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ARBORICULTURAL

Arboricultural Implications Assessment and Method Statement for Land at Long Copse Lane, Emsworth

Arboricultural Implications Assessment and Method Statement

Land at Long Copse Lane, Emsworth

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1 INTRODUCTION

1.1 **Instruction:** I am instructed by the Horne and Barry families to report on trees that could be affected by a development proposal for land at Long Copse Lane, Emsworth and prepare an Arboricultural Implications Assessment (AIA) and preliminary Arboricultural Method Statement (AMS) to support a planning application on the site.

1.2 **Document disclosure:** Initially, I was provided with a topographical survey (drawing reference 'Long Copse Lane, Emsworth'). This showed the positions of the significant trees on or near the site, together with the existing buildings and other important features. Subsequently, I was supplied with a copy of the proposed layout, (drawing reference '1882-01j Site Layout (A2 250)[3]') showing a new site configuration. I was also provided with a copy of the proposed drainage plan for the site (drawing reference 'ACC20053-11-B').

1.3 **Scope of report:** All my tree observations are of a preliminary nature, with the tree survey carried out from ground level without any investigations using invasive or diagnostic equipment. I have not checked the accuracy of the positions of the trees shown on the provided plans and I have estimated all dimensions unless otherwise indicated.

1.4 **The Tree Protection Plan**: This is included in Appendix 1 and is a composite drawing derived from the information provided. It shows the existing landscape features (from the land survey) in grey superimposed over the proposed layout shown in black. This allows the relationship between the two to be clearly seen and an appropriate analysis of the implications of the proposed site changes to be undertaken. The Tree Protection Plan has also been annotated to show protection measures for the trees that could realistically be affected by the proposed development. It shows any activities in Root Protection Areas (RPAs) and if trees are to be removed, they are shown with a red dashed crown outline.

1.5 **Qualifications and experience:** This report is based on my site observations and I have come to my conclusions in the context of my experience as a former local government tree officer and a private practice arboricultural consultant. I have qualifications in both arboriculture and forestry and details of these, together with a career summary are provided in Appendix 8.

1.6 **Statutory tree protection:** At the time of writing, I have made no checks to ascertain whether any of the trees discussed are covered by tree preservation orders, or if the site is located in a conservation area. Therefore, any person intending to carry out any operations involving trees should consult the council before any such works are undertaken.

1.7 **Relevant background information:** This report is an updated version of an earlier document (**eco**urban reference '201273A - AIA') which has been revised following changes to the proposed site layout and a new planning application.

2 SITE VISIT, DESCRIPTIONS, OBSERVATIONS AND SURVEY METHODOLOGY

2.1 **Site visit and description:** I visited the site on 16 June 2020 to gather my tree data. The site is located in Long Copse Lane, which is situated in the village of Emsworth. It is positioned on the southern side of the road and consists of a rectangular shaped piece of unused land which is currently under grass. There are a number of oak trees located on or close to the site boundaries and there is residential development further to the north, south and west, with public open space to the east.

2.2 **Description of proposed development:** This development proposal is to construct nine new dwellings on the site.

2.3 **Soil assessment:** British Standard (BS) 5837: 2012 Trees in relation to design, demolition and construction – Recommendations advocates that a soil assessment should be carried out to inform decisions relating to Root Protection Areas (RPAs), tree protection, new planting and foundation design. I have consulted the British Geological Survey (BGS) website and their Geology of Britain viewer and this advises that the bedrock geology for the site is London Clay Formation - Clay, Silt and Sand. I did not undertake any excavations on site to confirm this and a full geotechnical site investigation may need to be undertaken to provide a more in-depth level of information regarding soil type for the site.

