837:2012 recommended root protection area
- Trees not on topographic survey



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Job Title:
**Redwood
Sandown Park
Tunbridge Wells**

Drawing Title:
**Arboricultural survey
and constraints**

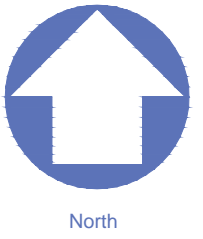
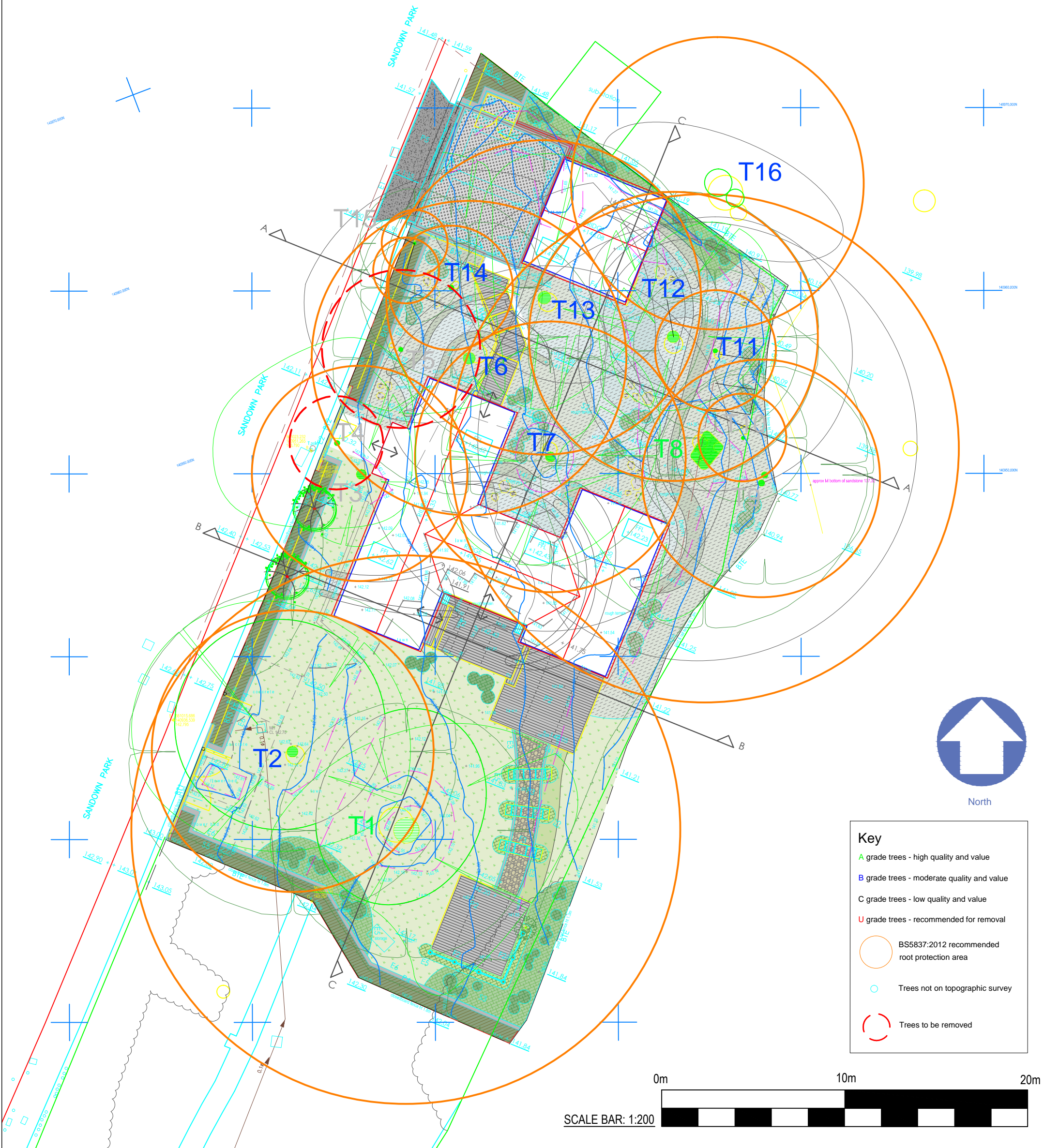
Appendix B

| | | |
|-------------------------------|-----------------|--------------------|
| Scale: 1:200 at A3 | Drawn By: BL | Date: June 2021 |
| Drawing Number: tr-1597-21 | | Rev.: |

