Cornfield Close Littlehampton

ARBORICULTURAL IMPACT ASSESSMENT & METHOD STATEMENT

for

Thakeham Client Ltd on behalf of Clarion Housing Association

ACD ENVIRONMENTAL

Ecology
Archaeology
Arboriculture
Landscape Architecture

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Checked By:	
Date:	18/09/2018
Revision:	B: 20.11.2018
Ref:	THA21635aia-amsB

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1. Executive Summary

1.1. The site comprises land to the south of Cornfield Close. The proposed development seeks the demolition of the existing structures, and the erection of 77 residential dwellings, with associated access, car parking, refuse. recycling storage, earthworks and infrastructure.

1.2. This impact assessment is intended to evaluate the direct and indirect effects of the proposed design on the trees on site, and where necessary recommends mitigation.

1.3. The development proposals are in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Adequate protection can be provided to ensure all retained trees are protected throughout development in the form of barriers and/or ground protection.

1.4. All of the A and B category trees are to be retained and protected throughout the development. All the trees included in the Tree Preservation Order are proposed for retention.

1.5. All the trees proposed for removal are in the two lower categories (C & U) and as such it is judged that they are not of a quality that should present any constraint to development of the site. There is ample scope for replacement planting of suitable trees as part of the landscape proposals for the site.

1.6. It will be necessary to provide a footpath at the site entrance that meets adoptable standards. The existing driveway hard surface can be retained and resurfaced to limit impact on T1 & T2. Where the proposed new footpath hard surfaces encroach into the RPA of T2, the makeup will be limited to 250mm profile, to mitigate against disturbance to any tree roots present. The area of encroachment is 7.5% of the RPA of T2, therefore any impact on the tree will be minimal.

1.7. As good arboricultural practice the additional removal of a small number of U category trees is recommended.

1.8. Soil decontamination works are required on site. Where decontamination is required within the root protection areas of retained trees, this will be limited to carefully removing 150mm of topsoil and replacing with clean certified imported topsoil.

1.9. The relationship between the buildings and retained trees is sustainable and does not result in any situations which may result in unreasonable pressure to prune requests from future occupants.

1.10. The Arboricultural Method Statement (AMS) has been compiled in conjunction with the Tree Protection Plan (TPP) for the purpose of feasibility and planning, as per Figure 1 of BS5837:2012. These detail any mitigation which will be necessary to ensure the protection of retained trees throughout the development.

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2. Introduction

2.1. ACD Environmental was instructed in September 2018 to prepare the following Arboricultural Impact Assessment and Method Statement by Thakeham Client Ltd, on behalf of the applicant Clarion Housing Association. Reference should be made to the appended Tree Protection Plan (THA21635-03A).

2.2. This Method Statement is to be made available to all operatives on site during the construction process, so that they understand the scope and importance of the measures set out for tree protection. Implementation of the protection methods and other details within this report are integral to ensuring protection for the retained trees.

2.3. For details of trees to be retained, and locations and types of special protection methods, reference should be made to the latest revision of Tree Protection Plan (ref: THA21635-03A), which should be displayed prominently on site for all staff to see.

2.4. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to. The autocad version of the Tree Protection Plan is available on request.

2.5. This report is based on the recommendations given in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

2.6. A number of tree on the site are protected by Tree Preservation Order by Arun District Council reference TPO/LU/2/18 an excerpt of this is included at appendix 3 of Tree Report THA21635trA. The site is not in a Conservation Area.

2.7. The controlling authority is Arun District Council who can be contacted at: www.arun.gov.uk.

2.8. Any questions relating to the content of this report should be directed in the first instance to: ACD Environmental, Courtyard House, Mill Lane, Godalming, Surrey GU7 1EY, [redacted], quoting the site address and report reference number.

2.9. The following abbreviations have been used throughout this document:

- Root Protection Area – RPA
- Construction Exclusion Zone- CEZ
- Tree Protection Plan – TPP
- Tree Protection Fencing – TPF

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3. Arboricultural Impact Assessment

3.1. The site comprises land to the south of Cornfield Close. The proposed development seeks the demolition of the existing structures, and the erection of 77 residential dwellings, with associated access, car parking, refuse. recycling storage, earthworks and infrastructure.

3.2. This impact assessment is intended to evaluate the direct and indirect impacts on the trees on the site in relation to the proposed development. Any potential tree impacts are identified as per BS5837:2012 section 5.4, and details are given of proposed mitigation.

