Tree Protection Zone - Operation Zone During Construction and No-Dig Construction.

While construction work is commencing on the proposed hard surfaces within tree RPAs, the existing levels of unmade ground within the RPA of existing trees are to be protected with an appropriate ground protection system for the duration of the construction period in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. For pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (*150 mm depth of woodchip*), laid onto a geotextile membrane would be appropriate. No vehicular movements are to be made over unmade ground within the RPAs of existing trees. Any piling rig necessary for installation of foundation piles shall be used from an appropriate piling mat outside of tree RPAs.

Where new hard surfaces are proposed within the RPAs of trees to be retained to create the access drive and visitor parking area, a 'no-dig' construction method shall be employed in order to avoid damage to existing tree roots and localised compaction of subsoil within the tree root protection areas of existing trees. There shall be no lowering of ground levels and excavation of ground within the RPAs of existing trees.

Existing surfacing materials where possible shall be left undisturbed and retained during the construction period for as long as possible in order to protect the RPAs of the existing trees to be retained; existing surface materials only shall be removed carefully by hand within the existing tree root protection areas and shall be the minimum required for the construction. Existing hard surfaces and sub-base within RPAs can be removed with care to allow the tying-in of levels with the existing highway level.

A ground stabilising mesh *('TDP SN20 GeoGrid' or equal and approved)*, shall be rolled out over the existing ground level and evenly covered with a No Fines - Open Graded Aggregate (*in accordance with Highways Agency Specification; Clause 805 (Type 3) or equal and approved*). Prior to installation, all hollows within the existing surface are to be filled and no high points of existing undisturbed / unmade ground shall be skimmed.

The granular fill within the main footpath area shall be incorporated within a 3-dimensional GeoCell (*Terram Geocell 22/20 or equal and approved*) and shall ensure a minimum supportive construction depth of 200 mm to be suitable for frequent vehicle usage. A geo-textile filter membrane is to be laid over the granular fill construction (*Geotextile filter membrane to be TDP 115 Non-woven Geotextile Fabric or equal and approved*).

A permeable surface layer and construction method shall be installed over the prepared sub-base layers. A bedding layer of crushed aggregate *(to BS EN13242; range size; 4 - 14 mm)* is to be laid level and compacted above the Geotextile filter membrane to a depth of 25 mm. A layer of resin-bonded gravel shall then be installed above the bedding layer. Edge restraints shall also be of appropriate 'no-dig' construction, for example using pinned timber edging or railway sleepers.

New hard surface construction within tree RPAs shall be of the minimum practical depth, to minimise harm to existing tree roots.

Protection and Retention of Existing Vegetation

The contractor shall exercise extreme care when performing operations beneath the canopy of existing mature trees and vegetation and within the specified tree root protection areas designated for protection and avoid at all times damage to the roots, trunk and branches of existing trees proposed to be retained.

All excavations, cultivation, and grading beneath the canopy of existing mature trees and within the specified tree root protection areas of the existing trees and vegetation shall be carried out using hand tools, taking care not to damage or disturb any existing tree roots.

Tree Protective Fencing

All trees to be retained on site shall be protected with fencing erected around the area of mature vegetation in accordance with *BS5837: 2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. The fencing shall be installed, protected, and maintained during the main works by the contractor who shall be responsible for protecting any area beneath the canopy of the existing trees and within the specified tree root protection areas.

The installed protective fencing shall be 2.0 metres height 'Heras' Welded Wire Mesh Fencing secured to a scaffolding framework, set into the existing ground, and positioned to the outside edge of the existing tree root protection area. The fencing should be strained, and fixed to fences, walls and knee rails where possible to provide a complete protected area *(Refer to Figure No. 2 and Figure No. 3 below; © British Standards Institute 2012)*. All tree protection to be in accordance with *BS 5837: 2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'* set out as specified within Drawing *LLD1392-ARB-DWG-002_TRPP - Tree Retention and Protection Plan.*

Day-glo ribbons shall be maintained during the main works by the contractor attached to the top of the fencing to ensure that the fencing is clearly visible during the works. The tree protection fencing shall display all-weather notices stating, '*Construction Exclusion Zone - NO ACCESS*'.

