

BS5837 ARBORICULTURAL IMPACT ASSESSMENT

KNOLL HOUSE HOTEL, FERRY ROAD,
STUDLAND, DORSET, BH19 3AH

for

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Knoll House Hotel, Ferry Road, Studland, Dorset

BS5837 Arboricultural Impact Assessment

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TABLE OF CONTENTS

| | |
|---|----|
| CONTROL SHEET | 1 |
| 1. INTRODUCTION | 3 |
| 1.1 Overview & Client Brief | 3 |
| 1.2 Personnel & Quality Assurance | 3 |
| 1.3 Site Location | 3 |
| 1.4 Site Description | 4 |
| 1.5 Assessment Method..... | 4 |
| 2. RESULTS..... | 5 |
| 2.1 Tree Preservation Orders & Conservation Areas | 5 |
| 2.2 Site Geology | 6 |
| 2.3 Tree Stock..... | 6 |
| 3. ARBORICULTURAL IMPACT ASSESSMENT (AIA)..... | 7 |
| 3.1 Development Proposals | 7 |
| 3.2 Direct Impacts of Development | 7 |
| 3.3 Indirect Impacts of Development..... | 14 |
| 4. RECOMMENDATIONS | 16 |
| 4.1 Protection Measures | 16 |
| 4.2 Mitigation..... | 18 |
| 4.5 Tree Management..... | 19 |
| 4.6 Arboricultural Method Statement (AMS) Guidance | 19 |
| 5. ANNEXES | 21 |
| 5.1 Tree Survey Schedule..... | 22 |
| 5.2 BS5837:2012 Cascade Chart for Tree Quality Assessment | 38 |
| 5.3 Plans | 39 |
| 5.4 Tree Protection Fencing & Signage | 44 |
| 5.6 Cellular Confinement System for Footpaths (Example) | 46 |
| 5.7 Scope & Limitations | 49 |
| 5.8 Legislation, Planning Policy & Guidance..... | 50 |
| 5.9 BS5837:2012 Trees in the Planning System (Overview) | 51 |
| 5.10 References & Bibliography..... | 52 |
| 6. QUALIFICATIONS & EXPERIENCE | 53 |

1. INTRODUCTION

1.1 Overview & Client Brief

Focus Environmental Consultants was commissioned by Kingfisher Resorts Studland Ltd to undertake an Arboricultural Impact Assessment (AIA) for Knoll House Hotel, Ferry Road, Studland, Dorset.

1.2 Personnel & Quality Assurance

This report was revised by an experienced arboricultural consultant (Edward Cleverdon BSc (Hons) Arb MArborA) from Focus Environmental Consultants. It is based on the Tree Survey Report completed in January 2018 for Focus Ecology and an additional site visit completed by the author on 22 October 2022 to review details and update the tree survey schedule as required. This AIA report has been produced in accordance with the recommendations of British Standard 5837:2012 *Trees in Relation to Design, Demolition and Construction*.

1.3 Site Location

The site is located at Knoll House Hotel, Ferry Road, Studland, Dorset, BH19 3AH. The site is centred on Ordnance Survey grid reference SZ030833.



Figure 1: Location Plan, with approximate red-line survey boundary.

1.4 Site Description

The site consists of a complex of hotel buildings set within grounds containing a number of well-established and significant trees which make a positive contribution to the local landscape. The arboricultural character of the site is very much defined by the presence of tall, mature Scots pine trees. There is also a mature woodland that forms a backdrop to the complex.

1.5 Assessment Method

Trees, groups, hedgerows and woodland onsite or immediately adjacent to the site have been assessed for their quality and value. This has been done according to the BS5837:2012 categorisation method (Annex 5.2). The position of each tree, group, hedgerow and woodland with retention category, canopy spread and Root Protection Area (RPA) is shown on the Tree Protection Plans (Annex 5.3).

Category 'A' and 'B' trees are usually considered to provide an important contribution to the landscape and should be retained as part of the proposed development, wherever possible. Category 'C' trees are not usually considered to be a constraint to the development. Category 'U' trees have been assessed as having a very limited future contribution due to structural and/or physiological defects.

2. RESULTS

2.1 Tree Preservation Orders & Conservation Areas

A check made with the Local Planning Authority, Purbeck District Council, confirmed that a Tree Preservation Order (TPO Ref: 494) is present on site. The TPO includes:

- An Area TPO (Ref: A1) protecting T1 – T39 and G1 within this report.
- Two individual TPOs (Ref: T1 & T2) protecting an English oak and a sweet chestnut (T40 & T82 within this report respectively).
- A group TPO (Ref: G1) protecting two sweet chestnuts (T73 & T75 within this report).

In the case of trees that are subject of TPO, Conservation Area controls or planning application procedures, it is essential the Local Authority's advice is sought and where necessary consent obtained prior to undertaking any tree removal or pruning operations.

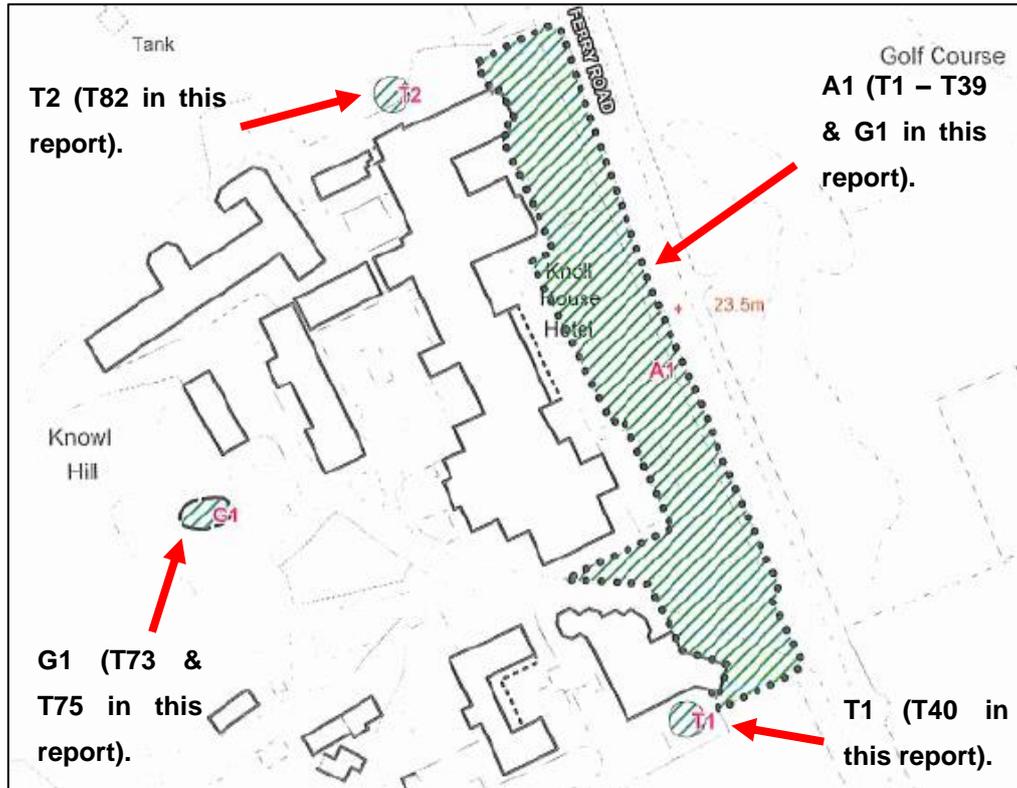


Figure 2: Extract from Purbeck District Council's TPO – Ref 494. Displayed are Tree Preservation Orders present onsite shown as green hatched areas.

2.2 Site Geology

Geology of Britain viewer has been used to check the prevailing soil type in the area. This indicates that the underlying bedrock on the main part of the site consists of Parkstone Sand Member – Sand, no superficial deposits were recorded. The edge of the site consists of Broadstone Clay Member - Clay, silty, no superficial deposits were recorded.

2.3 Tree Stock

The tree stock is made-up of seventy-seven trees, eleven groups, three hedgerows and one woodland. This includes one Category ‘A’, fifty-eight Category ‘B’ and thirty-three Category ‘C’ items. The trees range in age from young to mature. Sixteen different tree species were recorded during the survey.

A categorised summary of the existing tree, groups, hedgerows and woodland situated on, and immediately adjacent to the site has been provided in accordance to BS5837: 2012 (Table 1). The details of all surveyed trees, groups, hedgerows and woodland are listed in the Tree Survey Schedule (Annex 5.1).

Table 1: Summary of tree stock with reference to BS5837 retention categories.

| | Total | A | B | C |
|------------------|-----------|----------|-----------|-----------|
| Trees | 77 | 0 | 55 | 22 |
| Groups | 11 | 0 | 1 | 10 |
| Hedgerows | 3 | 0 | 0 | 3 |
| Woodlands | 1 | 1 | 0 | 0 |
| | 92 | 1 | 58 | 33 |

3. ARBORICULTURAL IMPACT ASSESSMENT (AIA)

3.1 Development Proposals

The proposals involve the redevelopment of the main hotel building, demolition of a number of outbuildings and construction of new holiday accommodation, with associated landscape, drainage strategy and car parking.

The following assessment only considers the impact of these proposals upon the surveyed trees, groups, hedgerows and woodland. This is with regard to the direct or indirect impacts of the proposals, including assessment of above and below ground constraints. The assessment is based on the surveyor's findings and drawings provided by the client's architect.

3.2 Direct Impacts of Development

3.2.1 Tree Felling/Removal

The removal of twenty-nine trees, seven groups, two hedgerows and a section of one group is required to facilitate the proposed development (Table 2).

Table 2: summary of the tree stock that requires removal to accommodate the development proposal with reference to BS5837 retention categories.

| Tree Category | Retained & Protected | Removed for Development |
|---------------|---|---|
| 'A' | W1 | Nil |
| 'B' | T1 – T4, T6 – T10, T12 – T14, T17, T19 – T24, T25, T26, T27, T29, T31, T32, T35 – T40, T58 – T60, T75, T76, T78 – T81 G1, G2 | T34, T41 – T45, T48, T49, T51 – T54, T61, T64, T72, T73 (16 total) |
| 'C' | T5, T11, T15, T16, T18, T28, T30, T32 T74, T82 G10* H3* | T33, T46, T48, T62, T65 – T68, T70, T71, T74, T77, T83 (13 total) G3, G4, G5, G6, G8, G9, G10*, G11 H1, H2, |
| 'U' | Nil | Nil |

* = Where asterisk is present next to a group (G), only refers to a section of the group either for retention or removal.

3.2.2 Below Ground Constraints

The proposed demolition and construction phaseS of the proposed development breaches the RPA trees and groups highlighted for retention within Table 3 below.

Table 3: summary of the retained tree stock with RPAs that will be impacted upon by the proposed demolition and construction works.

| Tree Category | Demolition Phase | Construction Phase |
|---------------|---|---|
| 'A' | Nil | W1 |
| 'B' | <p>T4, T6, T9, T10, T13, T21 & T26: Demolition of light structures to ground level only, existing patio removed and replaced with fixed cellular confinement system ground protection. Working areas around buildings within RPAs to be secured with fixed cellular confinement system.</p> <p>T40: Existing building to be demolished using a 'top-down pull back' method working away from the tree.</p> <p>T82 and G1: Ground protection required around the outside of existing building to allow access for works.</p> | <p>T26: proposed build line and basement occupying <5% RPA be excavated using sheet piles to prevent further encroachment towards the tree.</p> <p>T40: tree protection fencing to be removed at the landscape stage to allow construction of an above-ground pool structure.</p> <p>T75: excavations for reduced level access road within the location of the felled sweet chestnut tree T73 to be excavated using sheet piles to prevent encroachment within the RPA of T75.</p> |
| 'C' | Nil | Nil |
| 'U' | Nil | Nil |

3.2.2.1 Demolition

Access and demolition of the existing buildings impact upon the RPAs of T4, T6, T9, T10, T13, T21 & T26, T40, T82 and G1. Where access is required around the existing building within the RPA of adjacent trees, fixed ground protection in the form of a cellular confinement system with interlocking construction board surface will be provided for the duration of the works and retained to provide any change in levels / new surfacing required around the proposed restaurant building. These areas are highlighted on the Tree Protection Plans at Annex 5.3 and would incorporate the following specification:

All areas of ground protection and proposed hard surfacing within RPAs will require the use of cellular confinement systems to create no-dig access areas and foot paths. All works to create temporary ground protection and new hard surfaces must be overseen by the arboricultural clerk of works.

The surface may be evened and infilled, with a scrape to a maximum depth of 50mm to remove surface vegetation.

The 150mm depth cellular confinement system will then be stretched out over a geotextile membrane, pinned and filled with clean angular stone with no fines as per the manufacturer's instructions.

Interlocking construction boards will then be added and protection measures fixed back to the edge of the new hard surfacing.



Figure 3: example cellular confinement system.

The demolition of the existing hard surfaces and light structures on the site will have the potential to impact upon retained trees. Where these operations are to take place within the RPAs of retained trees, arboricultural supervision will be required to ensure there is no disturbance of the soil below the depth of the sub-base and that the exposed areas are replaced with suitable ground protection.

Prior to works commencing, trial holes will be excavated using hand-held tools to establish depth of the existing hard surface material. The results from these trial holes will inform how working operations will be undertaken and whether machinery is permitted.

The use of machinery to fracture and remove waste material will only be permitted if approved by the supervising arboricultural clerk or works and under the careful guidance of a banksman.

Works will commence at the point closest to the tree and operate backwards until outside the designated RPA to avoid machinery moving over exposed ground.

Working from either outside the designated RPA or from an area of existing hard standing or temporary ground protection, the upper surface layer of hard standing will be fractured into small sections.

Broken material will be lifted and removed to a designated storage area located outside the RPA of retained trees.

The removal of the sub-base material will be undertaken in a careful manner, ensuring that no excavation works occur beyond the depth of the built material and into the soil layer below.

Any roots exposed due the removal of hard standing will be covered with a layer of topsoil and the area irrigated to prevent root desiccation from occurring.

Temporary ground protection or tree protection barriers will be installed to safeguard the exposed rooting area of the tree until the new surface material or fixed ground protection is installed.

3.2.2.2 Construction

The construction of the proposed outdoor pool within the RPA of T40 has been designed in conjunction with engineers to ensure minimal impact on the rooting environment of the tree.

