

Arboricultural Method Statement

Angels Nursery
Yapton Road
Barnham
West Sussex

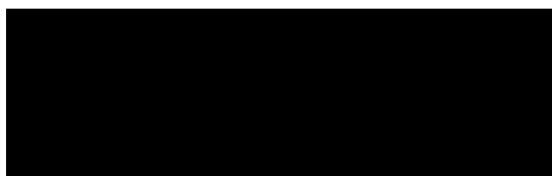
17th June 2016



PJC ref: 4040/16-03

This report has been prepared by
PJC Consultancy Ltd
on behalf of
West Sussex County Council

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1 INTRODUCTION

1.1 In order to safeguard retained trees on site during development works it is necessary to implement a tree protection strategy. The objective of the following arboricultural method statement is to provide protection methodology for retained throughout the proposed development, including the above ground and below ground parts of the trees as well as their rooting medium.

1.2 This method statement is written in conjunction with arboricultural survey ref. PJC/4040/16-01 and arboricultural impact assessment ref. PJC/4040/16-02.

1.3 **Instruction:** PJC Consultancy has been instructed by West Sussex County Council to provide an arboricultural method statement for proposed construction works at Angels Nursery in Barnham.

1.4 **Brief:** PJC Consultancy has been commissioned to provide an arboricultural method statement and Tree Protection Plan in accordance with guidelines set out in BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'. This document is based on the information available on the date of the report. Updates to the method statement and Tree Protection Plan may be required following detailed design stage of development including the routing of services, detailed road and pavement specifications and the formation of a construction management plan.

1.5 **Scope of this report:** This report is concerned with the protection of all retained trees at the site including trees around the curtilage with the potential to be impacted by the construction works.

1.6 **Contents of report:** This report includes the following:

- Arboricultural Method Statement
- Tree Protection Plan.

2 ARBORICULTURAL METHOD STATEMENT

2.1 **General requirements:** The arboricultural method statement and Tree Protection Plan shall remain on site for the duration of demolition, construction and landscaping works and be available to site operatives at all times. All operatives at the site shall be briefed about tree related factors as part of their site induction.

2.2 Any variation from the methodology described in this method statement shall be discussed with the supervising arboriculturalist and agreed with the local authority arboricultural officer.

2.3 **Initial tree works:** The tree removals and access facilitation pruning described in the arboricultural impact assessment shall be carried out as the first stage of development.

2.4 Tree stumps and vegetation located within the root protection areas of retained trees shall be cleared with controlled hand tools (e.g. stump grinder/brush cutter). Plant machinery shall not be used to scrape vegetation within root protection areas or access the site until the tree protection barriers have been installed.

2.5 If bonfires are lit to dispose of arising's from the vegetation or tree clearance works, an assessment of wind direction and strength shall be made to ensure flames cannot extend within 5m of any part of a retained tree. No bonfires shall be lit within a root protection area.

2.6 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural England should be contacted for advice.

2.7 The tree works contractors should carry out all tree works to BS3998: 2010 '*Tree works – recommendations*' as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance.

2.8 It is recommended that an Arboricultural Association approved contractor carry out all tree works. Approved contractors are expected to work to industry best standards. The Arboricultural Association website contains contact details and information on engaging a suitable contractor.

2.9 **Tree protection barriers:** The root protection areas of retained trees must be left free from disturbance, and protected from contamination or compaction during the proposed works. Protection shall comprise a combination of tree protection fencing and temporary ground protection.

2.10 The tree protection fencing shall be installed in the locations shown on the Tree Protection Plan. The specification for fencing is included in Appendix 2. Signs shall be affixed to the fencing as shown in Appendix 3 to explain its purpose.

2.11 Once completed, the surfacing to be constructed within the root protection areas of retained trees (highlighted purple on the Tree Protection Plan), shall provide ground protection for the respective trees. Prior to construction of these surfaces, the purple hatched areas shall be protected by temporary ground protection. To be fit for purpose, the ground protection needs to prevent compaction or rutting of the ground beneath. The final specification for ground protection should be agreed at the pre-commencement meeting with the project arboriculturalist.

