

LAND AT
BERROW GREEN
ROAD
MARTLEY

ARBORICULTURAL
IMPACT
ASSESSMENT &
METHOD
STATEMENT

for

HAYFIELD HOMES
CONSTRUCTION LTD



Written By:	W. Wareing
Checked By:	A. Bigg
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1. Introduction

- 1.1. ACD Environmental was instructed in July 2023 to prepare the following Arboricultural Impact Assessment and Method Statement by Hayfield Homes Construction Ltd. Reference should be made to the appended Tree Protection Plan (HAY24322-03).
- 1.2. 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.
- 1.3. 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: HAY24322-03), which should be displayed prominently on site for all staff to see.
- 1.4. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor/engineer 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.
- 1.5. This report is based on the recommendations given in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- 1.6. The controlling authority is Malvern Hills District Council, who can be contacted at: Council House, Avenue Road, Malvern, Worcestershire, WR14 3AF, Tel: 01684 862221.
- 1.7. According to a search of Malvern Hills District Council's online mapping on 20th July 2023 there are no TPOs in force at the site and it is not within a Conservation Area.
- 1.8. Any questions relating to the content of this report should be directed in the first instance to: ACD Environmental, Unit 7, Godalming Business Centre, Woolsack Way, Godalming, GU7 1XW, 01483 425714, quoting the site address and report reference number.
- 1.9. 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.

2. Arboricultural Impact Assessment

- 2.1. The site is currently an open field surrounded by multiple footpaths. The proposed development is a housing estate with associated road infrastructure.
- 2.2. 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.
- 2.3. 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.
- 2.4. 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.
- 2.5. The tree survey for the site is at Appendix 2 of the Tree Report for the site ACD reference HAY24322ts.
- 2.6. This assessment is based upon the supplied layout drawing by ref: P22-1974_DE_001_B_02 Indicative Masterplan
- 2.7. **Evaluation of impact of proposed tree losses**
- 2.7.1. No individually recorded trees or entire groups are to be removed as a result of the proposed development.
- 2.7.2. Any section of group/hedge which are to be removed are shown with a red dashed canopy outline, and a dashed emblem around the trunk on the Tree Protection Plan ACD reference HAY24322-03.
- 2.8. **Trees to be pruned.**
- 2.8.1. At this time the following tree surgery works are proposed. These works fall well within the level of good arboricultural practice:

Tree number	Species	Operation
G3	Hawthorn, Damson	Remove southern section as shown on the tree protection plan, and grind resulting stumps to facilitate new footpath.
H10	Leyland Cypress	Trim back section to facilitate construction.
H17	Hawthorn, Ash	Remove section as shown on the tree protection plan, and grind resulting stumps.

2.9. Protection for retained trees.

- 2.9.1. 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. A specification for protective fencing is given on the Tree Protection Plan. This consists of Heras type panels on 'boots', well braced by attachment to scaffold pole uprights

driven firmly into the ground. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence. All weather notices may be erected on the barriers. Should any alternative method of barrier construction be proposed the design should be approved by the local planning authority.'

2.10. **Demolition & Groundworks**

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. No special demolition procedures need be observed on this site, other than respecting the tree protection fencing.

2.11. **New Hard Surfaces within RPAs**

- 2.11.1. In order to minimise impact on the trees where the proposed resurfaced public right of way encroaches into the RPAs of trees T5 & T6, sensitive surface construction will be required in the form of a no-dig surface. It is anticipated that using no dig surface means that installation of permanent hard surface in this area is unlikely to cause significant adverse impact on the trees to be retained.
- 2.11.2. As per the recommendation of BS5837:2012 section 7.4.2.3, the new permanent hard surfacing does not exceed 20% of any existing unsurfaced ground within the RPA.
- 2.11.3. The use of a three-dimensional cellular confinement system, such as 'Cellweb' is an acceptable approach, which aims to fulfil the above design criteria. This system maintains the passage of oxygen and water to root systems; avoids root loss through severance or asphyxiation and minimises the potential for soil compaction. It is achieved by laying a Geotextile membrane directly onto unchanged soil levels, with a three-dimensional cellular confinement system ('Cellweb') laid on top filled with no fines granular fill, with a porous finishing surface. See specification on Tree Protection Plan (HAY24322-03).
- 2.11.4. Retained trees must first be protected during all stages of the development including demolition, by the erection of fencing as specified on the Tree Protection Plan (TPP). Installing the surface may require the re-positioning of the tree protection fencing to a secondary location in line with and associated method statement.
- 2.11.5. The area must be protected during all stages of the development including demolition, by ensuring the surface is installed, with a sacrificial tarmac surface (or trackway) if required, prior to any construction or demolition traffic entering the site.

2.11.6. The Arboricultural Method Statement describes installation of a typical no-dig surface. This follows the recommendations set out in Section 7.4 of British Standard 5837:2012. The author of this report is not an engineer and therefore detailed engineering design, and analysis must be carried out by a suitably qualified engineer. However, any design must be approved for use by the project arboriculturist.