2.4 **Tree survey methodology:** My inspection of the trees was visual and did not involve any climbing or exploratory investigations. During my visit, I identified individual trees and obvious groups/hedges where this was appropriate and I assigned an identification number to each, as shown on the plan in Appendix 1. I then collected the tree data included in Appendix 2 and placed the vegetation in one of four categories (U, A, B or C), as set out in British Standard (BS) 5837: 2012. I have included the BS categorisations in Appendix 7 for easy reference. Where of relevance, I also estimated the crown spreads for each tree/group at the appropriate cardinal compass points and this information is also shown in the tree schedule in Appendix 2. Although this document is not a full and detailed report on tree health and safety, any significant visible structural defects or physiological conditions identified, together with preliminary tree works, are also noted in the appropriate columns in the tree schedule. However, this report is not a tree condition survey and a full post development tree inspection is recommended to establish that the trees retained pose acceptable levels of risk once the development has been completed.

2.5 **Tree survey restrictions:** Many of the trees were located in areas of dense understorey planting, with some tree trunks also covered in dense ivy. This, together with their close proximity to one another meant that clear line of sight was not always achievable. These restrictions placed some limits on the capacity to assess tree condition and also on the use of laser measuring equipment, where clear line of sight is also required. I have therefore relied on an assessment of tree quality based on what was visible from vantage points around the site and provided estimates of tree attributes in such situations

2.6 **Data interpretation:** The Root Protection Area (RPA) calculations are included in Appendix 2. As set out in paragraphs 4.6.2 and 4.6.3 of the BS, the RPAs may have been adjusted as a matter of arboricultural judgement to indicate the estimated likely position of important tree roots. These modified (or unmodified) RPAs dictate the location of the tree protection barriers and also determine the position of any ground protection measures. Tree protection details are shown on the plan included in Appendix 1. Where there is a need for incursions into RPAs, an assessment of the implications of these activities is set out in Section 3 (Arboricultural Implications Assessment) of this report. Where appropriate, details of suitable work methodologies to mitigate any impact are set out in Section 5 (Arboricultural Method Statement).

2.7 **Council discussions:** Prior to the planning application being lodged with the council, I had an email exchange with the council's tree officer (Ms Stewart) where we discussed the options for installing a surface water pipe within the RPA of a tree (T7) in the south eastern corner of the site. Ms Stewart suggested that the council would not look negatively on the pipe installation within the RPA, provided the work was undertaken using hand operated tools/compressed air excavation under arboricultural supervision. This report has therefore been prepared in accordance with those discussions and appropriate details are set out in sections 3.3.1, 5.1.3 and 5.2.3 of this document.

3 ARBORICULTURAL IMPLICATIONS ASSESSMENT

3.1 **Introduction to the implications of the development proposal on trees:** BS 5837: 2012 sets out in some detail how trees on development sites should be managed. It is usually accepted amongst arboriculturists that Category A (high quality) and Category B (moderate quality) trees are potential constraints on any development proposal, whereas vegetation belonging to Category C (low quality) is considered to be generally less important. Category U trees/hedges are in such poor condition that they are considered unsuitable for retention. This is because they cannot realistically be retained as living entities in respect of the current land use for longer than 10 years. Therefore, these can be effectively discounted in the context of a planning application. On this site a total of TWENTY ONE individual trees, groups and hedges were recorded during the tree survey and were assigned to the BS 5837 (2012) categories, as set out in Table 1 below:

Category A and B trees	Category C trees	Category U trees
A total of FIFTEEN trees (T1, T2, T4, T5, T6, T7, T10, T11, T12, T13, T15, T16, T18, T19 and T20) were rated Category B	A total of FOUR trees, groups and hedges (G8, T9, H17 and H21) were rated Category C	A total of TWO trees (T3 and T14) were rated Category U

Table 1: Tree numbers and BS categories

I have focussed on the implications of the development proposal mainly on the important trees on or near the site (Category B) in terms of tree loss/retention and by the extent of any incursions into and/or disturbance within Root Protection Areas (RPAs). I have also considered the implications on the Category C vegetation present. Of the total of twenty one trees, groups and hedges surveyed, only a small section of one hedge is scheduled to be removed to facilitate this development proposal. However, seven trees will have activities arising from the development occurring within their RPAs. I have summarised the development related implications on trees in Table 2 below and set out my views on these issues in more detail in the following paragraphs.