The pool will be located above-ground using piles located outside of the RPA of the tree to support a suspended beam and pre-cast structure, the base of which will sit 150mm above the existing ground level to allow for gaseous exchange and water percolation.

The beam that supports the structure has been designed to be 300mm above the existing ground level to allow formation, the depth of the pool being shallower along the edge adjacent to the tree to allow for this.

Once the beam has been formed and allowed to set over approximately 7 days, the formation materials will be removed. During these 7 days there are various measures in the form of ground protection and spreader plates that can be incorporated to ease any temporary downforce exerted on the soil. This is similar to the temporary storage of materials or site cabins during construction.

Once the pool structure is complete, the 150mm gap beneath the base will allow for gaseous exchange and incorporation of irrigation systems and / or downpipes to divert rainwater beneath the pool into the rooting environment of the tree.

The surface level of the pool will be approximately 1.5m above existing ground level adjacent to the tree. The lower canopy height recorded is 3.5m therefore minor crown lifting will be required to raise pendulous branch tips to create 4 - 5m vertical clearance above the ground and 2.5 – 3.5m clearance above the pool.

The pool will be staffed to ensure that leaf drop is regularly cleaned during the spring and summer months with the pool being closed during autumn and winter.

Given the protected status of the tree, all future management will be controlled by the local authority. The design section drawing for the proposed pool may be found at Annex 5.3

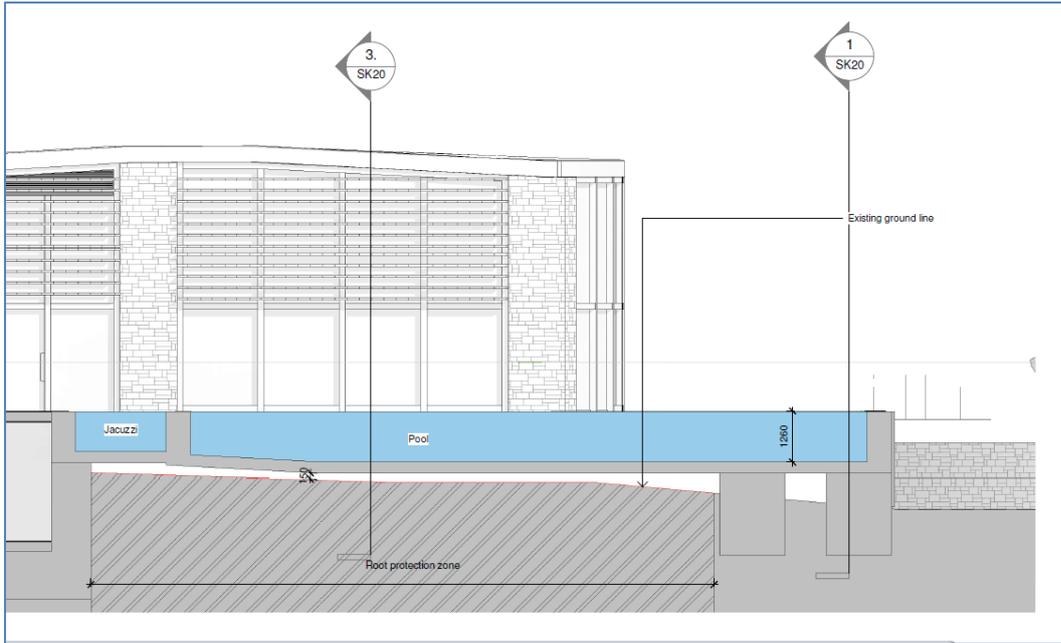


Figure 4: extract from the pool section drawings

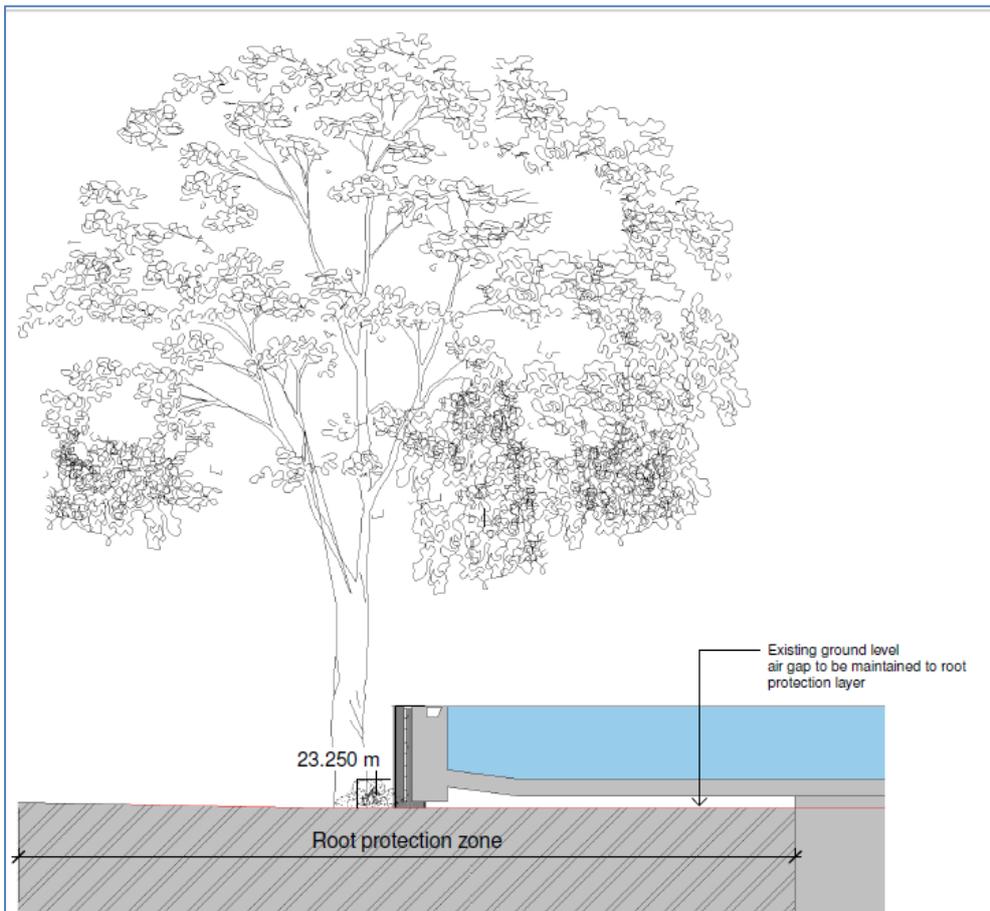


Figure 5: extract from the pool section drawings

The access road to the rear of the site will be located on the periphery of the RPA for retained tree T75, but within the stem location of tree T73 proposed for removal. As such, the impact on the rooting environment for T75 is reduced as the majority of roots within the location will be associated with the felled T73.

The access road will be at a significantly lower level than the adjacent tree, the level difference for which will be achieved by excavating away from sheet piles to both reduce the level of impact on the surrounding rooting environment for the tree and retain the level difference.

Similarly, any significant level increases required across the site will be structural, for instance by the use of podiums rather than earthworks, and will not require additional retaining structures to be created around the edges of the site. Please see the Extended Site Sections drawing at Annex 5.3.

Proposed drainage has been located within the vehicle access routes. All additional drainage or utilities services will utilise existing services points and the road network. There will be no services within the frontage group of trees which has been designated as an ecological corridor for the site.

3.2.3 Above Ground Constraints

The proposed development will impact upon the crowns of three trees (T26, T40 & T82). Pruning works have been specified below to facilitate the demolition and construction works for the development (Table 4). All pruning works are to be carried out by suitably qualified personnel according to the principles set out in British Standard 3998:2010 *Tree work – Recommendations*.

Please note that both of these trees are covered by a TPO (see Section 2.1) and therefore approval from Purbeck District Council is required to complete these pruning works.

Table 4: Specification of Tree Pruning Works

| Ref | Species | Pre-demolition & Construction Pruning Specification | Reasons for works |
|-----|----------------|---|---|
| T26 | Scots Pine | Minor tip pruning to ensure 8m clearance eastern edge over build line. Current lower canopy height averaged at 8m. | To ensure clearance over proposed building. |
| T40 | English oak | Crown lift tree to 4-5m as required to provide sufficient clearance over proposed pool area. Pruning of pendulous branch tips and second order branches only. Current lower canopy height average at 3.5m | To provide vertical clearance over proposed structure. |
| T82 | Sweet chestnut | Reduce lateral branches on southern side only by up to 3.5m, pruning back to suitable growth points. Preserve flowing outline of branches with remainder of the crown. | To provide clearance of lateral branches from the new building and to allow access for scaffolding / machinery. |

3.3 Indirect Impacts of Development

3.3.1 Foundations

Damage can occur to buildings due to subsidence or heave from seasonal changes in moisture content of the soil caused by nearby trees and vegetation. In this instance if shrinkable clay soil is found to be present, this should be assessed with regard to the potential for seasonal movement caused by vegetation. The foundation design may need to take this into account.

3.3.2 Future Growth

Pruning works associated with one English oak and one sweet chestnut (T40 & T82) will ensure that there is no risk of direct damage of branches touching buildings. English oak and sweet chestnut are usually capable of withstanding pruning works to this extent and regrowth can be removed in due course. The issue of future growth can be addressed as part of a normal tree maintenance regime.

The pine tree T26 will over sail the 2-storey building edge of the associated block but will have limited overhang and may be seen as a continuation of the existing relationship between the tree and buildings on site.

3.3.3 Seasonal Nuisance

Falling debris (leaves, twigs and cones) will be managed by a dedicated onsite team of staff.

4. RECOMMENDATIONS

4.1 Protection Measures

4.1.1 Tree Protection Fencing

A protective fence will be erected prior to the commencement of any site works. The fence will have signs attached to it stating this is a Construction Exclusion Zone (CEZ) and that no works are permitted within the CEZ (Annex 5.4). The protective fence may only be removed following completion of all construction works.

Protective fencing will be constructed of robust barriers 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.

Barriers will consist of a vertical and horizontal scaffold framework that are well braced to resist impacts. The vertical tubes should be spaced at a maximum of 3m intervals and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed.

Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection.

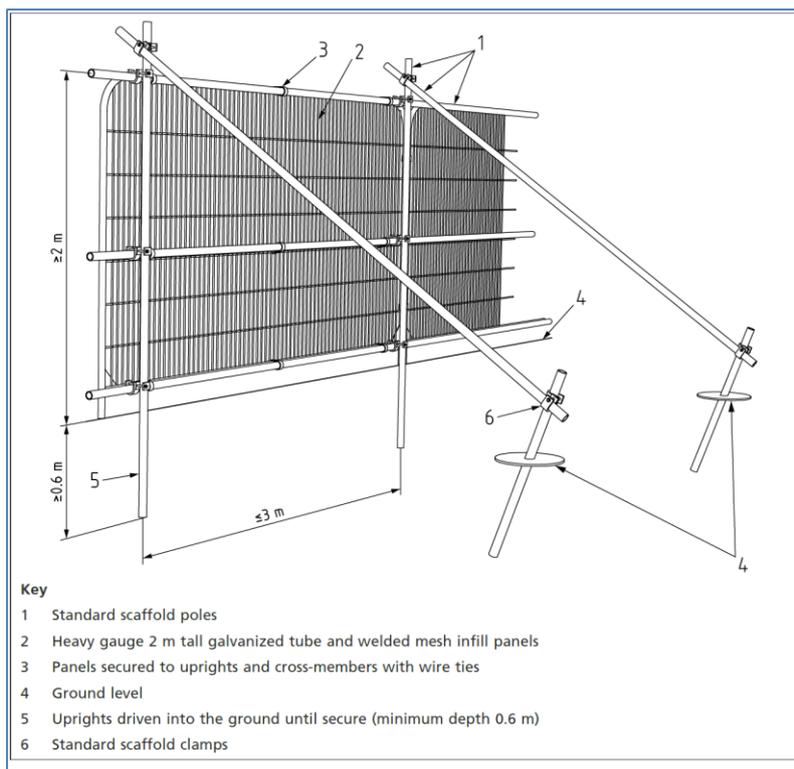


Figure 6: example tree protection barrier.

4.1.2 Site Supervision

Any works that are required within the RPAs and CEZs should be completed sympathetically as specified within an Arboricultural Method Statement and supervised by a qualified arboriculturist. Monitoring visit should include but not be excluded to those set out in Table 2 below.

Table 2: arboricultural sign-off table.

| Task | Site Manager Signature | Qualified Arboriculturist Signature |
|--|------------------------|-------------------------------------|
| Pre-construction works | | |
| Sign off tree works | | |
| Sign off tree protection fencing and ground protection | | |
| Construction Works | | |
| Monitor demolition of light structures within RPA's and sign off main demolition works | | |

| | | |
|---|--|--|
| Monitor construction of outdoor pool within the RPA of T40 | | |
| Monitor sheet piling and excavation works within the RPA of T75 | | |
| Monitor basement and build line excavations within the RPA of T26 | | |
| Post-construction Works | | |
| Confirm that temporary tree protective measures can be removed and permanent measures reinstalled | | |

4.2 Mitigation

4.4.1 Proposed Landscaping & Tree Planting

An extensive landscape strategy accompanies the application including the planting of new broadleaved and conifer trees, advanced nursery stock trees, ornamental shrubs and woodland shade ground cover. The proposed new planting provides an opportunity to mitigate for the loss of those trees being removed, and provide an increased canopy cover for the future.

A detailed planting plan and schedule has not yet been formulated. This detail may be secured within suitably worded planning conditions with advice and recommendations sought from the Purbeck District Council tree officer to be incorporated. Structural tree planting pits may therefore be secured for new planting along with an agreed species mix, size and quality, all obtained from a supplier approved by the Local Authority.

4.4.2 Planting Standards & Aftercare

Any planting scheme for the site will need to be followed up with good quality planting and aftercare in accordance with BS 8545:2014 – *Trees: from nursery to independence in the landscape*, to ensure the trees have the best opportunity to successfully establish and thrive. Details of the new planting aftercare may also be secured within landscape conditions for the site.