3.3. Any potentially damaging activities proposed in the vicinity of retained trees are identified, such that mitigation to significantly reduce or avoid this impact can be detailed in the Arboricultural Method Statement and Tree Protection Plan as recommended in BS5837:2012 section 5.4.2.

3.4. The development proposals are in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Adequate protection can be provided to ensure all retained trees are protected throughout the development.

3.5. This assessment is based upon the supplied layout drawing by RHP Architects Job Ref P0516 Drawing Number 045 Revision 01 dated 13.08.2018.

3.6. Evaluation of impact of proposed tree losses

3.6.1. Those trees which are to be removed are shown with a red dashed canopy outline on the Tree Protection Plan ACD reference THA21635-03A.

3.6.2. The following C category trees are proposed for removal: G4 Yew, G5 Yew, G6 Leyland Cypress, G7 Leyland Cypress, G9 Elder, T11 Ash, T44 Norway Maple, T45 Wild Cherry, T46 Sycamore, T47 Hawthorn, T51 Elder, T52 Norway Maple, T53 Monterey Pine.

3.6.3. T9 a U category tree in poor condition is proposed for removal.

3.6.4. The following trees are U category, and in poor condition. It is recommended that these are removed as part of good arboricultural practice. T12, T38, T42, T77, T78.

3.6.5. All the trees proposed for removal are in the two lower categories (C & U) and as such it is judged that they are not of a quality that should present any constraint to development of the site. There is ample scope for replacement planting of suitable trees as part of the landscape proposals for the site.

3.6.6. BS5837:2012 section 5.1.1 states: The constraints imposed by trees, both above and below ground should inform the site layout design, although it is recognised that the competing needs of development mean that trees are only one factor requiring consideration. Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification. However, care

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should be taken to avoid misplaced tree retention; attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal.

3.6.7. It is therefore deemed acceptable to remove the listed trees and, as part of the detailed landscape design for the scheme, include suitable and sustainable replacements as and where appropriate.

3.7. Trees to be pruned

No pruning works are required to implement the development, and tree surgery works are not anticipated (excluding tree removals). Should any become necessary it should comply with BS3998:2010 Tree Work or more recently accepted arboricultural good practice, and be approved by the LPA and project arboriculturist prior to any commencement.

3.8. Protection for retained trees

BS5837:2012 section 6.2.1. states: 'All trees that are being retained on site should be protected by barriers and/or ground protection (see 5.5) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection should be installed (see 6.2.3).' As such, protection for all retained trees is shown on the Tree Protection Plan according to this specification.

3.9. Demolition

To ensure damage does not occur to trees highlighted for retention, tree protection fencing must be erected prior to ANY plant machinery entering site whatsoever. In the vicinity of T2 – T4, it is recommended that the existing buildings and hard surfaces are removed sensitively, as per the method statement below to ensure there is no adverse impact within the RPA areas. No further special demolition procedures need be observed on this site, other than respecting the tree protection fencing.

3.10. New Hard Surfaces within RPAs

3.10.1. It will be necessary to provide a footpath at the site entrance that meets adoptable standards. This means that the use of 'no-dig' type surface cannot be used in this case. Where the proposed new footpath hard surfaces encroach into the RPA of T2, the makeup will be limited to a 250mm deep profile. The area of encroachment is 7.5% of the RPA of T2, therefore any impact on the tree will be minimal.

3.10.2. The existing driveway hard surface can be retained and resurfaced to limit impact on T1 & T2.

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3.11. Construction within RPAs

It is confirmed that there are no buildings proposed for construction within the RPAs of retained trees.

3.12. Shade and future pressure to prune

The site layout has been assessed in terms of shading and future pressure to prune. Given the orientation of the site, and the relationship between the proposed buildings and the retained trees, the juxtaposition is viable for long-term tree retention, and it is considered that shading by trees is unlikely to be a concern to future residents. As a result, it is considered unlikely that there would be any undue pressure to remove trees, or excessively prune from any future occupants.

3.13. Services

3.13.1. It is proposed for services to be installed within the area of existing concrete at the site entrance, adjacent to the new footpath. It is likely that the existing hard surface will have impeded significant root growth in this area, and therefore impact on T1 and T2 is not anticipated. A suitable approach will be agreed with the project arboriculturist prior to this work being undertaken.