All such fencing shall be maintained for the full contract period. All necessary excavations, earthworks, and cultivation beneath the canopy spread of any existing tree; shrub or hedge shall be undertaken by hand. No commencement of construction operations may occur prior to the inspection of the installed tree and ground protection by the Landscape Architect / Arboricultural Consultant. Repositioning of the protective fencing during the course of the contract as the contract works progress shall need prior agreement with the Landscape Architect / Arboricultural Consultant.

Within the protected area the following activities must not take place;

- *No vehicles are to be used in the fenced off areas;*
- *No materials are to be stockpiled or stored;*
- *No chemicals are to be stored;*
- *No excavation or increase in the soil level shall occur;*
- *No fires shall be lit on site.*

At the end of the contract period the contractor shall remove the tree protective fencing from the site. All retained vegetation shall be healthy and thriving at the handover date.

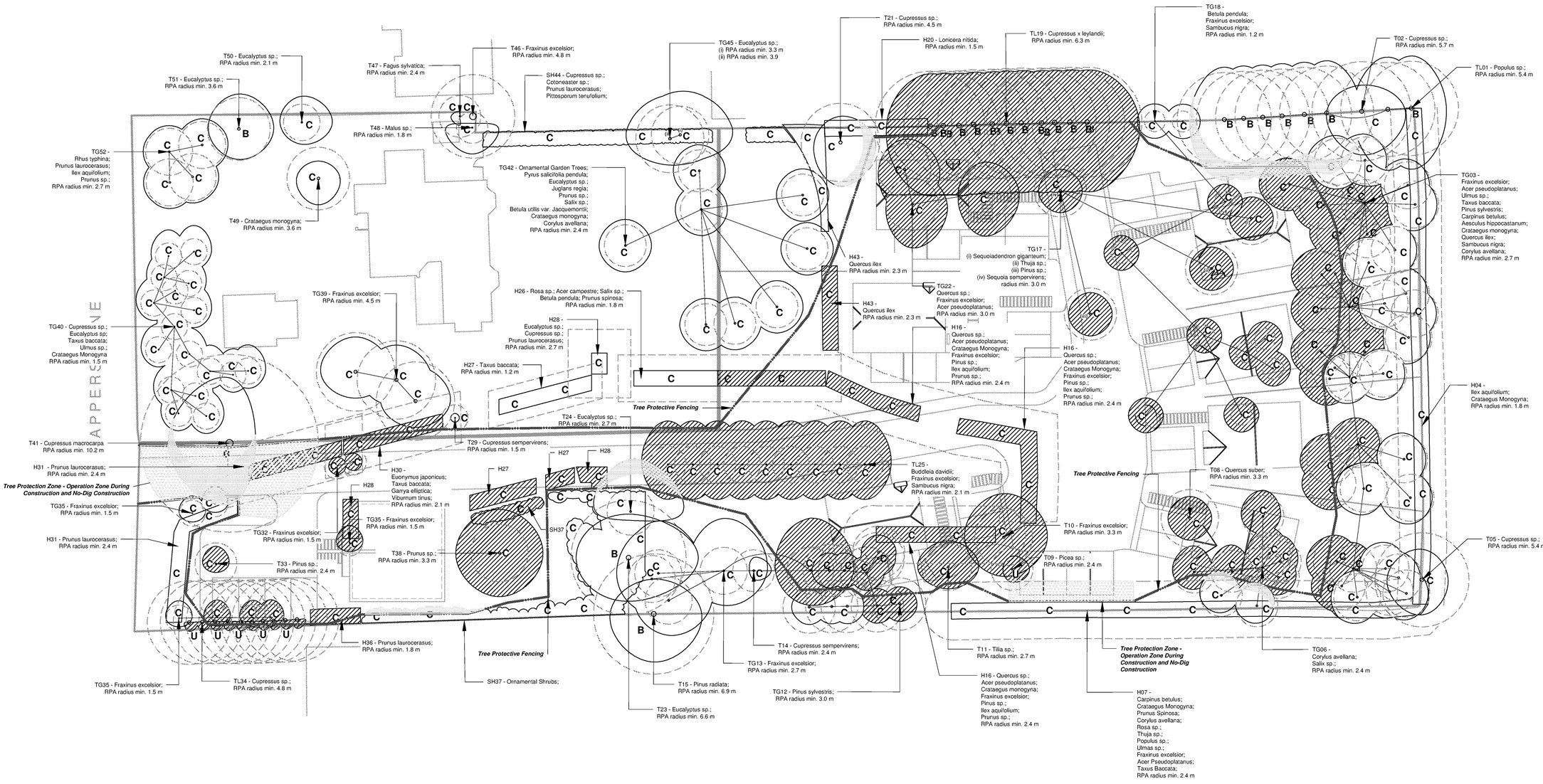
Removal of Existing Vegetation

Trees proposed for removal are detailed within this *Arboricultural Impact Assessment and Method Statement (LLD1392-ARB-REP-001_AIA)*; the *Existing Tree Schedule and Schedule of Tree Works (LLD1392-ARB-SCH-001_ETS)*; and the *Tree Retention and Protection Plan (LLD1392-ARB-DWG-002_TRPP)*. All tree work shall be carried out in accordance with *BS 5837: 2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations' and BS3998: 2010 - 'Tree Work: Recommendations'*. Tree surgery works shall be undertaken prior to the erection of the Tree Protective Fencing. Care should be taken during the tree surgery process to avoid any damage to any trees which are designated to be retained and protected.

The removal of shrub or scrub material within the tree root protection area of any tree to be retained shall employ a manual removal method; the use of hand tools shall be used in order to maintain the ground surface of the tree root protection area and reduce any damage to existing tree roots within the protected tree root zone. Adjacent trees shall not be utilised as anchors or levers to facilitate the removal of adjacent vegetation.

Tree Surgery