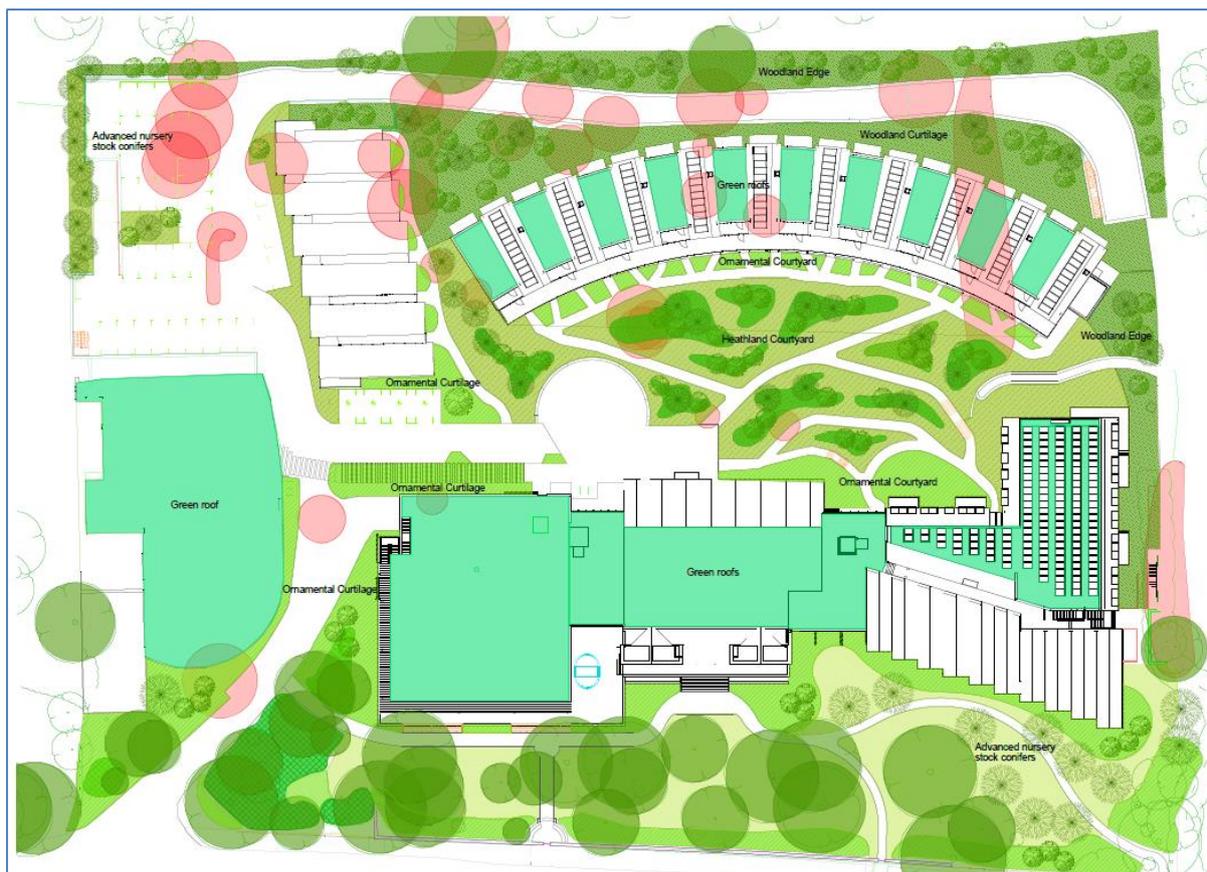


Figure 7: extract from the planting plan which may be found at Annex 5.3..

4.5 Tree Management

All tree felling/removal works and pruning required to facilitate the development should be carried out in accordance with BS3998:2010 – *Recommendations for Tree Work*.

4.6 Arboricultural Method Statement (AMS) Guidance

Due to the conflict between the trees highlighted for retention and the development an AMS is advised to ensure the risk of negative impact to the condition of the trees is minimised. An AMS can be conditioned as part of planning approval of the finalised site layout.

The AMS should provide further detail and specifications regarding:

- The demolition and removal of existing structures and hard surfacing within the vicinity of retained trees.

- Installation and specifications for temporary ground protection.
- Erecting of scaffolding within RPAs and CEZs.
- Installation of structures within RPAs and CEZs.
- Location and of site compounds, access and welfare facilities.
- Preparatory works for new landscaping.
- Dimensioned and finalised Tree Protection Plans.
- Auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision.
- A list of contact details for the relevant parties.

5. ANNEXES

- 5.1 Tree Survey Schedule
- 5.2 BS5837:2012 Cascade Chart for Tree Quality Assessment
- 5.3 Tree Protection Plans
- 5.4 Tree Protection Fencing & Signage
- 5.5 Temporary Ground Protection & Scaffolding for RPAs
- 5.6 Cellular Confinement System for Footpath (Example)
- 5.7 Scope & Limitations
- 5.8 Legislation, Planning Policy & Guidance
- 5.9 Trees in the Planning System (Overview)
- 5.10 References & Bibliography

5.1 Tree Survey Schedule¹

5.1.1 Individual Trees

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T1 | Scots pine | 15.0 | 1 | - | 500 | 4-2-6-5 | 6.0 | 10 | S | M | Upright form. Just off site. No significant defects. One of many pines at frontage of hotel. | Good | Good | 20+ | B1 | 6.0 | 113 | Yes Ref: TPO 494 A1 |
| T2 | Scots pine | 14.0 | 1 | - | 800 | 7-6-8-10 | 5.0 | 6 | SW | M | Broad form with two limbs emerging at 1.5m. Prominent in hotel frontage. | Good | Good | 20+ | B1 | 9.6 | 290 | Yes Ref: TPO 494 A1 |
| T3 | Scots pine | 8.0 | 1 | - | 230 | 4-3.5-3-3 | 2.0 | 2 | NE | SM | Younger tree with potential to be suppressed on south side by adjacent tree. | Good | Good | 20+ | B1 | 2.8 | 24 | Yes Ref: TPO 494 A1 |
| T4 | Scots pine | 15.0 | 1 | - | 560 | 7-6-5-5 | 8.0 | 8 | N | M | Approximately 4m from structure. Significant tree on hotel frontage. Approx. 4m from hotel building. | Good | Good | 20+ | B1 | 6.7 | 142 | Yes Ref: TPO 494 A1 |
| T5 | Scots pine | 16.0 | 1 | - | 630 | 6-5-2.5-1 | 8.0 | 11 | E | M | Comparatively thin foliage density. Numerous scars associated with previous limb loss. Longitudinal defect on lowest limb E. | Fair | Fair | 10+ | C1 | 7.6 | 180 | Yes Ref: TPO 494 A1 |

¹ Data from Barton Hyett, 2017.