3.13.2. It is fundamental to tree protection that infrastructure design within the site is sensitively approached, as trenching close to trees may damage roots and affect tree health and stability. The Tree Protection Plan, showing the constraints posed by retained trees will be passed to the infrastructure engineers to inform their design, ensuring that all services avoid areas of potential conflict. As per BS5837:2012 Figure 1, once further details become available as part of the detailed/technical design for the site, the TPP and AMS will be revised to incorporate these details for services for inclusion in the Tender documentation.

3.14. Levels and Landscaping

Full details of any changes in ground levels on site remain to be finalised. Any alterations to levels close to trees may damage roots and affect tree health and stability. Unless no-dig methodology is proposed for installation of surfaces within RPAs the original levels in these areas must be noted, retained, and integrated into the engineering design of the site. Landscaping operations within the RPAs of retained trees must be carried out in a sensitive manner and be subject to a detailed method statement and arboricultural supervision.

3.15. Boundaries

All plot boundaries will need to be designed, positioned and installed to avoid damage to retained trees. When within RPAs, this will include hand excavation of all post holes, and the lining of any post holes with a non porous membrane to stop leachates from the concrete damaging tree roots.

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3.16. **Soil decontamination**

Soil decontamination works are required on site. Reference is made to the Ground Investigation Report by Geo-Environmental reference 17106 – GAR/AP01/231018 dated 05/11/2018. Where decontamination is required within the root protection areas of retained trees, this will be limited to carefully removing 150mm of topsoil and replacing with clean certified imported topsoil. See method statement section 4.11 below.

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4. Arboricultural Method Statement

TO BE READ IN CONJUNCTION WITH THE APPENDED TREE PROTECTION PLAN REFERENCE: THA21635-03A

4.1. Phasing of operations for tree protection

4.1.1. Implementation of tree protection measures on the site must be carried out in the following order

1) Tree removals
2) Engineer to accurately set out position for tree protection fence to node points taken from tree protection plan
3) Accurate erection of tree protection measures
4) Site accessible to construction/demolition traffic
5) Demolition/site clearance
6) Construction
7) Removal of tree protection fencing
8) Remedial tree surgery

4.1.2. The above phasing must not be changed without approval from the project arboriculturist and agreement with the Council.

4.2. Restrictions within tree protection areas

4.2.1. Inside the exclusion area of the fencing, the following shall apply:

- No mechanical excavation whatsoever
- No excavation by any other means without arboricultural site supervision
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools)
- No storage of plant or materials
- No storage or handling of any chemical including cement washings
- No vehicular access
- No fire lighting

4.2.2. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees
- No fire shall be lit such that flames come within 5m of tree foliage.

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4.3. Avoiding damage to stems and branches

4.3.1. Care shall be taken when planning site operations in proximity of retained trees to ensure that wide or tall loads, or plant with booms, jibs and counterweights, can operate without coming into contact with retained trees. Such contact can result in serious injury to them and might make their safe retention impossible.

4.3.2. Consequently, any transit or traverse of plant in proximity of trees shall be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is at all times maintained. In some circumstances, it may be impossible to achieve this without pruning works known as 'access facilitation pruning'.

4.3.3. Access facilitation pruning shall be kept to the barest minimum necessary to facilitate development and shall be carried out in strict accordance with the guidance below (Tree Surgery). Under no circumstances shall construction personnel undertake any tree pruning operations.

4.4. Tree protection fencing

4.4.1. The Tree Protection Plan (see the latest revision of: THA21635-03A) shows the alignment of Tree Protection Fencing (TPF),which is to be installed prior to any of the following taking place:

- Demolition
- Plant and material delivery
- Soil stripping
- Utility installation
- Construction works
- Landscaping

4.4.2. Stages for installation of TPF:

1) Hand clearance of any vegetation to allow clear working access.
2) Setting out of fencing points
3) Fencing erected
4) Site accessible to demolition/construction traffic

4.4.3. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to.

4.4.4. Once erected, all TPF will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.

4.4.5. The typical TPF construction is suitable for areas of high intensity development, and shall comprise of interlocking weld-mesh panels, well braced to resist impacts by attachment to a scaffold framework that is set firmly into the ground. A detailed specification can be found on the TPP.

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4.4.6. Should any alternative method of barrier construction be proposed, consultation with the project arboriculturist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.

4.4.7. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence.

4.4.8. All weather notices should be erected on the barriers (for example see figure below).



Figure 1: Tree Protection Sign (digital copies available for download at: www.acdenvironmental.co.uk)

4.5. Site storage, parking, welfare facilities

4.5.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop of points, etc.