2.12 Where ground protection is required for pedestrians or lightweight plant up to 2 tons gross weight, example specifications include:

- A single thickness of scaffold boards on a compressible layer of wood chip or sharp sand (100mm for pedestrians or 150mm for small plant), spread across a geotextile membrane.
- A single thickness of scaffold boards on a driven scaffold frame.

2.13 Where ground protection is required for vehicles, machinery or heavy loads over 2 tons gross weight, example specifications include:

- A cellular confinement system (provided by CellWeb or similar product).
- A proprietary ground protection system (provided by Eve Trakway or similar product).
- Pre-cast reinforced concrete slabs.
- A bespoke ground protection system made to an engineers specification with arboricultural input.

2.14 Both the tree protection fencing and temporary ground protection shall be installed following the initial tree works, prior to the main construction traffic entering the site. They shall remain in place for the duration of construction and hard landscaping works unless otherwise stated in this report or agreed with the project arboriculturalist.

2.15 The areas protected by fencing or ground protection shall be referred to as the construction exclusion zones. The following actions shall be prohibited within the construction exclusion zones:

- Vehicular access unless on suitable ground protection.
- Regular pedestrian access unless on suitable ground protection.
- Storage of construction materials.
- Storage or handling of harmful chemicals.
- Any change in ground level unless under supervision of project arboriculturalist.
- Construction activities including hard surfacing unless otherwise stated in this report.

2.16 **Storage and handling of harmful chemicals:** Provision needs to be made to avoid the storage and handling of harmful chemicals in proximity to trees. Harmful chemicals include fuels, oils, builder's sand (which has a high salt content) and cement. Provision shall also be made to prevent fuelling or the handling of cement from occurring in areas proposed for further planting.

2.17 Cement mixing shall only occur where there is no potential for cement washings to leech into a root protection area. A designated fuelling station for plant machinery shall be selected that is either bunded or has provision to avoid spillages leeching into a construction exclusion zone.

2.18 **Contractor facilities:** A suitable location for site cabins, contractor parking and site facilities for operatives shall be agreed with the project arboriculturalist during a pre-commencement meeting. These facilities should be located outside the root protection areas of retained trees (unless on retained tarmac surfaces). Provision must also be taken to prevent exhaust fumes or hot air from generators or kitchen facilities from damaging the canopies of retained trees.

2.19 **New permanent surfacing within root protection areas:** Where new permanent surfacing is installed within the root protection areas of retained trees (highlighted purple on the Tree Protection Plan), this shall occur above ground level. The surface vegetation including tree stumps may be removed using controlled hand tools. Plant machinery must not be used to scrape the surface vegetation.

2.20 The new surfaces shall be constructed on a cellular confinement system (provided by CellWeb or similar product) filled with reduced fines angular stone. This is to prevent localised compaction of the rooting medium post development. Porous geotextile membranes shall be used both above and below the cellular confinement system to prevent mixing of materials with the binding layer or the soil.

2.21 The type and depth of the cellular confinement system shall be selected by a structural engineer and will depend on soil conditions and type of traffic for which the surface will be used.

2.22 The new surfaces need to be permeable to air and water. This is to allow roots to respire without there being a build up of carbon dioxide, and to ensure the roots continue to receive the moisture and oxygen they require to function.

2.23 Traditional kerbing requires excavation to install and will therefore not be suitable for use within the root protection areas of retained trees. As an alternative, haunched kerbing, treated timber edging, aluminium L-shaped edging, galvanised metal edging or no fixed edging shall be used.