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|---|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T6 | Scots pine | 17.0 | 1 | - | 660 | 3-3-7-7 | 5.0 | 5 | SW | M | Canopy form orientated towards hotel building. Sulphur tuft decay fungi at base E. Further investigation of tree base merited. Prominent in frontage of hotel. Hanging branch at 5m west. | Good | Fair | 20+ | B1 | 7.9 | 197 | Yes Ref: TPO 494 A1 |
| T7 | Scots pine | 13.0 | 1 | - | 520 | 4-3-5-5 | 6.0 | 6 | NW | EM | Smaller tree on site frontage. | Good | Good | 20+ | B1 | 6.2 | 122 | Yes Ref: TPO 494 A1 |
| T8 | Scots pine | 10.0 | 1 | - | 400 | 5-4-3.5-2.5 | 8.0 | 8 | N | EM | Thinner than average density of foliage. Smaller, yet characterful tree on frontage. | Fair | Good | 20+ | B1 | 4.8 | 72 | Yes Ref: TPO 494 A1 |
| T9 | Scots pine | 14.0 | 1 | - | 500 | 3.5-4-3-5.5 | 6.0 | 7 | NW | M | Crown form orientated towards hotel. Significant tree on frontage. | Good | Good | 20+ | B1 | 6.0 | 113 | Yes Ref: TPO 494 A1 |
| T10 | Scots pine | 16.0 | 1 | - | 710 | 5-3-5-6 | 10.0 | 11 | W | M | Abnormal adaptive growth ribbing on lower trunk. Slight lean towards hotel. Larger tree, important to setting. | Good | Good | 20+ | B1 | 8.5 | 228 | Yes Ref: TPO 494 A1 |
| T11 | Scots pine | 14.0 | 1 | - | 330 | 3.5-4-2-1 | 12.0 | 8 | NE | EM | Smaller tree with suppressed form W. | Good | Fair | 10+ | C1 | 3.9 | 49 | Yes Ref: TPO 494 A1 |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T12 | Scots pine | 15.0 | 1 | - | 520 | 4-5-7.5-3 | 8.0 | 9 | S | M | Prominent on edge of site. Some evidence previous limb loss - not significant. | Good | Good | 20+ | B1 | 6.2 | 122 | Yes Ref: TPO 494 A1 |
| T13 | Scots pine | 15.0 | 1 | - | 610 | 5-3-4.5-6 | 10.0 | 8 | N | M | Bracket fungi at base N - suspect heterobasideon annosum. Merits further inspection. | Good | Fair | 20+ | B1 | 7.3 | 168 | Yes Ref: TPO 494 A1 |
| T14 | Scots pine | 15.0 | | - | 560 | 6.5-1-5-5.5 | 9.0 | 9 | S | M | Thinner than average density of foliage. | Fair | Good | 20+ | B1 | 6.7 | 142 | Yes Ref: TPO 494 A1 |
| T15 | Scots pine | 2.5 | 1 | # | 80 | 1-1-1-1.5 | 1.0 | 1 | W | Y | Small tree that could be transplanted or simply retained as part of proposals. Remove stake. | Good | Good | 10+ | C1 | 1.0 | 3 | Yes Ref: TPO 494 A1 |
| T16 | Scots pine | 3.0 | 1 | # | 110 | 1.5-1.5-2-1.5 | 1.0 | 1 | N | Y | Small tree that could be transplanted or simply retained as part of proposals. Remove stake. | Good | Good | 10+ | C1 | 1.3 | 5 | Yes Ref: TPO 494 A1 |
| T17 | Scots pine | 7.0 | 2 | # | 210 | 3-2-3-3 | 2.0 | 2 | S | SM | A well-established smaller specimen. | Good | Good | 20+ | B1 | 2.5 | 20 | Yes Ref: TPO 494 A1 |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|---|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T18 | Palm | 3.0 | 1 | # | 100 | 1.5-1-1-1 | 1.5 | 1.5 | N | SM | Smaller tree. Well established. | Good | Good | 10+ | C1 | 1.3 | 5 | Yes Ref: TPO 494 A1 |
| T19 | Scots pine | 13.0 | 1 | - | 510 | 5.5-6-2.5-2.5 | 9.0 | 8 | E | EM | Suppressed form with significant lean over road. Substantial adaptive growth ribs on lower trunk. | Good | Fair | 20+ | B1 | 6.1 | 118 | Yes Ref: TPO 494 A1 |
| T20 | Scots pine | 10.0 | 1 | - | 290 | 6-5-3-2 | 6.0 | 6 | NE | EM | Central tree within group hence slightly suppressed form. | Good | Fair | 20+ | B1 | 3.5 | 38 | Yes Ref: TPO 494 A1 |
| T21 | Scots pine | 15.0 | 1 | - | 600 | 7-4.5-4-5 | 9.0 | 7 | N | M | Growing within walled planter. Cracking to planter on east side. Small amounts of deadwood. | Good | Good | 20+ | B1 | 7.2 | 163 | Yes Ref: TPO 494 A1 |
| T22 | Scots pine | 16.0 | 1 | - | 540 | 6-7-5-4 | 8.0 | 6 | E | M | Trunk divides at 5m. Crown form weighted east towards road. Mechanical damage to paved path and wall at base. | Good | Good | 20+ | B1 | 6.5 | 132 | Yes Ref: TPO 494 A1 |
| T23 | Scots pine | 10.0 | 1 | # | 150 | 3.5-3-3.5-3 | 3.0 | 3 | SE | EM | Well-established attractive tree on site frontage. Good structural form and potential. | Good | Good | 20+ | B1 | 1.8 | 10 | Yes Ref: TPO 494 A1 |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T24 | Scots pine | 8.0 | 1 | # | 230 | 4-4-4-3.5 | 2.0 | 2 | S | EM | Well-established attractive tree. Good structural form and potential. | Good | Good | 20+ | B1 | 2.8 | 24 | Yes Ref: TPO 494 A1 |
| T25 | Scots pine | 8.0 | 1 | # | 190 | 3.5-4-4-4 | 2.0 | 2 | S | EM | Reasonable tree. Thinner than average density of foliage. | Good | Good | 20+ | B1 | 2.3 | 16 | Yes Ref: TPO 494 A1 |
| T26 | Scots pine | 16.0 | 1 | - | 620 | 7-3.5-6-7.5 | 8.0 | 8 | W | M | Larger tree with crown form weighted to W. | Good | Good | 20+ | B1 | 7.4 | 174 | Yes Ref: TPO 494 A1 |
| T27 | Scots pine | 15.0 | 1 | # | 300 | 3-5.5-4.5-2.5 | 8.0 | 8 | E | M | Prominent tree at site entrance. | Good | Good | 20+ | B1 | 3.6 | 41 | Yes Ref: TPO 494 A1 |
| T28 | Scots pine | 7.0 | 1 | # | 110 | 2-4-3.5-3.5 | 2.0 | 2 | S | EM | Smaller tree with good potential-like other trees of similar size in this area - to eventually succeed the taller specimens. | Good | Good | 10+ | C1 | 1.3 | 5 | Yes Ref: TPO 494 A1 |
| T29 | Scots pine | 16.0 | 1 | # | 310 | 2-2.5-3.5-4 | 12.0 | 12 | SW | M | Taller tree with no lower branch structure. | Good | Good | 20+ | B1 | 3.7 | 43 | Yes Ref: TPO 494 A1 |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T30 | Scots pine | 2.5 | 1 | # | 100 | 1.5-1-1-1 | 1.0 | 1 | E | Y | Small tree that could be transplanted or simply retained as part of proposals. Remove stake. | Good | Good | 10+ | C1 | 1.3 | 5 | Yes Ref: TPO 494 A1 |
| T31 | Scots pine | 16.0 | 1 | # | 320 | 3-3-2.5-4 | 12.0 | 9 | W | M | Taller tree with no lower branch structure. | Good | Good | 20+ | B1 | 3.8 | 46 | Yes Ref: TPO 494 A1 |
| T32 | Scots pine | 15.0 | 1 | - | 300 | 1.5-1.5-5-2 | 12.0 | 9 | S | EM | Asymmetric crown form with eastern crown die back. | Fair | Fair | 10+ | C1 | 3.6 | 41 | Yes Ref: TPO 494 A1 |
| T33 | Palm | 5.0 | 1 | - | 200 | 1-1-1.5-1 | 3.0 | 2.5 | W | EM | Attractive ornamental tree. | Fair | Fair | 10+ | C1 | 2.4 | 18 | Yes Ref: TPO 494 A1 |
| T34 | Scots pine | 15.0 | 1 | # | 450 | 6-5-4-6 | 13.0 | 12 | N | M | Unable to view base due to shrubs. Ivy on stem obscured limb unions at 5m. Leans north over access road. Previous limb loss tear at 3/4 height on S side of northern limb. | Good | Fair | 20+ | B1 | 5.4 | 92 | Yes Ref: TPO 494 A1 |
| T35 | Scots pine | 7.0 | 1 | - | 280 | 4.5-5-5-4 | 2.5 | 2 | S | EM | Smaller tree that is well-established. | Good | Good | 20+ | B1 | 3.3 | 35 | Yes Ref: TPO 494 A1 |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|-------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|---|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T36 | Scots pine | 14.0 | 1 | - | 380 | 3.5-6-2.5-3.5 | 11.0 | 12 | S | M | Larger tree at entrance to site. Adaptive growth ribs on N side of trunk. | Good | Good | 20+ | B1 | 4.5 | 65 | Yes Ref: TPO 494 A1 |
| T37 | Palm | 6.0 | 3 | # | 390 | 1.5-2-3-3 | 2.0 | 2 | S | M | Attractive ornamental tree at site entrance. | Good | Good | 20+ | B1 | 4.7 | 69 | Yes Ref: TPO 494 A1 |
| T38 | Scots pine | 9.0 | 1 | # | 260 | 4-5-4-2.5 | 2.0 | 2 | E | EM | Offsite. Well established with good potential. | Good | Good | 20+ | B1 | 3.1 | 31 | Yes Ref: TPO 494 A1 |
| T39 | Scots pine | 9.0 | 1 | # | 250 | 3-2-3.5-3.5 | 2.0 | 2 | S | EM | Offsite. Well established with good potential. | Good | Good | 20+ | B1 | 3.0 | 28 | Yes Ref: TPO 494 A1 |
| T40 | English oak | 13.0 | 1 | - | 630 | 7-7-6-8 | 4.5 | 3.5 | E | EM | Good condition. No significant defects. | Good | Good | 20+ | B1 | 7.6 | 180 | Yes Ref: TPO 494 T1 |
| T41 | Scots pine | 17.0 | 1 | - | 470 | 3-4-3-4 | 12.0 | 14 | W | M | Good condition. No significant defects. | Good | Good | 20+ | B1 | 5.6 | 100 | None |
| T42 | Scots pine | 17.0 | 1 | - | 460 | 0-4-4-1 | 12.0 | 12 | E | M | All lower branches removed. Crown form weighted south. | Good | Good | 20+ | B1 | 5.5 | 96 | None |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|----------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|------|
| T43 | Scots pine | 3.5 | 1 | - | 260 | 2-2-2-2 | 2.0 | 2 | S | SM | Small tree that could be transplanted or simply retained as part of proposals. Remove stake. | Good | Good | 20+ | B1 | 3.1 | 31 | None |
| T44 | Scots pine | 3.5 | 1 | - | 260 | 2-2-2-2 | 2.0 | 2 | T | SM | Small tree that could be transplanted or simply retained as part of proposals. Remove stake. | Good | Good | 20+ | B1 | 3.1 | 31 | None |
| T45 | Scots pine | 15.0 | 1 | - | 530 | 5.5-5-4-3.5 | 12.0 | 11 | SW | M | Previous large limb removal on south side has left a large flush cut likely to be prone to decay formation. | Good | Fair | 20+ | B1 | 6.4 | 127 | None |
| T46 | Sweet chestnut | 6.0 | 1 | # | 300 | 3-5-5-4.5 | 3.0 | 2 | W | EM | Previously twin stemmed but one stem now removed. Previously crown reduced. Poor medium and long term prospects. | Fair | Fair | 10+ | C1 | 3.6 | 41 | None |
| T48 | Scots pine | 15.0 | 1 | - | 400 | 2-5-3-2 | 9.0 | 9 | W | M | Thinner than average density of foliage. Probably due to excavation on south side of trunk. | Fair | Fair | 10+ | C1 | 4.8 | 72 | None |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|-------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|------|
| T49 | Scots pine | 14.0 | 1 | - | 450 | 3-3-2.5-3.5 | 10.0 | 11 | S | M | Branch previously removed at 4m S. Relatively sparse density of foliage. | Good | Fair | 20+ | B1 | 5.4 | 92 | None |
| T51 | Scots pine | 13.0 | 1 | # | 420 | 1-3.5-5-4 | 9.0 | 9 | S | M | Trunk in contact with adjacent timber structure with some abrasion. Reaction wood ribbing down northern side of trunk. | Good | Fair | 20+ | B1 | 5.0 | 80 | None |
| T52 | English oak | 9.0 | 1 | # | 430 | 5-7-7-3 | 4.0 | 3 | SW | EM | Low spreading form. | Good | Fair | 20+ | B1 | 5.2 | 84 | None |
| T53 | English oak | 14.0 | 1 | # | 450 | 7-8.5-9-5 | 4.0 | 4 | S | EM | Leans east due to suppression by adjacent holm oak. | Good | Fair | 20+ | B1 | 5.4 | 92 | None |
| T54 | Holm oak | 13.0 | 1 | # | 410 | 7-5.5-7-2 | 3.0 | 3.5 | E | EM | One sided crown form | Good | Fair | 20+ | B1 | 4.9 | 76 | None |
| T55 | Scots pine | 15.0 | 1 | # | 500 | 3.5-3-4.5-3.5 | 12.0 | 12 | W | M | Large tree in good condition. Located immediately adjacent to concrete slab for heating oil tanks. | Good | Good | 20+ | B1 | 6.0 | 113 | None |
| T57 | Scots pine | 14.0 | 1 | # | 380 | 3.5-3.5-2-3 | 12.0 | 12 | W | M | Almost dead. Recommend removal. | Dead | Dead | | U | 4.5 | 65 | None |
| T58 | Scots pine | 11.0 | | - | 250 | 2-1-2-2 | 9.0 | 9 | NE | EM | Small tree on edge of car park. Offsite. | Good | Good | 20+ | B1 | 3.0 | 28 | None |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|------------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|------|
| T59 | Scots pine | 13.0 | | - | 400 | 5-4.5-3-2 | 6.0 | 6 | E | M | Larger tree on edge of car park. | Good | Good | 20+ | B1 | 4.8 | 72 | None |
| T60 | Sweet chestnut | 10.0 | | - | 550 | 6.5-8-5-6 | 4.0 | 5 | N | M | Leaning tree on edge of car park. Form influenced by woodland to W. | Good | Fair | 20+ | B1 | 6.6 | 137 | None |
| T61 | Scots pine | 14.0 | | - | 300 | 2-4-4-3 | 11.0 | 11 | E | M | No lower branches. Standalone tree in gravel car park. Recent branch loss on W side. | Good | Good | 20+ | B1 | 3.6 | 41 | None |
| T62 | Scots pine | 4.0 | | - | 100 | 2-2-2-2 | 1.0 | 1 | S | SM | Smaller tree, well established as an eventual replacement for adjacent larger trees. | Good | Good | 10+ | C1 | 1.3 | 5 | None |
| T63 | No tree. | | | | | | | | | | | | | | | | | |
| T64 | Scots pine | 14.0 | 1 | - | 350 | 3-3-4-3 | 11.0 | 11 | W | M | Located in children's play area. | Good | Good | 20+ | B1 | 4.2 | 55 | None |
| T65 | Cockspur thorn | 3.0 | | - | 100 | 2-1.5-1.5-1.5 | 2.0 | 1.5 | S | SM | Ornamental tree in circular stone wall planter. | Good | Good | 10+ | C1 | 1.3 | 5 | None |
| T66 | Blue atlas cedar | 4.0 | | - | 100 | 2-2-2-2.5 | 1.0 | 1 | N | SM | Ornamental tree in grass area at centre of paved turning areas. | Good | Good | 10+ | C1 | 1.3 | 5 | None |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|----------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T67 | Scots pine | 5.0 | 5 | # | 260 | 2.5-2.5-2-2 | 1.0 | 1 | E | SM | Smaller tree, well established as an eventual replacement for adjacent larger trees. | Good | Good | 10+ | C1 | 3.1 | 31 | None |
| T68 | Scots pine | 4.0 | 1 | # | 100 | 3-2.5-2-2 | 1.0 | 1 | N | SM | Smaller tree, well established as an eventual replacement for adjacent larger trees. | Good | Good | 10+ | C1 | 1.3 | 5 | None |
| T70 | Scots pine | 3.5 | 1 | # | 100 | 2-2-2.5-2.5 | 1.0 | 1 | E | SM | Smaller tree, well established as an eventual replacement for adjacent larger trees. | Good | Good | 10+ | C1 | 1.3 | 5 | None |
| T71 | Scots pine | 4.0 | 1 | # | 100 | 2.5-2.5-2-2 | 1.0 | 1 | N | SM | Smaller tree, well established as an eventual replacement for adjacent larger trees. | Good | Good | 10+ | C1 | 1.3 | 5 | None |
| T72 | Scots pine | 16.0 | 1 | # | 400 | 3.5-3-4-2 | 11.0 | 11 | N | M | Standalone tree in gravel car park. | Good | Good | 20+ | B1 | 4.8 | 72 | None |
| T73 | Sweet chestnut | 9.0 | 1 | # | 350 | 4-6-5.5-3.5 | 3.0 | 3 | S | EM | Larger tree within 'island area' of car park. | Good | Good | 20+ | B1 | 4.2 | 55 | Yes Ref: TPO 494 G1 |
| T74 | Scots pine | 4.0 | 1 | # | 180 | 2-3-2.5-2 | 1.0 | 1 | E | SM | Smaller tree, well established as an eventual replacement for adjacent larger trees. | Good | Good | 10+ | C1 | 2.2 | 15 | None |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|----------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------|
| T75 | Sweet chestnut | 10.0 | 1 | - | 580 | 6-6-7-6 | 3.0 | 2.5 | T | EM | Larger tree within 'island area' of car park. Possibly offsite. | Good | Good | 20+ | B1 | 7.0 | 152 | Yes Ref: TPO 494 G1 |
| T76 | Scots pine | 15.0 | 1 | - | 430 | 3.5-0-3-5.5 | 13.0 | 12 | W | M | Standalone tree in gravel car park. Likely to be offsite. | Good | Good | 20+ | B1 | 5.2 | 84 | None |
| T77 | Sweet chestnut | 7.0 | 2 | # | 670 | 4-7-5-4 | 2.0 | 1 | E | M | Located on bank. Previously topped with substantial regeneration. If retained should be managed by cyclical pollard pruning. | Good | Fair | 10+ | C1 | 8.0 | 203 | None |
| T78 | Scots pine | 14.0 | 1 | # | 300 | 4-3.5-3-2 | 10.0 | 10 | N | M | Offsite tree at edge of car park | Good | Good | 20+ | B1 | 3.6 | 41 | None |
| T79 | Scots pine | 14.0 | 1 | - | 430 | 2-2-4.5-3 | 8.0 | 9 | S | M | Offsite tree at edge of car park. One of a linear group of three trees. | Good | Good | 20+ | B1 | 5.2 | 84 | None |
| T80 | Scots pine | 14.0 | | - | 430 | 2-5-4-2 | 9.0 | 10 | N | M | Offsite tree at edge of car park. One of a linear group of three trees. | Good | Good | 20+ | B1 | 5.2 | 84 | None |
| T81 | Scots pine | 16.0 | | - | 470 | 3-6-3.5-3 | 9.0 | 9 | W | M | Offsite tree at edge of car park. One of a linear group of three trees. | Good | Good | 20+ | B1 | 5.6 | 100 | None |

| Ref | Species | Height (m) | No. of Stems | Est. diam | Calc. / Actual Stem Dia. (mm) | Crown radii (m) N-E-S-W | Avg. Canopy Height (m) | 1st branch ht (m) | 1st branch dir. | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | RPA m ² | TPO |
|-----|--------------------------------|------------|--------------|-----------|-------------------------------|-------------------------|------------------------|-------------------|-----------------|------------|--|-------------------|---------------|--|-----------------|----------------|--------------------|---------------------------------|
| T82 | Sweet chestnut | 13.0 | 1 | # | 500 | 5-6-6-7 | 3.0 | | | M | Located within dense tree group. Unable to assess in any detail. A previously topped tree with substantial regeneration. | Good | Fair | 10+ | C1 | 6.0 | 113 | Yes Ref: TPO 494 T2 |
| T83 | Cryptomeria japonica 'Elegans' | 194.0 | 1 | - | 150 | 2.5-2.5-2-2 | 1.0 | 0.5 | N | EM | Smaller ornamental tree within shrub bed. | Good | Good | 20+ | B1 | 1.8 | 10 | None |