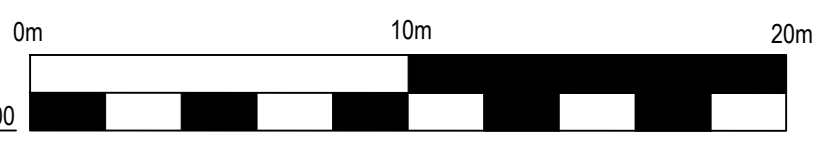
| Rev. | Date | Description |
|------|------|-------------|
| | | |

NOTES

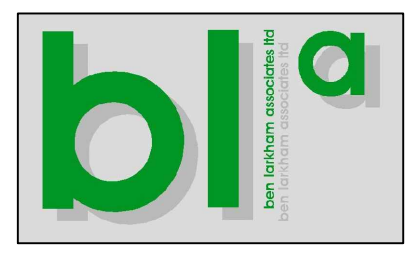
- Do not scale from this drawing
- Report any discrepancies to the Architect
- Check dimensions on site prior to starting work



| Key | |
|---|--|
| A | A grade trees - high quality and value |
| B | B grade trees - moderate quality and value |
| C | C grade trees - low quality and value |
| U | U grade trees - recommended for removal |
| | BS5837:2012 recommended root protection area |
| | Trees not on topographic survey |
| | Trees to be removed |



| Rev. | Date | Description |
|------|--------|------------------|
| A | 5/4/22 | Tree T3 retained |



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Job Title:
**Redwood
Sandown Park
Tunbridge Wells**

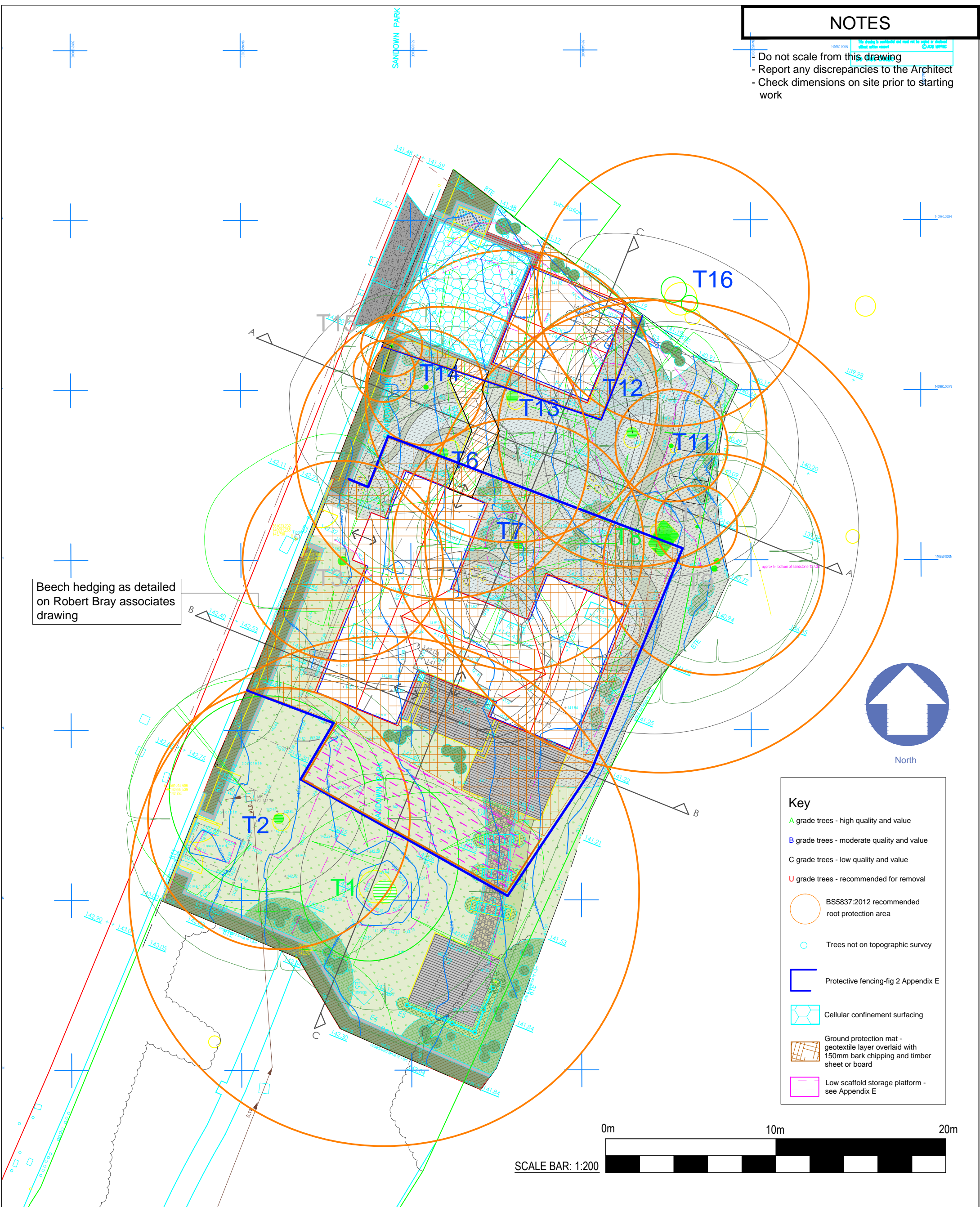
Drawing Title:
**Arboricultural survey
and constraints
Trees to be removed**