2.24 The finished levels of the no-dig surfaces will be higher than the surrounding un-surfaced ground. To mitigate this, clean-screened topsoil may be banked around the edge of the surfaces. It is recommended that no less than a gradient of 1:3 be used as increasing the ground level within a root protection area can disrupt root function. It is also necessary to avoid banking soil around the buttresses or buttress roots of retained trees.

2.25 If access is required onto the cellular confinement systems before the final top surfaces are installed, a temporary surface (plywood boards or similar) shall be used to prevent soil and other building debris blocking the airspaces in the cellular confinement system, therefore reducing the final porosity of the completed surface.

2.26 Installation of the new surfaces within root protection areas will require access into the construction exclusion zones. During these works, the standard restrictions to works within the construction exclusion zone will apply.

2.27 **Soft landscaping within root protection areas:** New soft landscaping within the root protection areas of retained trees shall occur as the final phase of development. The final specification for soft landscaping is to be confirmed but may include turfing and tree/shrub planting within root protection areas.

2.28 Where new turf is to be laid within the root protection areas of retained trees, topsoil will likely need to be imported. The existing soil may be lightly tilled by hand but use of rotavators will be prohibited. A maximum increase of 100mm of topsoil may be introduced to avoid suffocating root growth. Care must be taken to prevent soil be piled against tree buttresses or buttress roots. When soil or other materials are transported across a root protection area, scaffold board pathways must be used to prevent compaction of the rooting medium. It should be noted that even light pedestrian use could compact the soil, particularly in wet conditions.

2.29 All planting pits within root protection areas shall be individually hand excavated (no trench planting). Care must be taken to avoid severing or damaging roots with a diameter greater than 25mm.

2.30 **Arboricultural supervision:** Arboricultural supervision will be required for the following stages of development:

- A pre-commencement meeting with the contractors to clarify the tree protection methodology, to discuss the phasing of works, to mark out the locations for the tree protection barriers and to agree locations for contractor facilities. The local authority arboricultural officer shall be given reasonable notice of the pre-commencement meeting so they may attend if it is deemed necessary.
- To sign off that the tree protection barriers have been installed in the correct locations and to the agreed specification.
- To review the routing of new services and to provide guidance on best practice for installation where necessary.
- To review the detailed specification for surfacing within root protection areas including proposed levels.
- To ensure installation of new surfacing within root protection areas is compliant with the recommendations in this report and the arboricultural impact assessment.
- To review the detailed specification for the bike and bin stores in the root protection area of group G57.
- To review the detailed specification for the new play area located within the root protection area of tree T64.

2.31 In addition to the above, a system and programme of onsite monitoring by the appointed arboricultural consultant should be agreed with the Local Authority Arboricultural Officer, if it is deemed necessary. The form and frequency of site monitoring shall be agreed at the pre-commencement meeting.

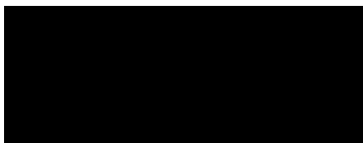
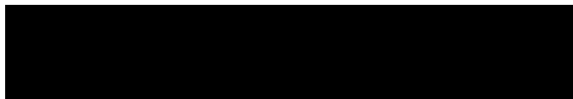
2.32 If significant root growth is disturbed during construction activities that are not within the scope of this report, the work shall cease until the project arboriculturalist has been consulted. Roots greater than 25mm in diameter or dense/matted fibrous roots shall be considered significant root growth. It should be remembered that whilst root protection areas are part of industry best practice, tree root growth is influenced by a number of factors and may not conform to expected ideals.

2.33 If at anytime during the construction process, damage is inadvertently caused to a tree, the project arboriculturalist shall be notified to assess the likely implications and to prescribe potential remedial measures to be implemented. Damage can be in the form of chemical or fuel spillage, mechanical damage to either the above ground parts of the tree or the roots, fire or any other unforeseen circumstance.

2.34 The supervising arboriculturalist shall be appointed by the contractor. It will be necessary for the arboriculturalist to report to the local planning authority on the outcome of the site visits as well as well as any unforeseen tree related issues.