Trees to be removed for development		Activities in RPAs arising from the development proposal	
Category A and B	Category C	Category A and B	Category C
n/a	H21 (partial removal)	T1, T2 and T16 (ground protection) T7 (drainage) T18, T19 and T20 (new surfacing)	n/a

Table 2: Trees lost and activities in RPAs arising from the development proposal

3.2 **Direct implications of the development proposal - Tree retention and tree loss**

3.2.1 **BS Category B trees to be retained (trees of moderate quality):** All the Category B trees surveyed will be retained and protected in accordance with the guidance set out in BS 5837 (2012). Consequently, no high or moderate category trees will need to be removed to facilitate this development proposal.

3.2.2 **BS Category C hedge to be removed (low quality):** Part of hedge H21 is indicated for removal to allow the new access to be formed, with the remainder of the Category C vegetation retained and protected (as shown on the plan in Appendix 1). The approximate extent of the hedge removal is also shown on this drawing. In my view, the section to be removed is short in length and so I feel this is likely to have limited implications in the locality.

3.3 **Additional implications arising from the development proposal**

3.3.1 **BS Category B trees and activities in RPAs:** Seven trees will have activities arising from the development occurring within their RPAs. My comments on these issues are as follows:

- **Ground protection:** The protective barriers around trees T1, T2 and T16 will need to be set back to allow sufficient room for the positioning of scaffolding and to provide suitable space for the movement of materials and personnel around the new buildings during their construction. The protective barrier positions around the trees are shown on the plan in Appendix 1. The extent of the RPAs that are outside of the barriers will be covered

in ground protection and this will be installed after the erection of the barriers, but before any clearance or construction work starts on site. The provision of ground protection to allow pedestrian access in RPAs is supported in paragraph 6.2.3 of BS 5837 (2012) and I do not perceive this to be a particular problem provided it is implemented correctly and remains in situ during the construction phase of the project.

- **Drainage issues:** The proposed drainage scheme for the site is shown on the drawing included in Appendix 6. The surface water will need to discharge into the existing ditch toward the south eastern corner of the site and this will necessitate the installation of a shallow pipe within part of the RPA of tree T7. As discussed in section 2.7, I have had an email discussion with the council's tree officer and we agreed that the surface water pipe could potentially be installed with a low risk of implications for the tree, provided the work was carried out using hand operated tools/compressed air and was subject to supervision by the project arboriculturist. I have set out some guidance in section 5.2.3 on how this work should proceed in order to safeguard the tree. Provided the work proceeds in accordance with these details, then I would anticipate the risk of any significant harm to the tree to be very low.

- **New surfacing:** New surfacing is indicated within the RPAs of trees T18, T19 and T20. After careful consideration and discussions within the design team, it has been agreed that the sub base for this will be a cellular confinement system. This will negate the need for significant excavation and excessive disturbance within the RPAs of nearby trees. The use of cellular confinement systems is supported in BS 5837 (2012), together with bespoke suspended engineered solutions (paragraph 7.4.2.7). The surfacing will be installed before any clearance or construction activities occur on site and will act as ground protection throughout the construction phase. Consequently, the protective barrier positions shown on the plan included in Appendix 1 are set back from the full BS protection distances to allow space for this to be installed. I have set out some additional guidance in section 5.2.2 of this report detailing how this work should proceed in order to reduce the risk of implications for these trees. Provided the work proceeds in accordance with this methodology, then I feel that the risk of implications for the trees is likely to be low.

3.4 Additional site tree issues

3.4.1 **BS Category U trees normally removed for management reasons:** Category U trees are in such poor condition that they are considered unsuitable for retention. This is because they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Therefore, these can be effectively discounted in the context of the planning process. On this site, I have assessed trees T3 and T14 as falling into Category U. I have suggested a period of further monitoring in respect of tree T3, but have indicated the removal of tree T14 (see the tree schedule in Appendix 2). As they are unsuitable for retention in the context of the current site use, I do not believe that their loss (now or in the future) should necessarily be a consideration in respect of the current planning application.

3.4.2 **New tree planting:** The architects drawing indicates the position of new tree planting within the site and this includes potential new trees either side of the access drive. If carefully selected, this new tree planting would have the potential to achieve a good height in maturity and become attractive and useful arboricultural/amenity trees in the longer term. Final details could be secured and reviewed by the council via a planning condition should the council be minded to grant planning approval for the site.