Appendix C

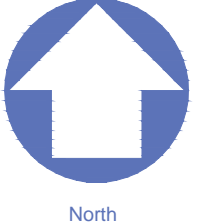
| | | |
|-------------------------------|-----------------|-----------------|
| Scale: 1:200 at A3 | Drawn By: BL | Date: Jan 22 |
| Drawing Number: tr-1597-22 | | Rev.: A |

NOTES

- Do not scale from this drawing
- Report any discrepancies to the Architect
- Check dimensions on site prior to starting work



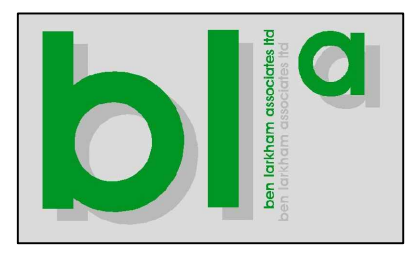
Beech hedging as detailed on Robert Bray associates drawing



| Key | |
|-----|--|
| A | grade trees - high quality and value |
| B | grade trees - moderate quality and value |
| C | grade trees - low quality and value |
| U | grade trees - recommended for removal |
| | BS5837:2012 recommended root protection area |
| | Trees not on topographic survey |
| | Protective fencing-fig 2 Appendix E |
| | Cellular confinement surfacing |
| | Ground protection mat - geotextile layer overlaid with 150mm bark chipping and timber sheet or board |
| | Low scaffold storage platform - see Appendix E |



| Rev. | Date | Description |
|------|---------|--|
| B | 5/4/22 | Tree T3 retained (planting removed) |
| A | 15/3/22 | Revised replacement planting for removal of tree T3. |



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Job Title:
**Redwood
Sandown Park
Tunbridge Wells**