Contact details

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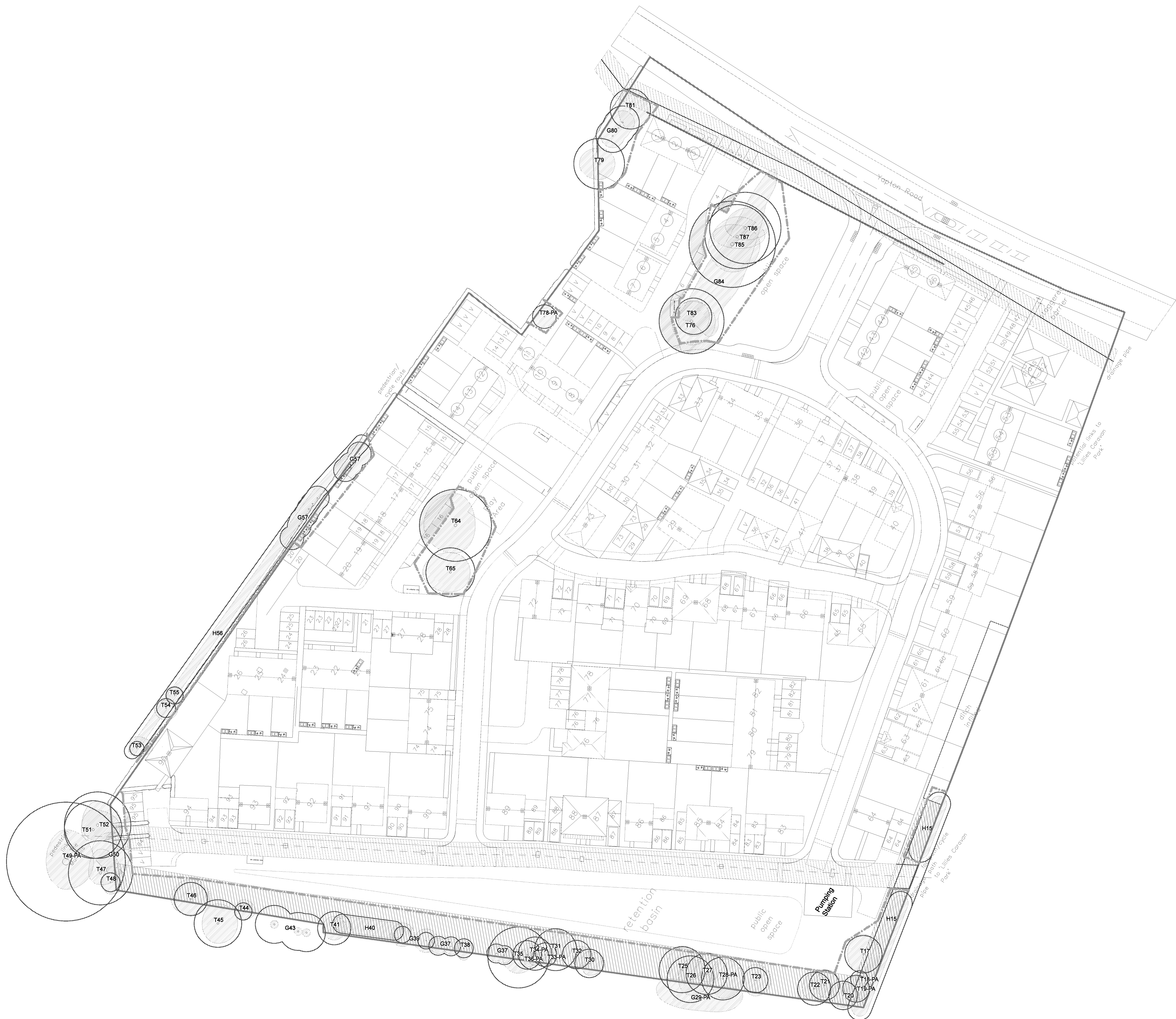