3.4.3 **Tree protection during development:** A preliminary Arboricultural Method Statement is included in Section 5 and it details the various issues associated with successful tree protection in a development context on this site. If deemed appropriate by the council, this can be specifically referred to in a suitably worded planning condition attached to any subsequently issued planning consent.

4 SUMMARY OF THE IMPLICATIONS OF THE DEVELOPMENT ON TREES

4.1 **Summary:** Of the total of twenty one trees, groups and hedges surveyed, only a small section of one hedge is scheduled to be removed to facilitate this development proposal. However, seven trees will have activities arising from the development occurring within their RPAs. The hedge section to be removed is small in size and so its loss is likely to have limited implications in the locality. The new surfacing within tree RPAs has been carefully considered in order to reduce the impact on the nearby trees. Provided the tree protection measures set out in this report are realised and care is taken during the sensitive works within tree RPAs, then the proposal is acceptable from an arboricultural perspective and the risk of any implications for retained trees are likely to be low.

5 PRELIMINARY ARBORICULTURAL METHOD STATEMENT

5.1 Tree protection issues

5.1.1 **Tree Protection Plan (TPP):** The plan in Appendix 1 is illustrative, but is based on the layout drawings and topographical survey provided. Therefore, all scaled measurements should be checked against the original design documents. The attached plan and all other information in this report should only be used for dealing with the tree protection issues and all other uses are prohibited, unless authorised by **eco**urban ltd. All the existing trees will have been numbered, with any higher categories (A and B) highlighted in green and blue rectangles and any low categories (C and U) highlighted in grey and red respectively. The plan also shows the locations of the proposed protective measures, including areas where special care may be required. The TPP is an important document and a copy of it should be kept on site for reference whilst the development is under construction.

5.1.2 **Protective barriers:** The approximate location of the barriers is illustrated on the plan in Appendix 1 and information on barrier design based on BS 5837 (2012) guidance is included in Appendix 3. The protective barriers will be erected before any materials or machinery are brought onto the site and before any clearance or construction activities occur. With the exception of the barrier positions around tree T7 (see 5.1.3 below), once the protective barriers have been positioned, these will stay in situ for the duration of the construction, unless previously agreed with the arboricultural consultant or council's tree officer. There will be no access into the protected areas and the storage of excavated debris and building materials will be prohibited, unless authorised by the arboricultural consultant, after discussion with the council's tree officer. No fires or fuel storage will be allowed within or near to protected areas under any circumstances.

5.1.3 **Temporary repositioning of barriers:** With regard to tree T7, the barriers around this tree encompass an area where a new drainage pipe is required to connect into the nearby ditch headwall (see section 5.2.3). The barriers in this location will be redeployed to the edge of the construction zone to allow this activity to commence and then returned to the positions indicated on the TPP once the work has been completed. However, the movement of the barriers will only occur immediately prior to the commencement of these tree sensitive works, so as to reduce the risk of any incidental construction related damage occurring to trees scheduled for retention.

5.1.4 **Ground protection measures:** Where the positioning of tree protection barriers is not feasible due to the need for construction access, then ground protection measures will be needed to safeguard RPAs. The position of ground protection is shown on the plan included in Appendix 1, with guidance for ground protection design included in Appendix 4. The ground protection will be installed before any materials or machinery are brought onto the site and before any clearance or construction activities occur. Again, once the ground protection has been positioned, it will stay in situ for the duration of the construction phase, unless previously agreed with the arboricultural consultant or council's tree officer.

5.2 **Arboriculturally sensitive operations**

5.2.1 **Activities in Root Protection Areas (RPAs):** Work in RPAs must be done with care, as set out in the following text. Site personnel will be properly briefed before any activities start and all sensitive work will be inspected regularly during the course of operations.