5.1.2 Tree Groups

| Ref | Species | Height range (m) | No. of trees | Est. diam | Max stem diam (mm) | Av. Crown radius (m) | Avg. Canopy Height (m) | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | TPO |
|-----|---------------------------------------|------------------|--------------|-----------|--------------------|----------------------|------------------------|------------|---|-------------------|---------------|--|-----------------|----------------|---------------------|
| G1 | Scots pine, Eucalyptus | 11-13 | 5 | # | 550 | 5 | 4.0 | M | Offsite cohesive tree group with overhang into site. | Good | Good | 20+ | B2 | 6.6 | Yes Ref: TPO 494 A1 |
| G2 | Sycamore, oak | 6-8 | 3 | # | 280 | 3.5 | 2.0 | EM | Offsite in field. Separated from pool area by grassed earth bund. | Good | Good | 20+ | B2 | 3.3 | None |
| G3 | Palm | 3-6 | 5 | # | 250 | 0.5 | 2.0 | EM | Compact ornamental group at centre of paved seating area. | Fair | Fair | 10+ | C2 | 3.0 | None |
| G4 | Leyland Cypress, Lawson cypress, palm | 1.5-3 | 8 | # | 250 | 1 | 0.5 | EM | Consisting of ornamental border planting at north and cypress hedge to south. Of limited merit. | Good | Fair | 10+ | C2 | 3.0 | None |
| G5 | Juniper, pine | 3-4 | 4 | # | 180 | 1 | 1.0 | EM | Ornamental border planting. Limited merit. | Good | Fair | 10+ | C2 | 2.2 | None |
| G6 | Lawson cypress and Scots pine | 3-5 | 3 | # | 250 | 1.5 | 0.5 | EM | Informal group beside path. Contains a good young Scots pine that could be transplanted or retained but remainder of group is of limited merit. | Good | Fair | 10+ | C2 | 3.0 | None |
| G7 | Scots pine, holm oak, holly, birch | 14 | 4 | - | 500 | 3 | 3.0 | EM | Informal group behind storage units. Dominated by pine and holm oak. Holm oak suppressed form and Scots pine dying back on west side. Overall, very limited medium- and long-term benefits. | Fair | Fair | 10+ | C2 | 6.0 | None |
| G8 | Eucalyptus | 12 | 2 | # | 400 | 4 | 5.0 | EM | Feature tree group in triangular walled planter within paved area. Previously crown lifted. | Good | Fair | 10+ | C2 | 4.8 | None |

| Ref | Species | Height range (m) | No. of trees | Est. diam | Max stem diam (mm) | Av. Crown radius (m) | Avg. Canopy Height (m) | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | TPO |
|-----|-----------------------------------|------------------|--------------|-----------|--------------------|----------------------|------------------------|------------|---|-------------------|---------------|--|-----------------|----------------|------|
| G9 | Leyland Cypress, cherry laurel. | 3-6 | 20+ | # | 250 | 1.5 | 0.0 | EM | Dense and unmanaged screen planting. | Good | Fair | 10+ | C2 | 3.0 | None |
| G10 | Lawson cypress | 6-6 | 30+ | # | 250 | 2 | 0.5 | EM | Dense screen planting. Unmanaged but for sporadic topping. Limited merit. | Good | Fair | 10+ | C2 | 3.0 | None |
| G11 | Lawson cypress, Scots pine, holly | 4-7 | 10 | # | 180 | 2 | 0.5 | EM | Screen at edge of car park. Some good young pines, otherwise limited merit and with potential to outgrow the setting. | Fair | Fair | 10+ | C2 | 2.2 | None |

5.1.3 Hedgerows

| Ref | Species | Av. Height range (m) | Av. width (m) | Av. Stem diam (mm) | Avg. Canopy Height (m) | Life Stage | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) |
|-----|-----------------|----------------------|---------------|--------------------|------------------------|------------|---------------------------|-------------------|---------------|--|-----------------|----------------|
| H1 | Leyland cypress | 2.0 | 1.5 | 80 | 0.0 | EM | Trimmed to maintain form | Good | Good | 10+ | C2 | 1.0 |
| H2 | Leyland cypress | 3.0 | 1.5 | 80 | 0.0 | EM | Trimmed to maintain form | Good | Good | 10+ | C2 | 1.0 |
| H3 | Lawson cypress | 2-5 | 2.0 | 130 | 0.5 | EM | Edge of car park planting | Good | Fair | 10+ | C2 | 1.6 |

5.1.4 Woodland

| Ref | Species | Height range (m) | No. of trees | Est. diam | Max stem diam (mm) | Av. Crown radius (m) | Avg. Canopy Height (m) | Life Stage | Special Importance | General Observations | Health & vitality | Struct. cond. | Estimated Remaining Contribution (Years) | BS5837 Category | RPA Radius (m) | TPO |
|-----|---|------------------|--------------|-----------|--------------------|----------------------|------------------------|------------|--------------------|---|-------------------|---------------|--|-----------------|----------------|------|
| W1 | Scots pine, sweet chestnut, English oak | 20 | 100+ | # | 750 | 5 | 5.0 | M | None | Large and well-established woodland. Offsite. | Good | Good | 40+ | A2 | 9.0 | None |

5.2 BS5837:2012 Cascade Chart for Tree Quality Assessment

| Table 1 Cascade chart for tree quality assessment | | | | | | |
|---|--|--|--|---|------------------------|--|
| Category and definition | | Criteria (including subcategories where appropriate) | | | Identification on plan | |
| Tree unsuitable for retention (see Note) | | | | | | |
| Category U Those in a such condition that they cannot realistically be retained as living trees in the context of the current land us for longer than 10 years | | <ul style="list-style-type: none"> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p><i>NOTE: Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7.</i></p> | | | See Table 2 | |
| | 1 Mainly Arboricultural qualities | 2 Mainly landscape qualities | 3 Mainly cultural values, including conservation | Identification on plan | | |
| Trees to be considered for retention | | | | | | |
| Category A Trees 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 groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees with 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) | See Table 2 | |
| Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years | | Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and 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 attach a higher collective rating than they might as individuals: or trees occurring as collectives but situated so as to make little visual contribution to the wider locality | Trees with material conservation or other cultural value | See Table 2 | |
| Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 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 scientifically greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits | Trees with no material conservation or other cultural value | See Table 2 | |

5.3 Plans

5.3.1 Tree Survey Plan

5.3.2 Proposed Plan

5.3.3 Tree Protection Plan – Demolition

5.3.4 Tree Protection Plan – Construction

5.3.5 Outdoor Pool Sections Drawings

5.3.5 Site Section Drawings

5.3.6 Planting Plan



The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

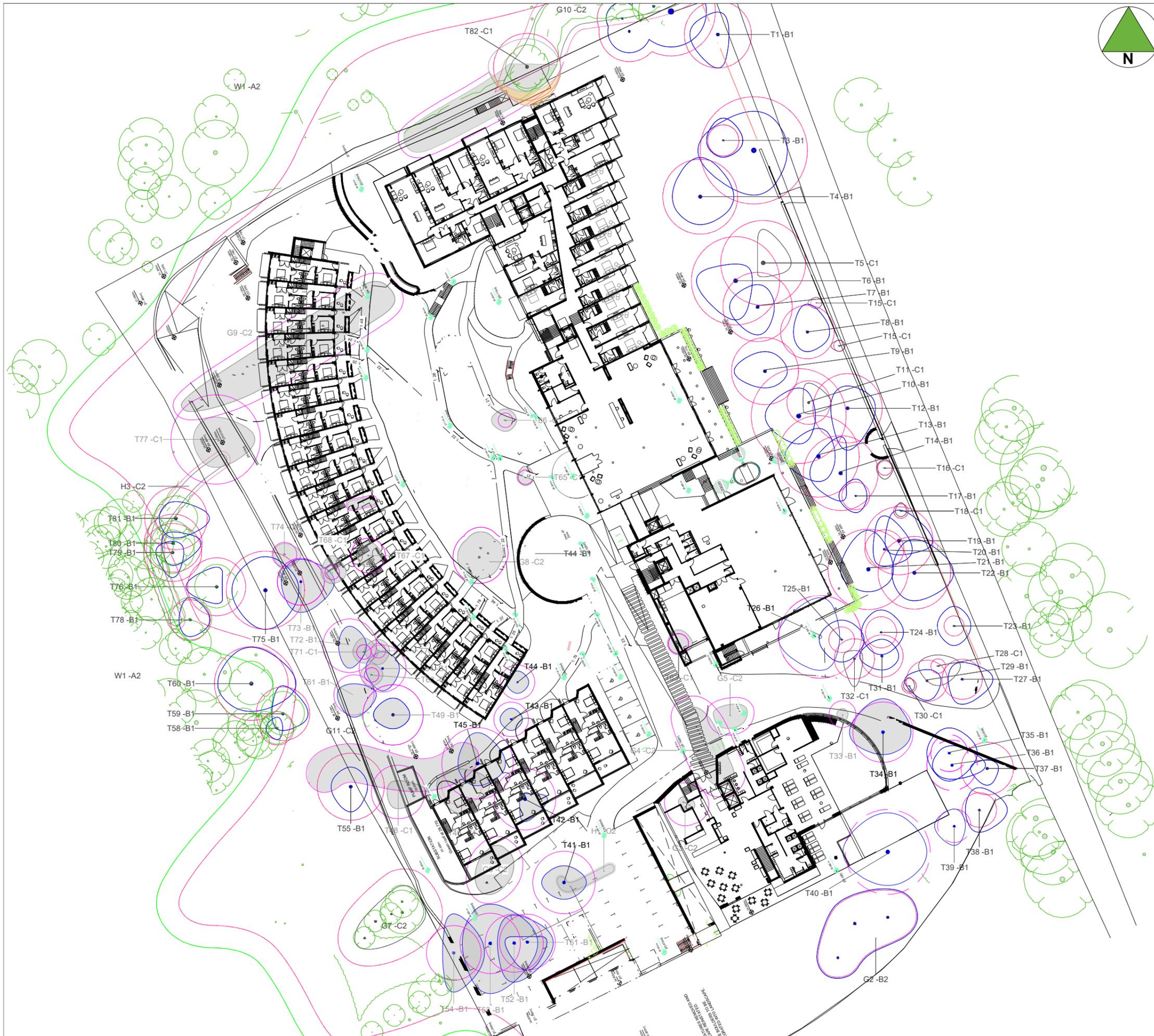
BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work.



| REV | DATE | DESCRIPTION | DRAWN |
|-----|------|--------------|-------|
| - | - | Base Drawing | - |

| | | |
|---------------------------------|----------|------------|
| Title | | |
| Tree Survey | | |
| Client | | |
| Kingfisher Resorts Studland Ltd | | |
| Project | | |
| Knoll house Hotel, BH19 3AH | | |
| Date | Drawn by | Checked by |
| October 2022 | EC | - |
| Drawing No | Rev | Scale |
| 1122-P-10 | - | NTS |





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BS 5837:2012 TREE RETENTION CATEGORIES

- 
Category A
 Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- 
Category B
 Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- 
Category C
 Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.
- 
Category U
 Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

BS5837 Root Protection Areas
 Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work.

- 
 Trees to be removed shown shaded
- 
 Trees to be reduced shown shaded

| REV | DATE | DESCRIPTION | DRAWN |
|-----|------|--------------|-------|
| - | - | Base Drawing | - |

| | | |
|-----------------------------------|----------|------------|
| Title | | |
| Proposed Layout and Tree Removals | | |
| Client | | |
| Kingfisher Resorts Studland Ltd | | |
| Project | | |
| Knoll house Hotel, BH19 3AH | | |
| Date | Drawn by | Checked by |
| October 2022 | EC | - |
| Drawing No | Rev | Scale |
| 1122-P-11 | - | NTS |



ARBORICULTURAL METHOD STATEMENT

TREE WORKS

Only the tree works specified within this report may be undertaken, after the appropriate planning consents have been acquired and in order to implement the consent. In the event of any uncertainty regarding tree works, the retained arboricultural consultant will be consulted and where appropriate the Local Planning Authority.

All tree works will be undertaken, in accordance with the best-practice recommendations provided in BS 3998:2010. The statutory responsibilities as outlined in the Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations 2010 will also be complied with.

TREE PROTECTION FENCING

The tree protection fencing and (where appropriate) ground protection, will be installed as specified within this plan, prior to the commencement of any demolition and construction works. No plant or materials will be delivered to site prior to the construction of the tree protective fencing other than those required to install the tree protection fencing. On every third panel, a sign will be fixed that states "Tree Protection Zone (TPZ). Keep out. Any incursion into this area must be agreed in advance with the retained arboricultural consultant and Local Planning Authority." An example of this sign is provided within this plan.

The position of the tree protection fencing must not be amended and no individual panels will be uncoupled, without the agreement of the retained arboricultural consultant and/or Local Planning Authority.

SERVICES AND DRAINAGE

The installation of drainage runs, manholes, storage tanks, and utilities will be positioned outside the root protection areas of retained trees. If the installation of new services and drainage runs are required within the root protection areas (RPAs) of retained trees, all methods of working will follow the guidance within Table 3 of BS 5837 or the National Joint Utilities Group's (NJUG) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (volume 4, issue 2).

Excavation works within the RPAs of retained trees will be undertaken manually with the use of hand tools only (under the supervision of the retained arboricultural consultant), unless otherwise agreed in advance by the retained arboricultural consultant. It is recommended that an air lance - and if required a soil vacuum - is used, to excavate service trenches within RPAs. If soil conditions are not suitable for this method of excavation, alternative hand tools can be used once agreed in advance by the retained arboricultural consultant.

All roots greater than 25mm in diameter will be retained and will immediately be wrapped in hessian or another appropriate material, to prevent desiccation and temperature fluctuations. Roots will be pushed aside to allow for runs to be installed, where this is practical and without causing root damage.

No machinery will be permitted within the TPZ, at any time, unless agreed in advance with the retained arboricultural consultant.

NO-DIG CONSTRUCTION AREAS

Areas that will require no-dig methods of construction are shown within this plan. Working methods within these areas will comply with the details outlined in the main report and in advance of works being undertaken will be agreed with the retained arboricultural consultant.

ARBORICULTURAL CLERK OF WORKS

The monitoring of activities at the Site will occur, at the following points:

- To sign-off the tree protection measures;
- To sign-off the tree works;
- At other points as specified within this Report and the TPP.

It will be the responsibility of the main contractor (or other managing individual or organisation) to confirm the date and time of attendance, providing at least five working days of notice so that the project arboriculturalist can confirm attendance.

GENERAL PROTECTION METHODS

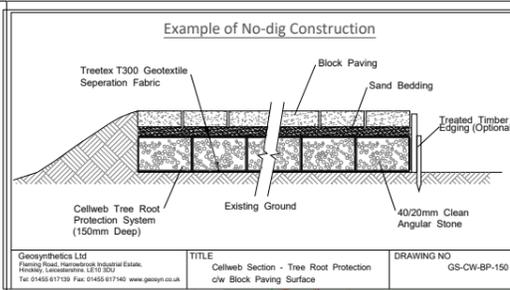
No fires will be permitted, within 20m of the crown of any tree or other area of vegetation that includes hedgerows and groups of trees.

No changes in soil level will occur, within the TPZs and RPAs, without agreement in advance with the retained arboricultural consultant.

The TPZs will at all times remain free of liquids, materials, vehicles, plant, and personnel, without agreement in advance with the retained arboricultural consultant.

Any liquid materials spilled on site will immediately be cleared up. If liquids are spilled within 2m of any TPZ or RPA, the incident will immediately be reported to the retained arboricultural consultant, to determine the appropriate response.