Tree surgery measures and works have been identified as necessary within the attached *LLD1392-ARB-SCH-001_ETS - Existing Tree Schedule and Schedule of Tree Works*. Any significant defects found in the trees during the course of the scheduled work shall be reported to the Landscape Architect / Arboricultural Consultant. Any arising tree work shall be undertaken by an approved and qualified Tree Surgeon in accordance with *BS3998: 2010 - 'Tree Work: Recommendations'*. Care should be taken to avoid damage to neighbouring trees to be retained. Branches in confined spaces shall be removed and taken down in sections. All arisings shall be transported and disposed of away from site to the contractor's tip. All tree surgery work is detailed within the attached *LLD1392-ARB-SCH-001_ETS - Existing Tree Schedule and Schedule of Tree Works* report.



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Tree Retention and Protection Plan
The Laurels, Dappers Lane, Angmering

Legend

- **Tree/ Tree Group/ Tree Line/ Hedge Identification Label** (T03 - *Pinus sp.*;)
- **Tree Root Protection Areas** — Tree Root Protection Areas calculated and specified in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction'*.
- **Category A Trees** — Trees of High Quality and Value.
- **Category B Trees** — Trees of Moderate Quality and Value.
- **Category C Trees** — Trees of Low Quality and Value.
- **Category U Trees** — Trees unviable for retention.
- **Category C Shrubs** — Shrubs of Low Quality and Value.
- **Category C Tree Groups** — Tree Groups of Low Quality and Value.
- **Category U Tree Groups** — Trees unviable for retention.
- **Category C Hedges** — Hedges of Low Quality and Value.
- **Proposed Tree Surgery Works**
- **Tree Protective Fencing**
- **Existing Trees to be Removed** — Trees and Shrubs Recommended for Removal from Site Prior to Tree Protection Works / Measures.
- **Tree Protection Zone - Operation Zone During Construction and No-Dig Construction.**

Notes:

1. Drawing to be viewed in colour *(Refer to LLD1392-ARB-SCH-001 - Existing Tree Schedule and LLD1392-ARB-REP-002 - Arboricultural Impact Assessment and Method Statement)*

Planning Issue

Rev	Description	Date	Initials
01	Planning Issue	10.05.18	GS
00	Planning Issue	03.05.18	GS

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Client
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Project Title and Location
The Laurels, Dappers Lane, Angmering

Drawing Title
Tree Retention and Protection Plan

Scale	*Drawn*	*Approved*	*Date*
1:250@A1	LB	GS	03.05.18

Drawing No LLD1392-ARB-DWG-002 *Revision* 01

ARUN DISTRICT COUNCIL A/74/18/OUT