Author: Peter Davies

Date: 17th June 2016

APPENDIX 1

Tree Protection Plan



Key:

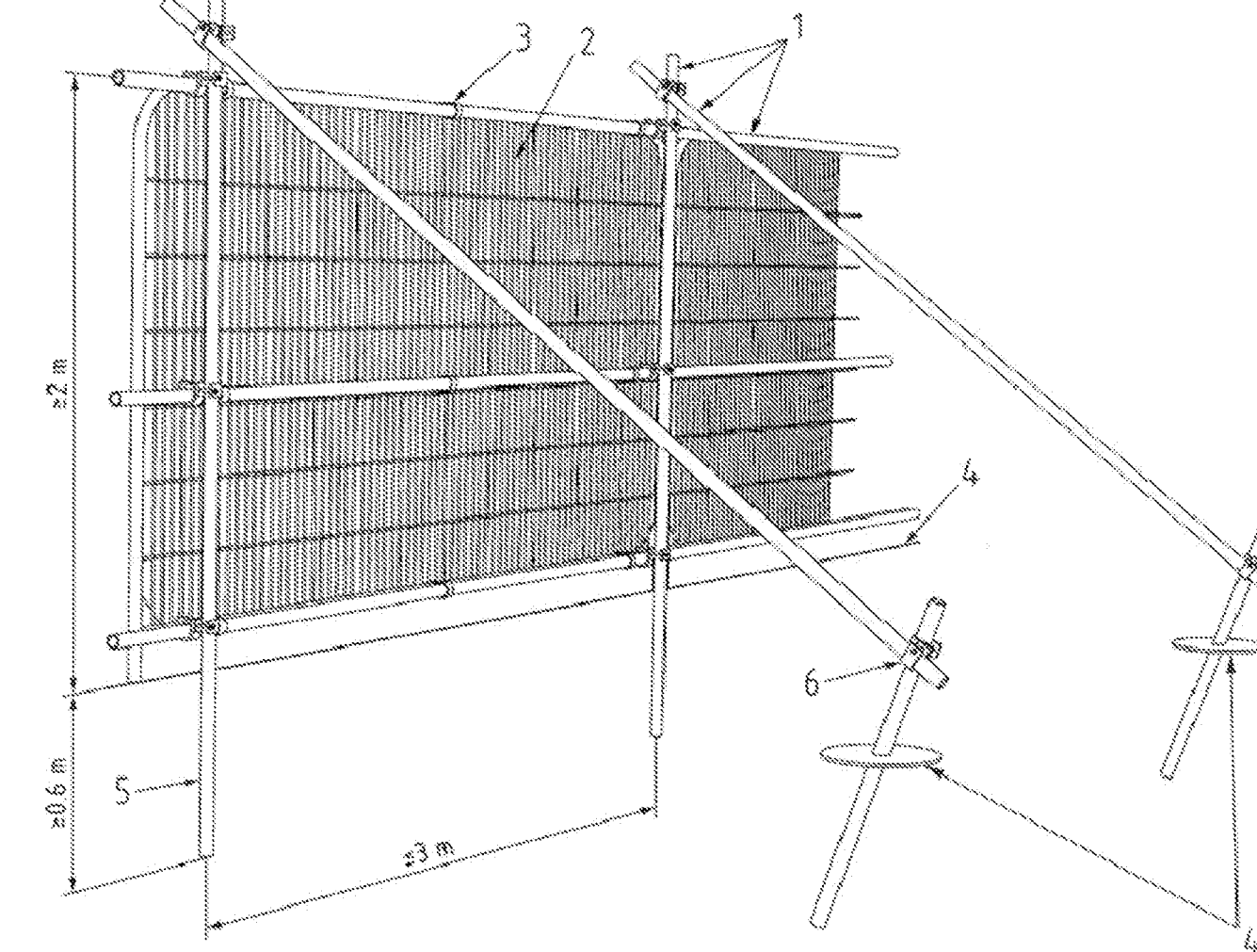
- RPA of retained tree
- Canopy of retained tree
- Tree protection fencing
- New permanent surfacing within RPA of retained tree