All damage to trees and other vegetation will immediately be reported to the retained arboricultural consultant, to determine the appropriate response.



The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

BS 5837:2012 TREE RETENTION CATEGORIES

- Category A**
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.
- Category U**
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work.

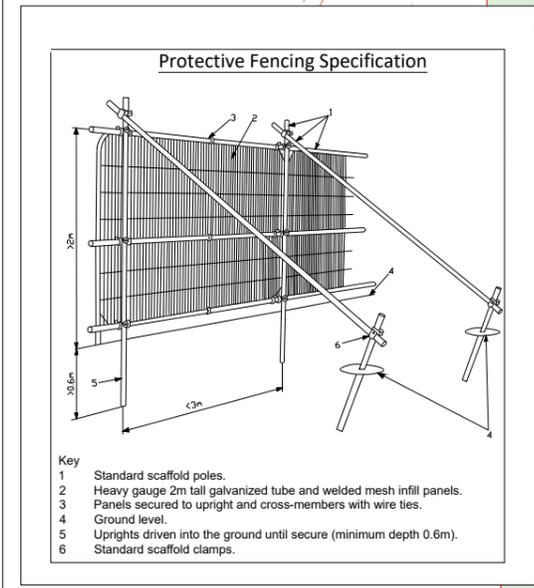
Position of protective fencing and tree protection zones during demolition

Ground protection formed of cellular confinement system with construction board surfacing.

Demolition of brick planters and other light structures to ground level only, existing paving removed and replaced with cellular confinement system ground protection.

| REV | DATE | DESCRIPTION | DRAWN |
|-----|------|--------------|-------|
| - | - | Base Drawing | - |

| | | |
|---|-----------------------|------------------------|
| Title Tree Protection Plan for Demolition | | |
| Client Kingfisher Resorts Studland Ltd | | |
| Project Knoll house Hotel, BH19 3AH | | |
| Date November 2024 | Drawn by EC | Checked by - |
| Drawing No 1122-P-12 | Rev - | Scale NTS |



ARBORICULTURAL METHOD STATEMENT

TREE WORKS

Only the tree works specified within this report may be undertaken, after the appropriate planning consents have been acquired and in order to implement the consent. In the event of any uncertainty regarding tree works, the retained arboricultural consultant will be consulted and where appropriate the Local Planning Authority.

All tree works will be undertaken, in accordance with the best-practice recommendations provided in BS 3998:2010. The statutory responsibilities as outlined in the Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations 2010 will also be complied with.

TREE PROTECTION FENCING

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The position of the tree protection fencing must not be amended and no individual panels will be uncoupled, without the agreement of the retained arboricultural consultant and/or Local Planning Authority.

SERVICES AND DRAINAGE

The installation of drainage runs, manholes, storage tanks, and utilities will be positioned outside the root protection areas of retained trees. If the installation of new services and drainage runs are required within the root protection areas (RPAs) of retained trees, all methods of working will follow the guidance within Table 3 of BS 5837 or the National Joint Utilities Group's (NJUG) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (volume 4, issue 2).

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All roots greater than 25mm in diameter will be retained and will immediately be wrapped in hessian or another appropriate material, to prevent desiccation and temperature fluctuations. Roots will be pushed aside to allow for runs to be installed, where this is practical and without causing root damage.

No machinery will be permitted within the TPZ, at any time, unless agreed in advance with the retained arboricultural consultant.

NO-DIG CONSTRUCTION AREAS

Areas that will require no-dig methods of construction are shown within this plan. Working methods within these areas will comply with the details outlined in the main report and in advance of works being undertaken will be agreed with the retained arboricultural consultant.

ARBORICULTURAL CLERK OF WORKS

The monitoring of activities at the Site will occur, at the following points:

- To sign-off the tree protection measures;
- To sign-off the tree works;
- At other points as specified within this Report and the TPP.

It will be the responsibility of the main contractor (or other managing individual or organisation) to confirm the date and time of attendance, providing at least five working days of notice so that the project arboriculturalist can confirm attendance.

GENERAL PROTECTION METHODS

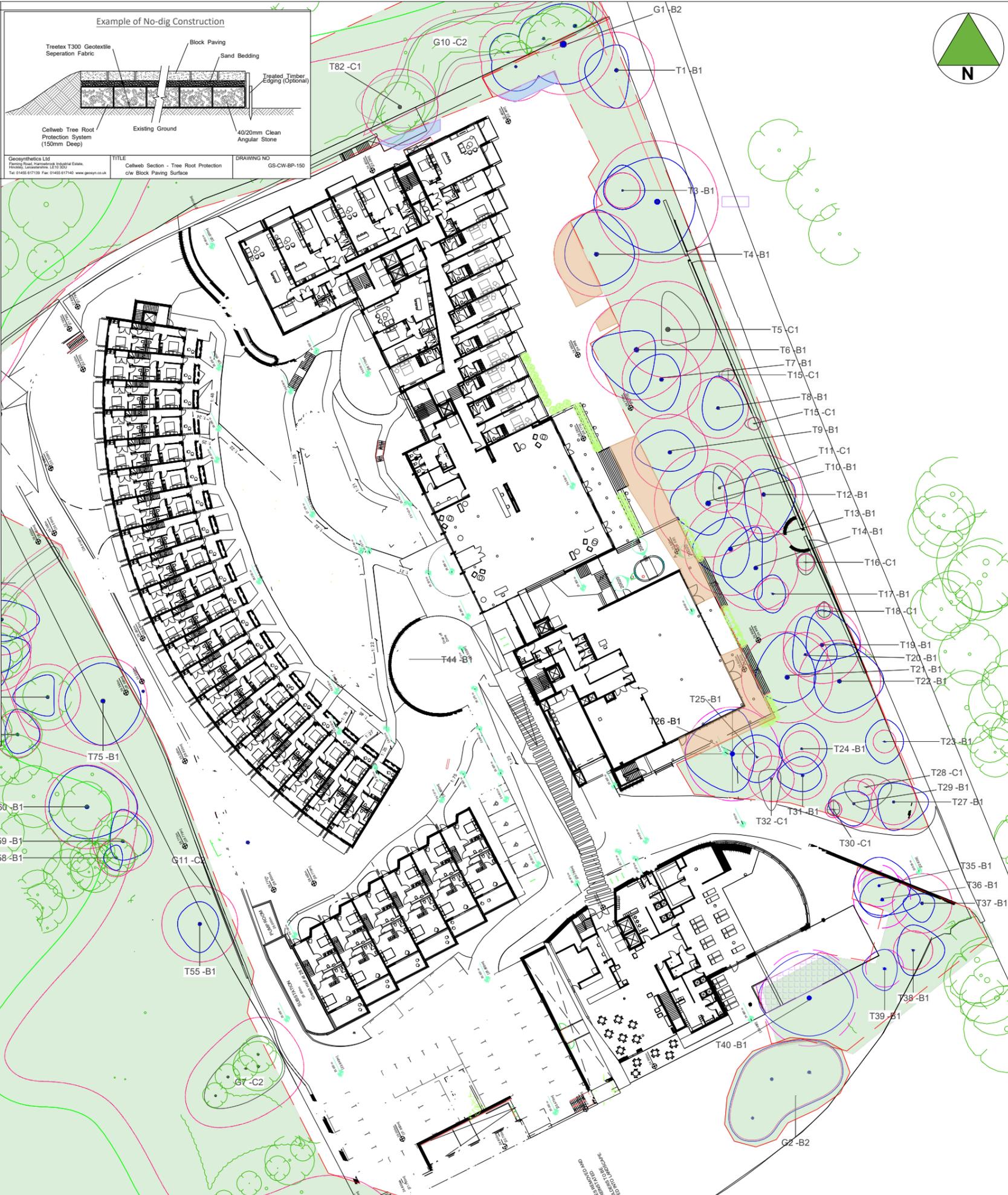
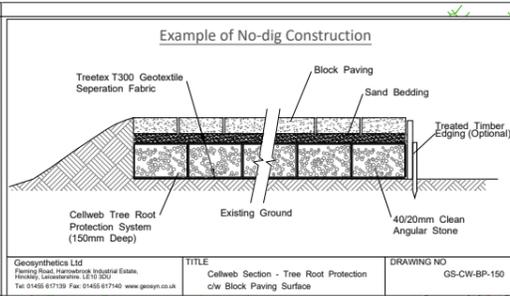
No fires will be permitted, within 20m of the crown of any tree or other area of vegetation that includes hedgerows and groups of trees.

No changes in soil level will occur, within the TPZs and RPAs, without agreement in advance with the retained arboricultural consultant.

The TPZs will at all times remain free of liquids, materials, vehicles, plant, and personnel, without agreement in advance with the retained arboricultural consultant.

Any liquid materials spilled on site will immediately be cleared up. If liquids are spilled within 2m of any TPZ or RPA, the incident will immediately be reported to the retained arboricultural consultant, to determine the appropriate response.

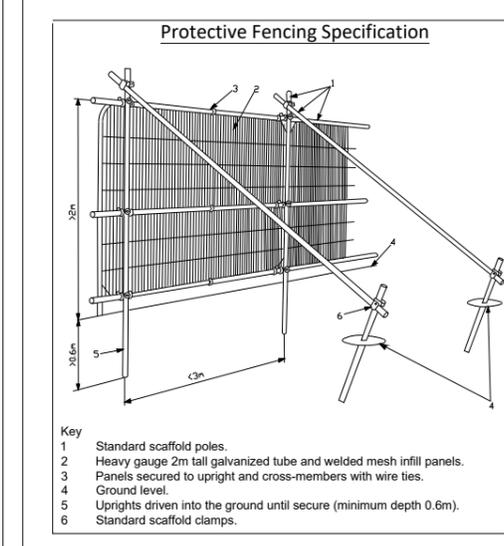
All damage to trees and other vegetation will immediately be reported to the retained arboricultural consultant, to determine the appropriate response.



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BS 5837:2012 TREE RETENTION CATEGORIES

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Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
- BS5837 Root Protection Areas**
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work.
- Position of protective fencing and tree protection zones during construction.** Position may be amended for landscaping.
- Ground protection formed of cellular confinement system with construction board surfacing.**
- Demolition of brick planters and other light structures to ground level only, existing paving removed and replaced with cellular confinement system ground protection.**
- Tree protection fencing to be removed at the landscaping stage in order to construct above ground pool structure under arboricultural guidance.**



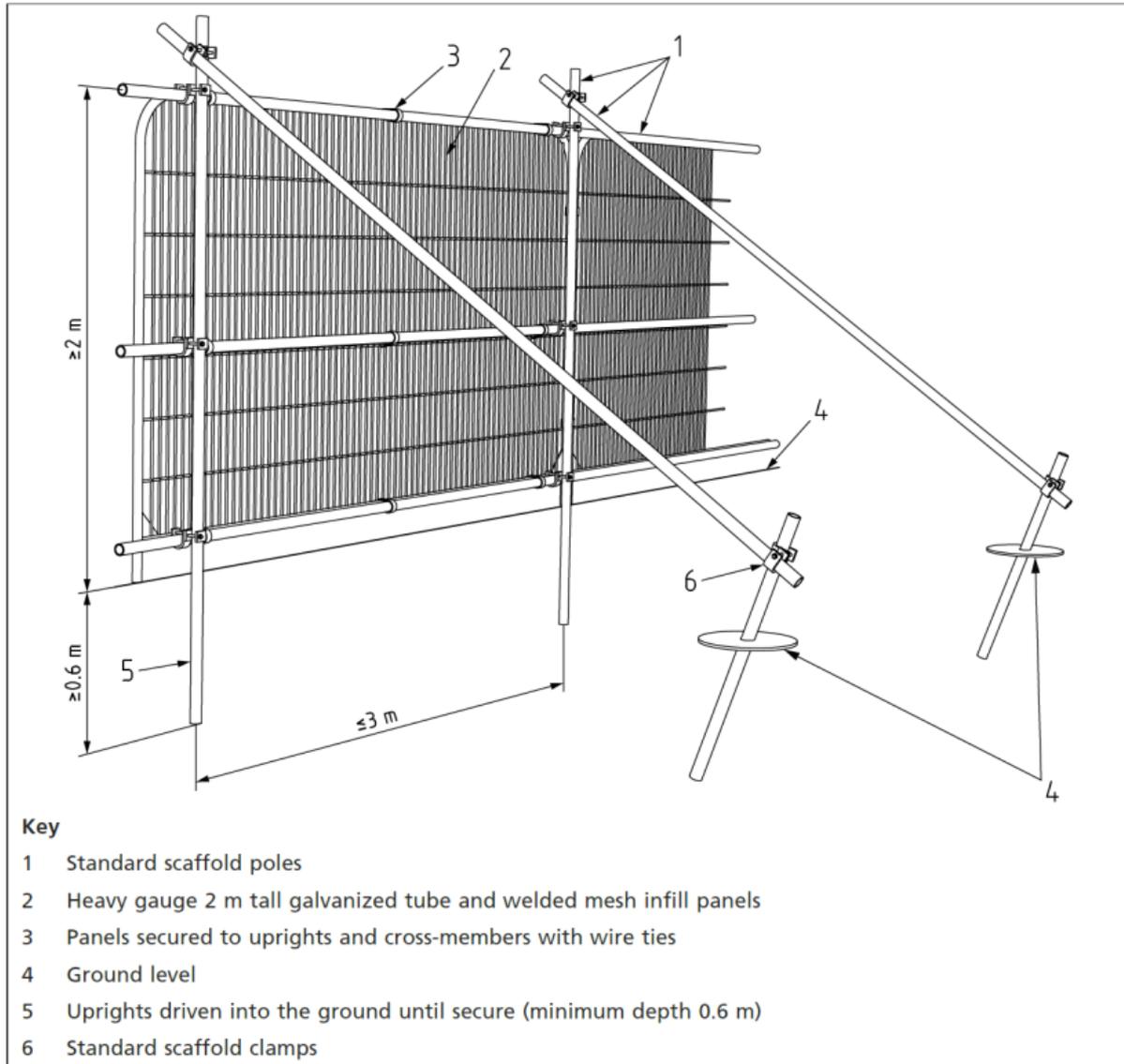
| REV | DATE | DESCRIPTION | DRAWN |
|-----|------|--------------|-------|
| | | Base Drawing | |

| | | |
|---------------------------------------|----------|------------|
| Title | | |
| Tree Protection Plan for Construction | | |
| Client | | |
| Kingfisher Resorts Studland Ltd | | |
| Project | | |
| Knoll house Hotel, BH19 3AH | | |
| Date | Drawn by | Checked by |
| November 2024 | EC | - |
| Drawing No | Rev | Scale |
| 1122-P-13 | - | NTS |