2.12. **Construction within RPAs**

2.12.1. At the time of writing this report, the footprint of a proposed building exists within the RPAs of T12 & T13. As these are offsite and not within the site boundary, and as the locations are currently illustrative, it has been requested to be picked up on the parameters plan.

2.13. **Shade and future pressure to prune**

2.13.1. 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.

2.14. **Services**

2.14.1. It is fundamental to tree protection that infrastructure design is sensitively approached, as trenching close to trees may damage roots and affect tree health and stability. Details of services have not been provided at the time of writing. 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.

2.15. **Boundaries**

2.15.1. 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.

3. Arboricultural Method Statement

TO BE READ IN CONJUNCTION WITH THE APPENDED TREE PROTECTION PLAN REFERENCE: HAY24322-03

3.1. Phasing of operations for tree protection

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

- 1) Tree removals and tree surgery.
- 2) Line of tree protection fence to be set out to node points by surveyor.
- 3) Accurate erection of tree protection fence and ground protection.
- 4) **Pre-commencement site meeting with project arboriculturist, Local Authority Tree Officer, site manager and groundworkers.**
- 5) Site accessible to construction/demolition traffic.
- 6) Demolition/site clearance.
- 7) Construction.
- 8) Removal of tree protection fencing.
- 9) Remedial tree surgery (if required).

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

3.2. Site supervision

3.2.1. The development process will be subject to arboricultural supervision where construction work inside the construction exclusion zone is required, and for the installation of any special detail (e.g., no-dig surface). Therefore, input and supervision from the project arboriculturist will be required at the following stages:

- 1) Accurate erection of tree protection measures.
- 2) Site meeting with project arboriculturist, Local Authority Tree Officer, site manager and groundworkers.
- 3) Site accessible to construction/demolition traffic.
- 4) Demolition/site clearance.
- 5) Construction phase.
- 6) No-dig installation.

3.2.2. Arboricultural supervision is to be carried out at all crucial stages throughout the development process to ensure detailed tasks are carried out as per the approved methodology, and during any other, unplanned incursions into protection areas, for whatever reason.

3.2.3. This supervision will require the arboriculturist to be present throughout the task, to ensure all the arboricultural objectives are met.

3.2.4. If the task is to take a long period of time, provided the arboriculturist is satisfied, and after an initial 'tool-box talk', the supervision may be reduced to telephone contact between the site foreman/contractor and arboriculturist.

3.3. Restrictions within tree protection areas

3.3.1. 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.

3.3.2. 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.

3.4. Avoiding damage to stems and branches.

3.4.1. 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.

3.4.2. 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'.

3.4.3. 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.

3.5. Tree protection fencing

- 3.5.1. The Tree Protection Plan (see the latest revision of: HAY24322-03) 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.
- 3.5.2. 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.
- 3.5.3. 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.
- 3.5.4. 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.
- 3.5.5. 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.
- 3.5.6. 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.
- 3.5.7. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence.
- 3.5.8. 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)

3.6. Site storage, parking, welfare facilities

- 3.6.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop of points, etc.
- 3.6.2. No details of these provisions are available at the time of writing of this report.
- 3.6.3. None of the above provisions will be sited within RPAs of retained trees without the input or the project arboriculturist and the consent of the Local Authority.

3.7. Tree surgery and removal

3.7.1. The sections of groups/hedges which are to be removed are shown with a red dashed canopy outline, and a dashed emblem around the trunk on the Tree Protection Plan ACD reference HAY24322-03.

3.7.2. The following surgery works are to be carried out:

Group number	Species	Operation
G3	Hawthorn, Damson	Remove southern section as shown on the tree protection plan, and grind resulting stumps to facilitate new footpath.
H10	Leyland Cypress	Trim back section to facilitate construction.
H17	Hawthorn, Ash	Remove section as shown on the tree protection plan, and grind resulting stumps.

3.7.3. If any further tree surgery works are required, a proposed specification will be submitted to, and approved by the Local Planning Authority before any works are carried out.

3.7.4. 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.

3.7.5. 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.

3.7.6. 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.

3.7.7. 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.

3.7.8. 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.

3.8. **Soft landscaping within RPA**

3.8.1. 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.

3.9. **Turfing**

3.9.1. Stages for turfing gardens and open spaces:

No plant machinery¹ 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 topsoil 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.

3.10. **Planting**

3.10.1. 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.

3.10.2. 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 topsoil 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.

3.10.3. 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

3.11. No-dig footpath construction.

3.11.1. To ensure that tree roots, within the ground under this proposed surface, continue to survive during and after construction a cellular system such a CellWeb (Geosynthetics Ltd, 01455 617139, www.geosyn.co.uk) of 75mm depth is to be used².