Drawing Title:
**Arboricultural impact
assessment and
tree protection**

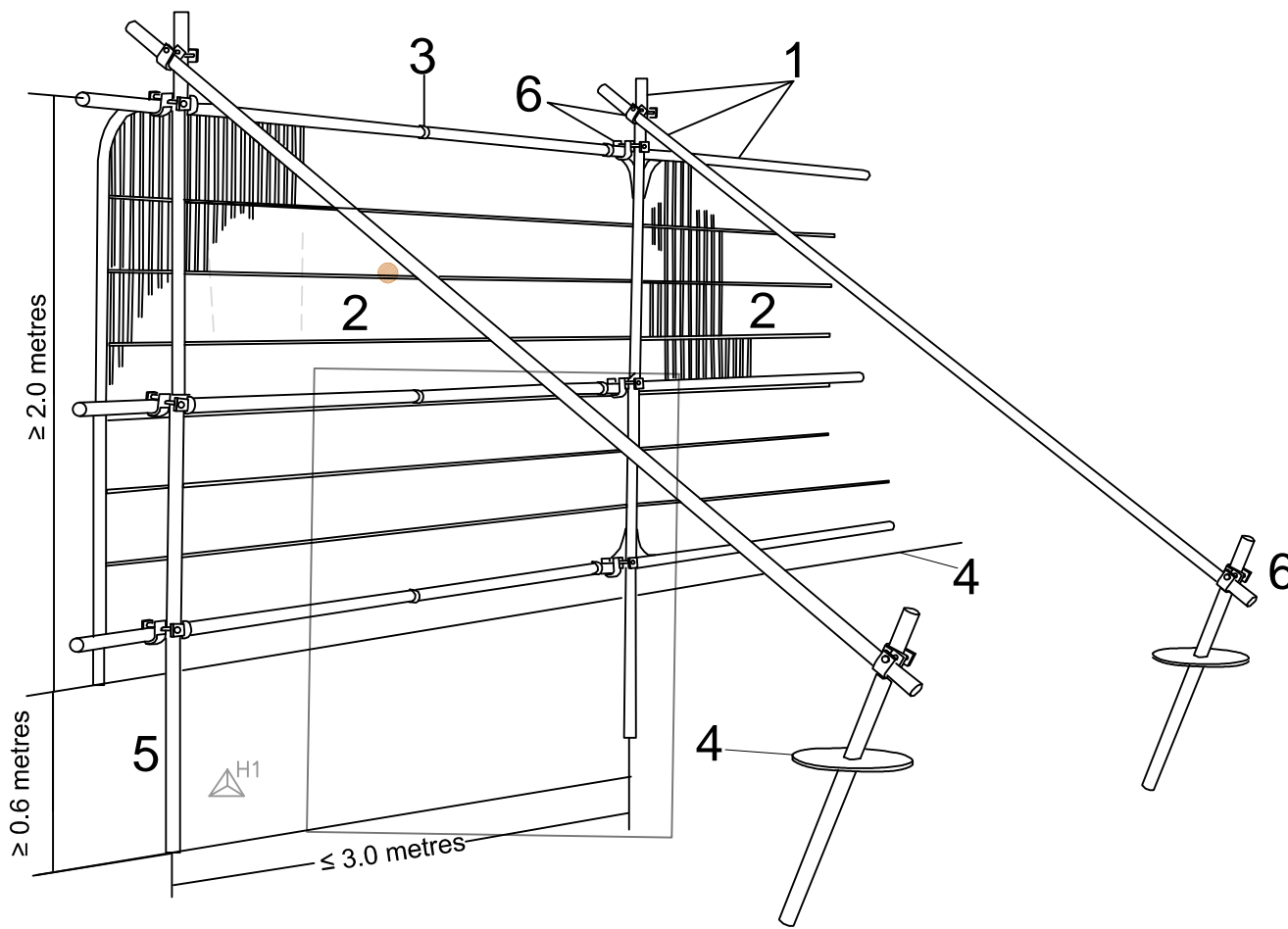
Appendix D

| | | |
|-----------------------------------|-----------------|-----------------|
| Scale: 1:200 at A3 | Drawn By: BL | Date: Jan 22 |
| Drawing Number: tr-1597-21 AIA | | Rev.: B |