5.2.2 **Installation of new surfacing:** Trees T18, T19 and T20 may be affected by the installation of new surfacing. I have shown the minimum extent of 'low invasive' type surfacing required to successfully retain these trees on the plan included in Appendix 1 and the extent of this is based on their BS derived RPAs. The use of a cellular confinement system is suggested in BS 5837 (2012) as one appropriate way to achieve hard surfacing over tree roots and the following guidance is based on this principle. The cellular system will act as ground protection for the parts of the RPAs that are outside the protective barriers and so will need to be installed before any other construction activity occurs on site. However, before implementation the following specifications and guidance will need to be reviewed by an engineering specialist, to ensure that the final construction is appropriate from an engineering viewpoint and suitable for the purpose intended.

- **Installation:** An installation video for a proprietary cellular confinement system is available to view at http://www.youtube.com/watch?v=-vIzHJ_LFho. Generally, any required changes in topography will be accomplished by the use of fill materials rather than cutting into the existing site levels, which could have a significant impact on tree health. Suitable fill materials include uncompacted crushed stone or sharp sand. In this instance, the removal of the top layer of vegetation to a depth of 50mm (to provide a flat surface for the installation of the cellular sub base) is unlikely to encounter or damage any tree roots. Any additional excavation will need to be assessed by the project arboriculturist, in consultation with the council's tree officer. However, in the event that

roots may need to be cut, those smaller than 25mm diameter may be pruned back, preferably to a side junction, using a cutting tool such as bypass secateurs or handsaws. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability.

- **Sub base and final wearing courses:** Once a level surface has been formed, the cellular system will be installed on top of the existing soil, with no compaction of its structure. The cell infill material will be crushed aggregate (typically 20-40mm, clean angular stone), with no fines, as per the manufacturer's specification. A temporary wearing course of tarmac and/or aggregate, separated by a geotextile membrane is likely to be the most appropriate way of providing a suitable ground protection/working surface during the clearance and construction phase of the project. At the final stages of the construction, the temporary wearing course will be removed (under arboricultural supervision), and the final surfacing will be installed. Suitable final wearing courses include resin bound gravel, paving slabs, washed gravel or block paviours set on a sand base, although other surfacing may be appropriate after consultation with the project arboriculturist.

- **Edge retention:** The use of non-invasive ground contact structures (including proprietary edging products, gabions, wooden boards or railway sleepers) is suggested in BS 5837 (2012) as effective edge supports in RPAs, to be secured by metal rods, track or road pins or wooden pegs. This, or a similar approach (negating the need for excessive ground disturbance within RPAs) will be used to minimise any adverse risk of impact on trees.

- **Illustrative specifications:** Final drawings will be prepared by the project engineer. These will be based on the illustrative manufacturers specifications for special surfacing included in Appendix 5, or an alternative 'low invasive' construction technique. These definitive plans can be secured by way of a suitably worded planning condition and approved by the council before any construction activity occurs on site.

5.2.3 **Installation of new drainage:** As discussed, on this site it will be necessary to excavate a short distance within the RPA of tree T7 to connect a surface water pipe into the existing headwall toward the south eastern corner of the site. The pipe diameter is 150mm and the length of the run within the tree RPA is approximately 8.1m. As set out in section 5.1.3 above, the barriers in this area will be temporarily displaced to provide pedestrian access to allow this work to

proceed and no excavating machinery will be used during this activity. Consequently, the trench to accommodate the pipe will be excavated using hand operated tools only, including compressed air technology as appropriate. This sensitive work will be supervised by the project arboriculturist, with the intention of retaining tree roots in the upper soil horizons and threading the pipework beneath. In this way, there should be a minimal need to disturb or cut any tree roots. However, if tree roots do need to be severed, these will be dealt with as set out in section 5.2.2 above. Once the pipe work has been installed, the trench will then be back filled with the excavated soil and this will be lightly tamped in place, but not overly compacted. The tree protection barriers will then be returned to their original positions (as shown on the plan in Appendix 1) until the end of the construction phase.

5.3 **Additional tree-related issues**

5.3.1 **Site supervision:** Site personnel will be properly briefed regarding the tree protection issues before any work starts and the tree protection will be inspected periodically to ensure the retained trees are protected in accordance with this document and any conditions imposed by the council.