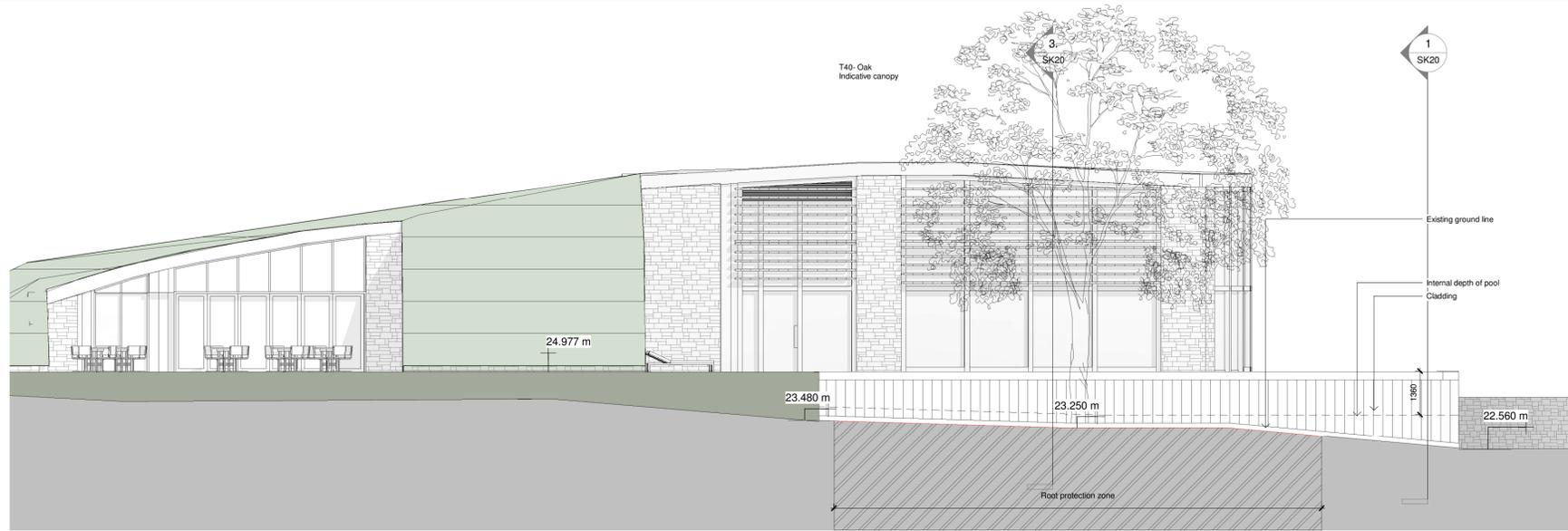
5.4 Tree Protection Fencing & Signage

5.5.1 Default Tree Protection Fencing Design

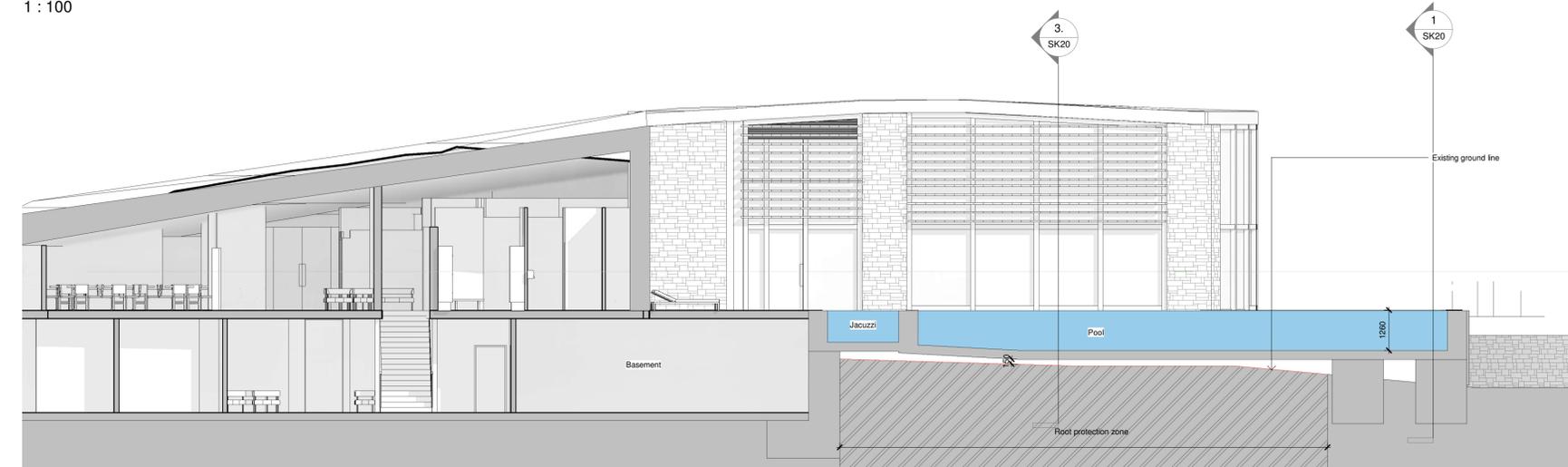


5.4.2 Signage for Tree Protection Fencing

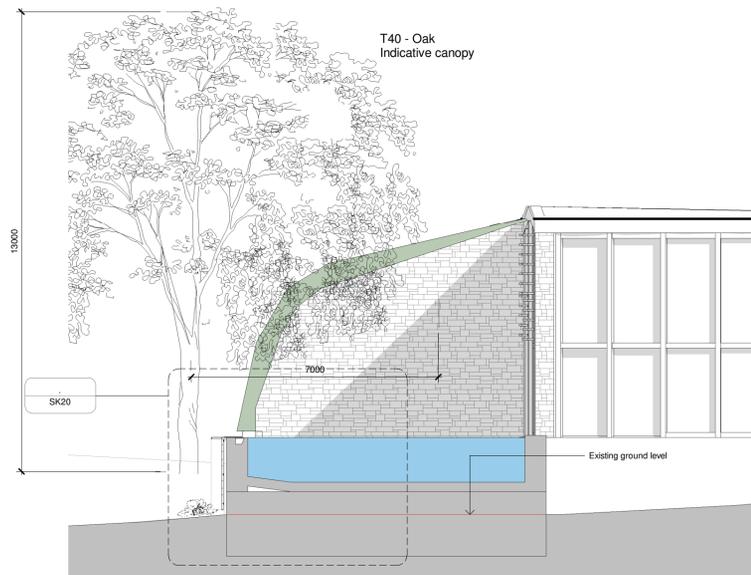




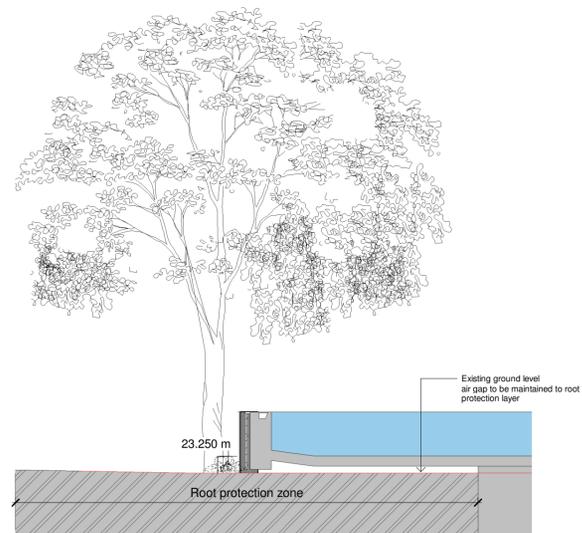
Section 2- Pool
1 : 100



Section 4- Pool
1 : 100



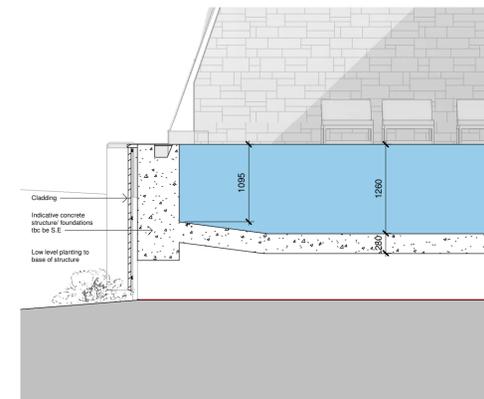
Section 1 - Pool
1 : 100



Section 3 - Pool
1 : 100



Planning ground floor pool extract
1 : 200



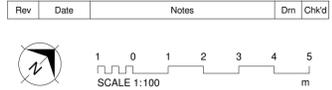
Indicative detail

Notes
Do not scale from this document, unless for the purposes of planning applications where a scale bar is provided. Refer to figured dimensions only. All dimensions to be verified on site prior to construction. Report all discrepancies or ambiguities to the Document Originator immediately. This document is to be read in conjunction with relevant documents, drawings and standards.

Key
 Existing building/ ground outline
 Outline of basement
 Root protection

* Indicative foundations subject to confirmation by S.E.

| Rev | Date | Notes | Dm | Chk'd |
|-----|----------|--|-----|-------|
| P05 | 05/11/24 | Updated to comments received. | GCT | MAS |
| P04 | 01/11/24 | Updated to S.E comments | GCT | MAS |
| P03 | 11/10/24 | Updated to information received. | GCT | MAS |
| P02 | 09/10/24 | First Issue | GCT | MAS |
| P01 | 04/10/22 | Updates to suit MEP requirements, parking and spa layout revised | KM | MAS |



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AWW
 London 106 Western Street, SE1 3GB 020 7160 6000
 Plymouth East Quay House, PL4 0HX 01752 261 262
 Bristol plot + mark, 48-52 Baldwin Street, BS1 1QB 0117 923 2535
 RIBA Chartered Practice www.aww-uk.com

Client
 Kingfisher Resorts Studland Ltd

AWW Project Number 4561
 Project Stage RIBA Stage 3

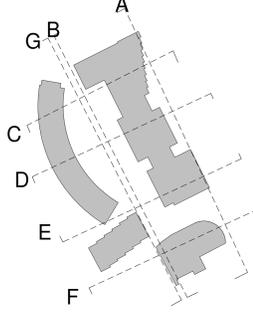
Project Title
 Knoll House Studland

Title
 T40 - Oak Tree

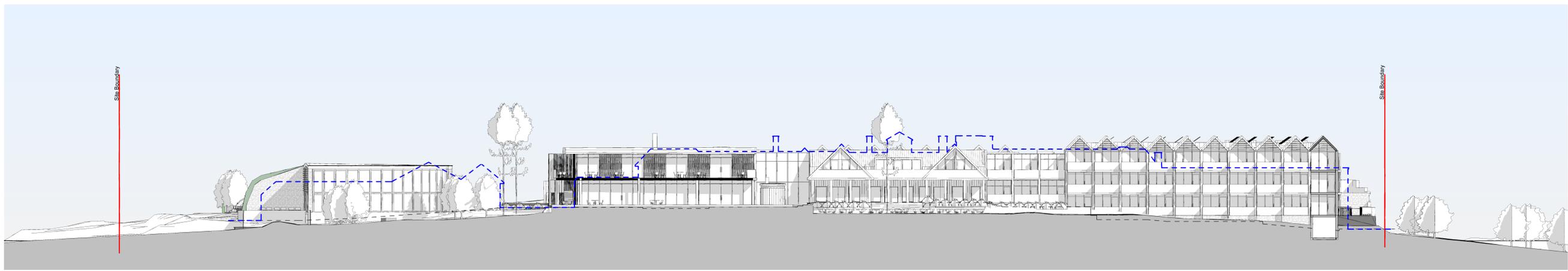
| Project | Origin | Volume | Level | Type | Role | Number | Rev |
|---------|--------|--------|-------|------|------|--------|-----|
| 4561 | AWW | SI | ZZ | DR | A | SK20 | P05 |

Notes
 Do not scale from this document, unless for the purposes of plan where a scale bar is provided. Refer to figured dimensions only, be verified on site prior to construction. Report all discrepancies to the Document Originator immediately. This document is to be read with relevant documents, drawings and standards.