Figure 2 Default specification for protective fencing

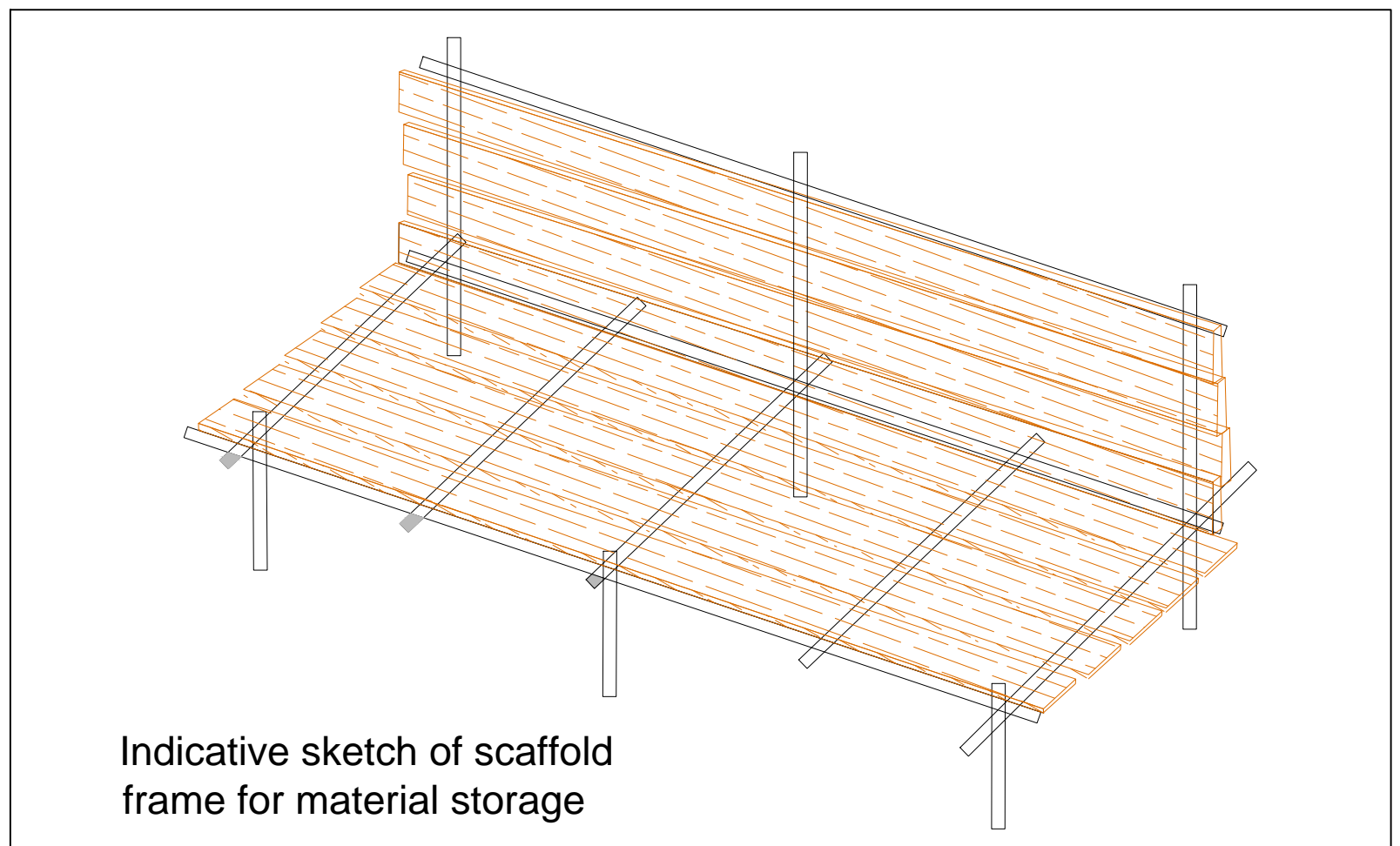
NOTES

- Do not scale from this drawing
- Report any discrepancies to the Architect
- Check dimensions on site prior to starting work

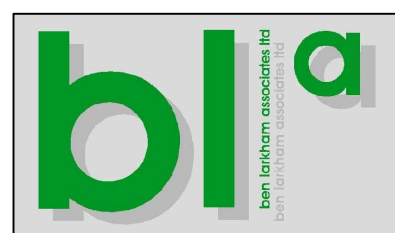


Key

- 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



| Rev. | Date | Description |
|------|------|-------------|
| | | |



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Job Title:
Redwood
Sandown Park
Tunbridge Wells

Drawing Title:
Protective fencing and
temporary storage platform

Appendix E

| | | |
|-------------------------------|-----------------|-----------------|
| Scale: 1:200 at A3 | Drawn By: BL | Date: Jan 22 |
| Drawing Number: tr-1597-21 | | Rev.: |