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref no. PJC/4040/16-02 contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Specification for tree protection fencing:



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

Example protective fencing information signs:



Drawing no: PJC/4040/16/C Rev: 01 Sheet number: 1 of 1

Client and site:
West Sussex County Council

Angels Nursery
Yapton Road
Barnham

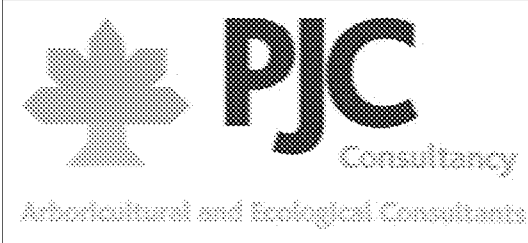
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Date drawn: 07/06/2016

Scale: 1:500 at A1

Drawn by: PD

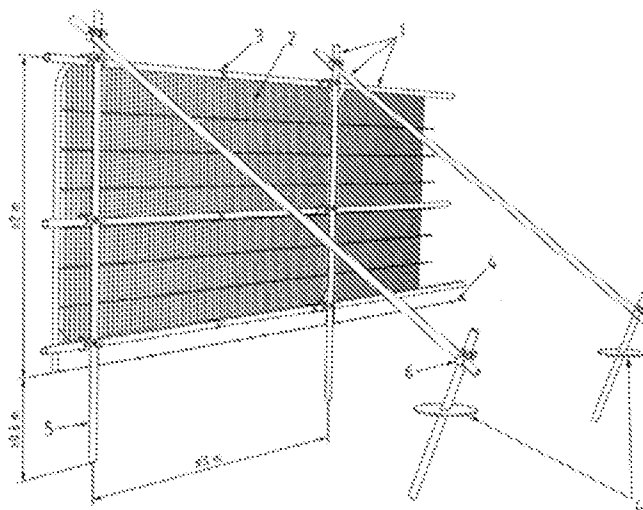
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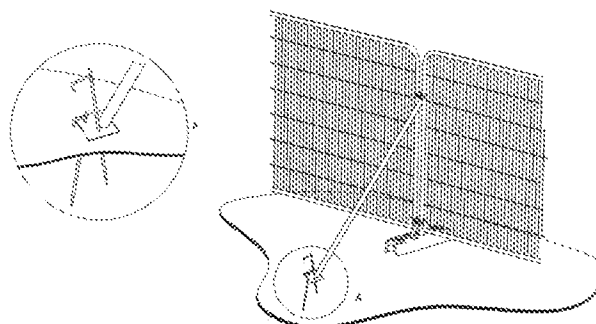
APPENDIX 2

Tree Protection Fencing Specification

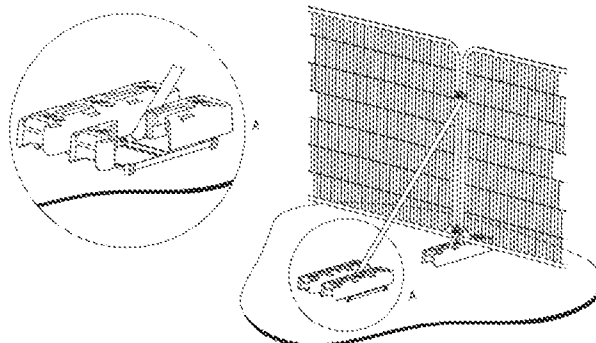


Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 mm tall galvanized iron and welded mesh (2.0 m)
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.5 m)
- 6 Standard scaffold clamps



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

APPENDIX 3

Example Protective Fencing Signs