5.3.2 **Material storage areas and site compounds:** All construction material storage areas, cement silos or cement mixing areas, fuel storage points and compounds for machinery etc. will be outside the protected areas, unless otherwise agreed with the council.

5.3.3 **Contractors car parking, site offices and welfare facilities:** Whilst it is possible to have site offices and welfare facilities within RPAs, care is needed in their positioning and also in the connection of water, electricity and drainage to service them. Therefore, these will generally be sited outside the tree RPAs, unless agreed previously with the council. Contractor's car parking facilities will also be located away from retained trees.

5.3.4 **Planning, communication and preliminary timing of events:** It is not unusual for the details of timing of operations that could impact on important trees to only be finalised once planning consent has been given. Site managers, clearance and construction teams, and other important personnel are normally only appointed at this stage and it is these people who will be crucial in delivering the tree protection detailed in this report. My experience is that the pre commencement site meeting is critical in terms of avoiding damage to trees and this particular aspect, along with tree protection issues can be specifically referenced in a suitably worded planning condition imposed by the council. In the intervening time, I propose the following

preliminary cascading timetable of events to help minimise the risk of impact on important trees. However, the following schedule may be modified at the pre-commencement meeting, subject to discussion with all parties and agreement with the council:

1. Pre-commencement site meeting
2. Extent of any arboricultural supervision agreed
3. Tree/hedge works undertaken
4. Protective barriers erected before any clearance or construction activities occur on site and notification to the council that this is in place
5. Ground protection installed before any clearance or construction activities occur on site and notification to the council that this is in place
6. Installation of new surfacing – Where this is to also act as ground protection, this must be installed before any clearance or construction activities occur on site
7. Repositioning of barriers to allow hand excavation and installation of new surface water drainage pipe to headwall located toward south eastern corner of site. Tree protection then returned to original positioning.
8. Tree protection only removed at the end of the construction phase when there is no longer any risk to trees

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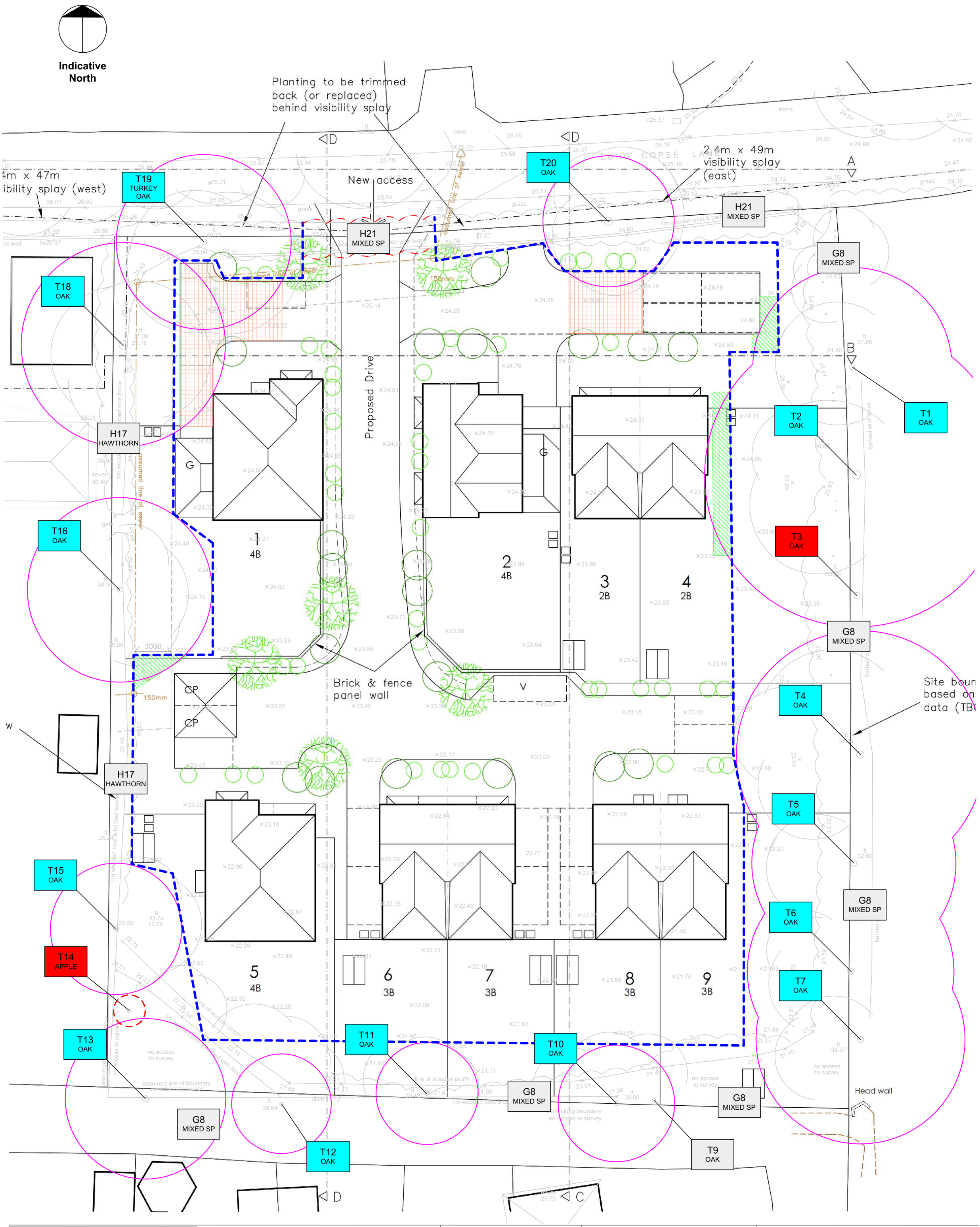
Arboricultural Consultant