4.5.2. No details of these provisions are available at the time of writing of this report.

4.5.3. None of the above provisions will be sited within RPAs of retained trees without the input of the project arboriculturist.

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4.6. Tree surgery and removal

4.6.1. Those trees which are to be removed are shown with a red dashed canopy outline on the Tree Protection Plan ACD reference THA21635-03A

4.6.2. If any further surgery works are proposed, it will be submitted to, and approved by the council before being carried out.

4.6.3. All work will be carried out in accordance with BS 3998:2010 Recommendations for Tree Work, industry best practice and in line with any works already agreed with the Council.

4.6.4. The tree surgery contractor is responsible for carrying out any relevant health and safety risk assessment, and insurance, prior to any work being carried out.

4.6.5. The statutory protection afforded by the Wildlife and Countryside Act and Countryside and Rights of Way Act will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.

4.6.6. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either; cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.

4.6.7. All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

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4.7. Soft landscaping within RPA

4.7.1. All landscaping and associated ground preparation within exclusion zones will be carried out sensitively to ensure root damage is mitigated as much as is practicable. At no time is any heavy plant to be used within any protected area. Removal of existing vegetation will be carried out by hand, turf may be removed using a mechanical turf stripper or by hand.

Turfing

4.7.2. Stages for turfing gardens and open spaces:

No plant machinery[1] to be used in the area for whatever reason

1) Remove TPF to allow access to area.
2) Do not reduce any high spots or excavate in any way.
3) Existing poor quality turf may be removed with a turf stripper.
4) Use good quality top-soil to level any low-lying areas and hollows, and provide a fine tilth to lay turf on. This imported soil must not result in a level increase of more than 100mm in any area.
5) Import turves by hand in wheelbarrow
6) Lay turves

Planting

4.7.3. Should the soil be compacted or have a poor structure which may hinder the development of any new planting, soil decompaction techniques may be used upon consultation with the project arboriculturist.

4.7.4. Stages for planting within tree protection areas:

No plant machinery to be used in the area for whatever reason

1) Remove TPF to allow access to area.
2) Remove existing vegetation by hand, turf may be removed using a mechanical turf stripper.
3) Do not reduce any high spots or excavate in any way.
4) Import good quality top-soil by hand (with wheelbarrow) into area.
5) Level to a depth of no more than 100mm with hand tools
6) Dig individual planting pits for each plant by hand (including hedging which must not be trench planted)
7) Any mulch should also be imported and spread by hand.

4.7.5. No works will be carried out within any protected areas if the soil moisture is of a level likely to allow compaction to occur.

[1] Including rotovators

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4.8. Installation of underground services

4.8.1. If for whatever reason installation within RPAs is required the project arboriculturist must be notified prior to any tree protection barrier removal and the following details adhered to.

4.8.2. Stages for installing services within tree protection areas:

No plant machinery to be used in the area for whatever reason

1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
2) Remove any surface vegetation or existing hard surfaces using hand breaker.
3) Excavate the trench according to approach to be agreed with project arboriculturist, keeping to minimum dimensions required.
4) Roots over 25mm diameter will be retained and kept damp by covering with hessian (re-wetted as required).
5) Roots below 25mm should preferably be retained, however if required can be cut cleanly using secateurs or hand saw.
6) Feed in services.
7) Back fill trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported top-soil (to BS3882:2015), firming down with heels
8) Repeat step 7 until trench is filled.
9) Re-erect tree protection fencing as per approved plan.

4.8.3. Reference can be made to National Joint Utilities Group publication Volume 4 (NJUG Vol4) for guidance, but any approach must be approved by the project arboriculturist and brought to the attention of the local authority tree officer.

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4.9. Demolition close to trees

4.9.1. All TPF to be installed as per approved Tree Protection Plan prior to any plant arriving on site.

4.9.2. Sensitive demolition will occur under supervision from the project arboriculturist

4.9.3. Stages for demolition within tree protection areas:

No plant machinery to be sited on any exposed rooting area

1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
2) Dismantle any fencing to allow work to proceed
3) Buildings to be folded in on themselves
4) Removal debris by hand or with plant machinery not located on any exposed rooting area.
5) Floor to be broken up with had held breaker and pieces removed by hand. Slab floor can be lifted carefully by machinery if appropriate
6) Underlying ground levels to be retained. No excavation to occur
7) Any exposed roots and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported top-soil (to BS3882:1984). Soil may be placed in area by plant but must be spread by hand.
8) Tree protection fencing to be erected in final position as shown on plan

4.9.4. No reduction in levels of the underlying soil surface will occur.

4.9.5. At no point are any heavy machinery permitted within the RPA.

4.9.6. Contamination of the soil by fuel and lubricant leaks must be avoided at all cost. If such a situation arises the project arboriculturist must be notified to assess the situation and prescribe remedial measures.