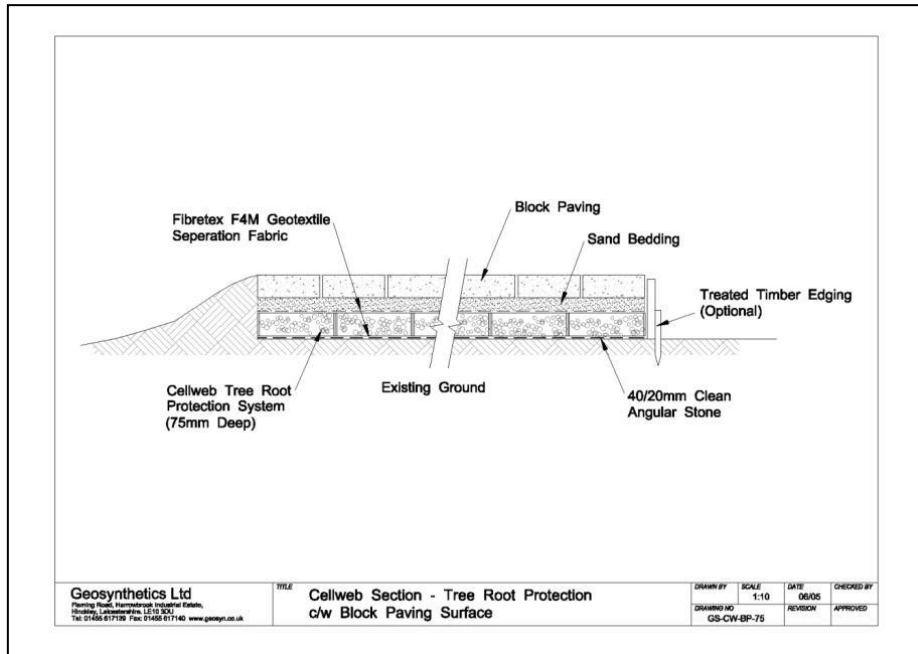


Figure 2 Cellular system profile

²This approach describes installation of a typical no-dig surface. The author of this report is not an engineer and therefore detailed engineering design, and analysis must be carried out before installation.

3.11.2. Stages for Installation of the cellular confinement surface:

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Dismantle TPF to allow access to work area.
- 3) Remove existing vegetation by using a specific herbicide (as advised by a specialist) or manual removal with hand tools only. Agreed removal of shrubs, saplings or trees, within the protected areas of retained trees are to be cut or ground out to just below ground level rather than grubbed or winched out, which can damage roots of retained trees.
- 4) Retain all original ground levels after vegetation removal. No excavation whatsoever.
- 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) Lay the cellular system over the Geotextile, which is secured open under tension during the infill process with steel staples or wooden pegs.
- 7) Install kerbs and edgings directly on top of existing soil grade level. For light structures, a treated peg and board may be acceptable. For more substantial structures, railway sleepers, haunched concrete with road pins, drilled kerbstones, gabions or cast in situ kerbs will be appropriate.
- 8) Fill the cellular system ensuring any plant machinery stands only on already filled areas. Typical infill consists of no-fines angular granular material 20-40mm, which will remain un-compacted.
- 9) Install porous wearing surface.

3.12. Remediation for planting areas

- 3.12.1. Planting areas to be clearly defined prior to remedial works.
- 3.12.2. Area to be assessed for compaction and other damage.
- 3.12.3. Trial pit to be excavated to assess current soil quality.
- 3.12.4. If current soil quality is acceptable but compacted, then decompaction methods are to be employed. For example, rotovating to a depth equal to planting depth or tilling of soil with air excavation tool.
- 3.12.5. With poor quality soil in planting area, whole scale replacement of planting area soil is to be implemented. Provide as necessary to make up any removed topsoil and to complete the work. Soil grade should be Premium as advised by BS3882 and compacted under foot.

3.13. Soil remediation measures for compaction within RPAs

- 3.13.1. Stages for soil remediation for compaction within RPA. The following works must be undertaken by a suitably qualified and experienced soil remediation contractor:
 - 1) Soil test to be undertaken to identify soil texture, nutrient content and pH. Based on the results, appropriate remediation measures to be undertaken.
 - 2) Compaction test to be undertaken to identify soil compaction level.
 - 3) Appropriate soil decompaction measures using a Terravent to reduce any compaction that may have occurred. To be used in a 1m matrix over the entire area previously covered by the fill.
 - 4) Add layer of well composted mulch to a depth of 100-200mm over the RPA area.
- 3.13.2. 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.
- 3.13.3. No plant machinery to be used in the area for whatever reason.

3.14. Installation of boundary fencing within protected areas

3.14.1. Stages for installing wooden fence posts:

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 TPF to allow access to area.
- 3) 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.
- 4) 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.
- 5) Line hole with non-porous lining, for example durable polythene bag.
- 6) Insert post and fill post hole with concrete to ground level.
- 7) Trim polythene to ground level.

Will Wareing *ND Arb*
Arboriculturist

13 November 2023

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Appendix 1: Tree Protection Plan
(HAY24322-03)



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