Date: **25 November 2021**

Appendix 1: Tree Protection Plan

1 A2 plan



ecourban ARBORICULTURAL	ECO 11 - TREE PROTECTION FOR LAND AT LONG COPSE LANE, EMSWORTH	SCALE: 1:200 @ A2	COMPOSITE PLAN: LAND SURVEY IN GREY, PROPOSED LAYOUT IN BLACK	This drawing was originally produced in colour, therefore any subsequent monochrome photocopies may not show appropriate levels of detail and should not be relied upon for the purposes of dealing with site tree issues

T1 Tree sp — **BS Category B:** Trees of moderate quality and value

T1 Tree sp — **BS Category C:** Trees of low quality and value

T1 Tree sp — **BS Category U:** Trees normally removed for arboricultural management reasons

Tree protection barriers

RPA outside barriers requiring ground protection

RPA outside barriers where 'Low Invasive' type surfacing is to be installed

Hedge section to be removed

Root Protection Areas (RPAs): Preliminary below ground tree constraints for important trees based on BS 5837 guidance.

Appendix 2: Tree Schedule and Inventory

Background fill colour represents BS 5837 (2012) categories: A Category trees have green backgrounds, B Category trees have light blue backgrounds, C Category trees have grey backgrounds and U Category trees have red backgrounds.

Tree No.	Species	Ht (m)	Single stem dia. at 1.5m (cm)	Est. Dia. *	STEM DIAMETERS (MULTIPLE)								Branch spread (m)				Height above ground (m)	Age class	Notes	Management proposals	BS cat	RPA area (m²)	RPA radius (m)
					Multi stemmed trees with 1 - 5 stems (cm)					Multi stemmed trees with 1 - 5 stems combined (cm)	Multi stemmed trees >5 stems												
					1	2	3	4	5		Mean stem dia. (cm)	No. of stems	N	E	S	W							
All trees																				Crown clean all trees. Where appropriate, crown lift trees by up to 4m over site and 5m over public carriageway.			
T1	Oak	12	68	-	-	-	-	-	-	-	-	-	9	-	5	6	4	MA/ M	Part of linear group, some crown asymmetry. Some deadwood in crown. Stem covered in ivy, limiting access to survey.		B1/ B2	209	8.2
T2	Oak	16	104	-	-	-	-	-	-	-	-	-	6	-	8	8	4	M	Large boundary tree, part of linear group. *Inonotus dryadeus* infection. Large diameter deadwood in canopy. Some dieback centre section of upper crown. Marginal Cat B tree.	Monitor	B1/ B2	489	12.5