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4.10. **Resurfacing of existing driveway**

4.10.1. Tree protection measures will remain in place until work commences and when removed all personnel to be working within the area are to be made aware of the extent and nature of the area.

4.10.2. All work within protected areas to be supervised at all times by project arboriculturist.

4.10.3. Stages for repair/replacement of existing hard surface within tree protection areas:

No plant machinery to be sited on any exposed rooting area

1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
2) Remove TPF to allow access to area.
3) Plant machinery to run only on existing tarmac surface
4) Plant may be used to carefully peal up existing tarmac
5) Other hard landscape features are to be removed by hand (paving etc.) or carefully lifted with plant
6) Sub-base to be retained.
7) Sub-base to be enhanced if required
8) New tarmac surface to be installed

4.10.4. Should any roots over 25mm diameter be encountered during deconstruction of the old profile, their removal will only be carried out under arboricultural supervision and with the approval of the LPA.

4.10.5. Any new kerbing must be installed within the current hard construction profile.

4.10.6. No new excavation closer to the tree will be permitted.

4.11. **Decontamination of soil within RPAs**

4.11.1. Tree protection measures will remain in place until work commences and when removed all personnel to be working within the area are to be made aware of the extent and nature of the area.

4.11.2. All work within protected areas to be supervised at all times by project arboriculturist.

4.11.3. Within the area protected by tree protection fence, unnecessary excavation below the specified depth of 150mm must be avoided.

4.11.4. Compaction of the existing and exposed ground must be avoided, therefore plant machinery (which cause rutting and disturb the soil when tracking) must not be used in the area protected by tree protection fence. However it may be possible to use an excavator sited outside the area reaching in.

4.11.5. Stages for repair/replacement of existing hard surface within tree protection areas:

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No plant machinery to be sited within root protection area

1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
2) Remove TPF to allow access to area.
3) Remove existing grass/topsoil to a depth of 150mm using hand tools.
4) An excavator may be used with a no tines ditching bucket on approval of project arboriculturist.
5) Roots below 25mm should preferably be retained, and moved to one side to allow soil to be removed, however if required can be cut cleanly using secateurs or hand saw.
6) Roots over 25mm diameter will be retained and kept damp by covering with hessian (re-wetted as required).
7) Back fill with 150 depth of clean certified imported topsoil (to BS3882:2015)

4.12. **Footpath construction within RPA of T2**

4.12.1. Stages for installing footpath within tree protection areas:

No plant machinery to be used in the area for whatever reason

1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
2) Remove any surface vegetation or existing hard surface
3) Excavate to form sub base at a depth no greater than 250mm below existing hard surface, keeping to minimum width dimensions required.
4) Roots within the 250mm profile to be cut cleanly using secateurs or hand saw.
5) Install a non-woven Geotextile (such as Fibretex F4M) directly over soil grade level (levelled where necessary, by non-compacted washed sand) and fix in place.
6) Back fill trench with 250mm depth of type one and compact.
7) Install wearing course.

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4.13. **Installation of boundary fencing within protected areas**

4.13.1. Stages for installing wooden fence posts:

No plant machinery to be used in the area for whatever reason

1) Remove TPF to allow access to area.
2) Dig post holes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
3) Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole should be relocated. If there are a large number of such roots it may be necessary to relocate the hole by half a fence panels length and adjust the fence panels accordingly.
4) Line hole with non porous lining, for example durable polythene bag.
5) Insert post and fill post hole with concrete to ground level.
6) Trim polythene to ground level

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18 September 2018
Revised 20.11.2018

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ARBORICULTURAL SITE MONITORING AND SUPERVISION * ARCHAEOLOGY
LANDSCAPE & VISUAL IMPACT ASSESSMENT * LANDSCAPE AUDIT * PROJECT MANAGEMENT
EXPERT WITNESS* LANDSCAPE DESIGN & PLANNING LANDSCAPE MANAGEMENT

ARUN DISTRICT COUNCIL LU/373/19/DOC