Key Plan



- Existing elevation
- Approximate existing ground level
- Site boundary



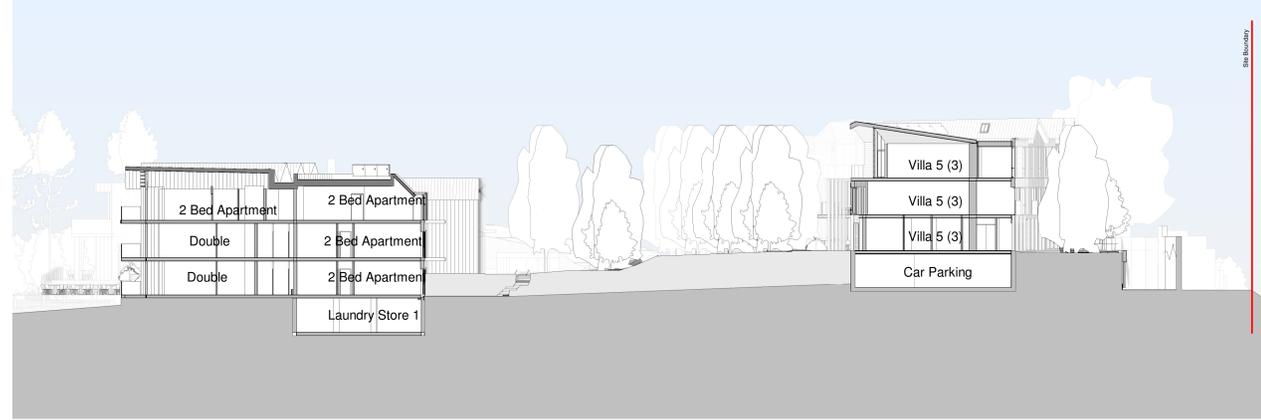
Section AA

1:200



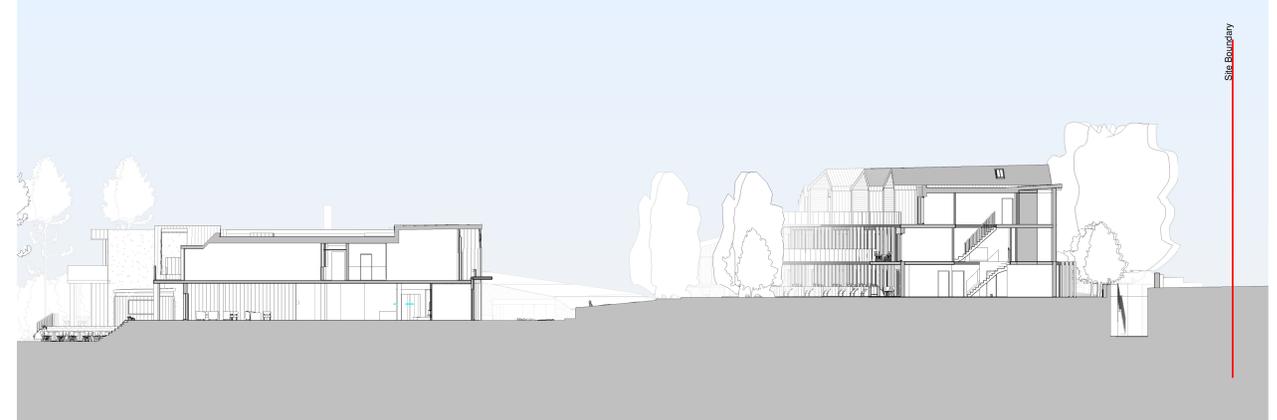
Section BB

1:200



Section CC

1:200



Section DD

1:200

| Rev | Date | Notes | Drn | CRK'd |
|-----|----------|---|-----|-------|
| P06 | 13/07/23 | Stovey removed further to planning comments | HR | MAS |

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 Plymouth East Quay House, PL4 0HX 01752 261 282
 Bristol 1001 + mark, 45-52 Baldwin Street, 0157 408 2535

Chartered Practice
 Kingfisher Resorts Studland Ltd
 www.aww-uk.com

| | | | |
|------------------------|-----------------|---------------|-------------|
| AWW Project Number | 4561 | Project Stage | STAGE 2 |
| Project Title | | | |
| Knoll House Studland | | | |
| Title | | | |
| Extended Site Sections | | | |
| Scale @ A | Document Status | AS PLANNING | |
| Indicated | Volume | Level | Type |
| 4561AWWSI | ZZ | DR | A 13500 P06 |

5.6 Cellular Confinement System for Footpaths (Example)

PRODUCT DATA SHEET

Geosynthetics Limited Tel: 01455 617 139 Fax: 01455 617 140 Email: sales@geosyn.co.uk

Cellweb® TRP Installation Guide



Step 1: Prepare Surface



Step 2: Lay out Treetex™



Step 3: Lay out Cellweb® TRP

- Cellweb® TRP is a NO DIG tree root protection measure and it is recommended that no excavation be performed without prior approval and guidance from the Local Authority Arboricultural Officer.
- Soil compaction from vehicles, machinery and materials is to be strictly prohibited during construction within Root Protection Areas (RPAs).
- Approval must be obtained from the Local Authority that the design and the method of construction is acceptable.
- Further information is available from the following two documents;
 - British Standard BS5837: 'Trees in Relation to Design, Demolition and Construction' (2012).
 - Arboricultural Advisory and Information Service: Practice note 12 – 'Through the Trees to Development' (APN12).

Installation Method

1. Prepare the Surface

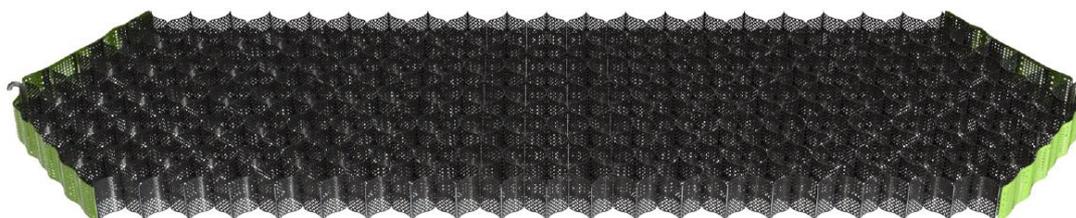
- Remove the surface vegetation using appropriate hand held tools or herbicide (see Note 1).
- Remove any surface rocks, debris and organic material.
- Create a level surface by filling any hollows with clean angular stone or sharp sand.
- Do not level off high spots or compact the soil through rolling.

2. Lay out the Treetex™ Non-Woven Geotextile

- Lay out the Treetex™ over the prepared area, overlaying the edges of the required area by 300mm.
- Overlap any joins by 300mm minimum or more, depending on soil structure (see Note 2).

3. Lay out the Cellweb® TRP Cellular Confinement System

- Lay out the collapsed Cellweb® TRP on-top of the Treetex™.
- Place one of the supplied J pins into the centre cell at the end of the panel and secure into the ground.



DR: 81/V4/13.05.16 (Page 1 of 3)



Cellweb® TRP - Installation Guide

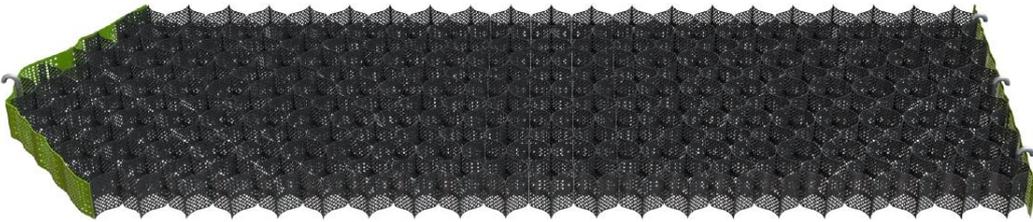


Step 3: Pinning Cellweb® TRP

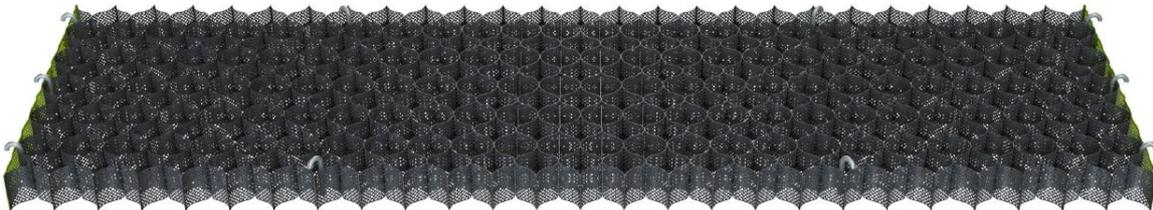


Step 3: Stapling Cellweb® TRP

- Pull out the Cellweb® TRP to its full 8.1m length and secure its length with another J pin.



- Now measure its width to 2.56m and secure in each of the corners with the J pins.
- Use 10 pins per panel to create a panel measuring 8.1 m x 2.56m.



- This will produce a cell size of 259mm x 224mm which is the required cell diameter. Each cell must be fully extended and under tension.
- Staple adjacent panels together at each cell (see Note 3).
- If a curved path or shape is required, this should be cut when the Cellweb® TRP panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. Do not try to curve or bend the Cellweb® TRP panels into place.
- All cells must be fully opened to the required diameter.

Cellweb® TRP - Installation Guide



Step 4: Clean Angular Stone



Step 5: Edge Restraints



Step 6: Surface Options

4. Infill the Clean Angular Stone

- The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm (see Note 4).
- Do not use M.O.T type 1 or crushed stone with fines for tree root protection.
- Infill the Cellweb® TRP cells with the clean angular stone, working towards the tree and using the infilled panels as a platform.
- Minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface.
- No compaction is required of the infill. Do not use a whacker plate or other means of compaction.
- Encourage settlement of the stone with the use of a light roller or with 2-3 passes of the construction plant used for installation.
- If the clean angular stone is being used as the final surface; regular maintenance will be required to ensure a minimum overfill of 50mm.

5. Edge restraints

- Excavations for kerbs and edgings should be avoided within the RPAs.
- Where edging is required for footpath and light structures, a peg and treated timber board edging is acceptable
- Other options include wooden sleepers, kerb edging constructed on-top of the Cellweb® TRP system, plastic and metal edging etc.

6. Surface options

- All surfaces in Root Protection Areas must be porous. Surfaces can include block paving, asphalt, loose gravel, grass and gravel retention systems (e.g Golpla), resin bound gravel, concrete etc.

NOTES

- 1. Herbicide:** According to BS5837:2012 "The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from the manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained, species to be introduced, and existing sensitive habitats, particularly those associated with aquatic or drainage features."
- 2. Geotextile:** We recommend the installation of a Treetex™ under the Cellweb® TRP, or under the sub-base, if installed. The overlapping between adjacent rolls of Geotextile should be: CBR > 3%: 300mm minimum, CBR between 1% and 3%: 500mm minimum. CBR ≤ 1%: 750mm minimum.
- 3. Staples:** Number of staples per join: 200mm: 5 staples. 150mm: 4 staples. 100mm: 3 staples. 75mm: 3 staples.
- 4. Granular Fill:** Open graded sub-base, clean angular stone Type 4/20 or Type 20/40. Please refer to BS7533-13:2009 and to the Design Manual for Roads and Bridges (DMRB), Volume 4 Geotechnics and Drainage, Section 1 Earthworks, HA44/91, Volume 7 – IAN 73/06 Design Guidance for road pavement foundations and Manual of Contract Documents for Highway Works (MCHW), Volume 1 Specification for Highway Works for the construction and maintenance of the fill material.

This information corresponds to our current knowledge on the subject. It is offered solely to provide possible suggestions for your own experimentation. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information may be subject to revision as new knowledge becomes available. Since we cannot anticipate all variations in actual end use conditions, Geosynthetics Limited makes no warranties and assumes no liabilities in connection with this information. Nothing in this publication is to be considered as a licence to operate under or a recommendation to infringe any patent right.
DR: 81/V4/13.05.16 (Page 3 of 3)



5.7 Scope & Limitations

The scope of this report is as follows:

- To undertake a BS5837: 2012 arboricultural impact assessment of trees, hedgerows and woodlands within the area identified by the client as being potentially affected by future development proposals.
- To provide tree protection plans (demolition and construction), provided with reference to a detailed development design in order to inform a planning application for this site.

This report is valid for a period of not more than 12 months from the date of the inspection or less in the event of significant changes to the condition of trees present on site (e.g. following major storm damage, fire or disease) or prevailing site conditions.

No detailed assessment has been undertaken as part of this report with regard to managing the trees in relation to their risk of failure (either parts of the trees or the entire trees).

Trees and hedgerows can support a variety of vertebrate and invertebrate fauna, including species that are afforded protection under wildlife legislation (e.g. The Wildlife and Countryside Act 1981 (as amended), The Conservation of Habitats and Species Regulations (2017)).

Where the presence of legally protected species is known or suspected, advice should always be sought from an experienced ecological consultant and/or the relevant statutory nature conservation organisation (e.g. Natural England) for formal advice. Such detailed advice is beyond the remit of this report, but obvious wildlife constraints will be identified wherever feasible.

The author has relied on the accuracy of the drawings provided in the production of this report.

5.8 Legislation, Planning Policy & Guidance

This report is principally designed to satisfy the requirements of BS5837: 2012 *Trees in Relation to Design, Demolition and Construction*.

The information and advice contained within this report will facilitate the correct application of The Town and Country Planning Act 1990 (specifically Part VIII 'Special Controls', Chapter 1 'Trees' S.197 and sequential).

Advice contained within this report is designed to address local plan policies in relation to trees in the planning process.

This advice contained within this report is also designed to address the requirements of The National Planning Policy Framework (NPPF); specifically paragraph 118, which states:

"118. When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- *if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss;"*

5.9 BS5837:2012 Trees in the Planning System (Overview)

| Table B.1 Delivery of tree related information into the planning system | | |
|---|--|--|
| Stage of process | Minimum detail | Additional information |
| Pre-application | Tree survey | Tree retention/removal plan (draft) |
| Planning application | <p>Tree survey (in the absence of pre-application discussions)</p> <p>Tree retention/removal plan (finalized)</p> <p>Retained trees and RPAs shown on proposed layout</p> <p>Strategic hard and soft landscape design, including species and location of new tree planting</p> <p>Arboricultural impact assessment</p> | <p>Existing and proposed finished levels</p> <p>Tree protection plan</p> <p>Arboricultural method statement - heads of terms</p> <p>Details for all special engineering within the RPA and other relevant construction details</p> |
| Reserved matters/ planning conditions | <p>Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method</p> <p>Dimensioned tree protection plan</p> <p>Arboricultural method statement – detailed</p> <p>Schedule of works to retained trees, e.g. access facilitation pruning</p> <p>Detailed hard and soft landscape design</p> | <p>Arboricultural site monitoring schedule</p> <p>Tree and landscape management plan</p> <p>Post-construction remedial works</p> <p>Landscape maintenance schedule</p> |

5.10 References & Bibliography

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6. QUALIFICATIONS & EXPERIENCE

Focus Environmental Consultants® has the expertise to provide sure-fire environmental solutions to a wide range of projects. The company ethos forges the highest standards of professional scientific practice with a best value approach for our clients. Our core area of expertise is in the production of specialist environmental reports and advice to support planning applications. Our comprehensive services include tree constraints surveys, Arboricultural Impact Assessments (AIA) and Method Statements, Health and Safety tree assessments, reports to accompany insurance/mortgage applications and production of Woodland Management Plans. The arboricultural team at Focus Environmental Consultants are all members of the Arboricultural Association and Institute of Chartered Foresters. Our flexible approach, range of skills and broad project experience from major infrastructure contracts to small private developments allows us to adapt to your individual requirements. As well as offering a full suite of arboricultural services, Focus Environmental Consultants is able to provide expert ecological advice and reports and is building an enviable reputation for innovative habitat creation and management solutions. Focus Environmental Consultants is situated in Worcestershire, providing a convenient and central UK location

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This report has been prepared by Edward Cleverdon. Edward is a senior arboricultural consultant dealing with trees in relation to all forms of human activity including the built environment. Edward is a professional member of the Arboricultural Association, an associate member of the Institute of Chartered Foresters, graduated with a BSc (hons) degree in Arboriculture from The University of Central Lancashire, is a LANTRA qualified professional tree inspector; and a registered user of Quantified Tree Risk Assessment.