Appendix 2: Tree Schedule and Inventory

Tree No.	Species	Ht (m)	Single stem dia. at 1.5m (cm)	Est. Dia. *	STEM DIAMETERS (MULTIPLE)								Branch spread (m)				Height above ground (m)	Age class	Notes	Management proposals	BS cat	RPA area (m²)	RPA radius (m)
					Multi stemmed trees with 1 - 5 stems (cm)					Multi stemmed trees with 1 - 5 stems combined (cm)	Multi stemmed trees >5 stems												
					1	2	3	4	5		Mean stem dia. (cm)	No. of stems	N	E	S	W							
T3	Oak	8	70	*	-	-	-	-	-	-	-	-	-	-	-	-	-	Y/ MA	Declining.	Monitor annually.	U	222	8.4
T4	Oak	15	85	*	-	-	-	-	-	-	-	-	11	-	9	10	4	M	Large boundary tree, part of linear group. Large diameter deadwood in canopy. Some thinning of crown density. Located in thick understorey planting, restricted access to survey.		B1/ B2	327	10.2
T5	Oak	12	70	*	-	-	-	-	-	-	-	-	6	-	5	8	4	MA/ M	Large boundary tree, part of linear group. Large diameter deadwood in canopy. Located in dense understorey planting, restricted access to survey.		B1/ B2	22	8.4
T6	Oak	12	71	-	-	-	-	-	-	-	-	-	4	-	4	8	4	MA/ M	Large boundary tree, part of linear group. Some large diameter deadwood and dieback in canopy. Located in area of dense understorey planting, restricted access to survey.		B1/ B2	228	8.5

Appendix 2: Tree Schedule and Inventory

Tree No.	Species	Ht (m)	Single stem dia. at 1.5m (cm)	Est. Dia. *	STEM DIAMETERS (MULTIPLE)								Branch spread (m)				Height above ground (m)	Age class	Notes	Management proposals	BS cat	RPA area (m²)	RPA radius (m)
					Multi stemmed trees with 1 - 5 stems (cm)					Multi stemmed trees with 1 - 5 stems combined (cm)	Multi stemmed trees >5 stems												
					1	2	3	4	5		Mean stem dia. (cm)	No. of stems	N	E	S	W							
T7	Oak	13	72	-	-	-	-	-	-	-	-	-	2	-	6	6	4	MA/ M	Large boundary tree, part of linear group. Large diameter deadwood in canopy. Located in dense understorey planting, restricted access to survey.		B1/ B2	235	8.6
G8	Mixed species including blackthorn, hawthorn, field maple and holly	5	10	* Avg	-	-	-	-	-	-	-	-	2	-	2	2	2	Y/ MA	Linear grouping of smaller understorey trees.		C2	5	1.2
T9	Oak	8	20	*	-	-	-	-	-	-	-		4	4	-	1	2	Y	Smaller tree, influenced by proximity to adjacent tree. Unbalanced. Offsite tree located in area of dense understorey planting, no direct access to survey.		C1	18	2.4

Appendix 2: Tree Schedule and Inventory

Tree No.	Species	Ht (m)	Single stem dia. at 1.5m (cm)	Est. Dia. *	STEM DIAMETERS (MULTIPLE)								Branch spread (m)				Height above ground (m)	Age class	Notes	Management proposals	BS cat	RPA area (m²)	RPA radius (m)
					Multi stemmed trees with 1 - 5 stems (cm)					Multi stemmed trees with 1 - 5 stems combined (cm)	Multi stemmed trees >5 stems												
					1	2	3	4	5		Mean stem dia. (cm)	No. of stems	N	E	S	W							
T10	Oak	9	40	* at base	-	-	-	-	-	-	-		5	4	-	6	4	MA	Twin stemmed at 1.5m. Offsite tree located in dense understorey planting, no direct access to survey. Ivy on main stem and scaffold branches.		B1/ B2	72	4.8
T11	Oak	9	35	at base	-	-	-	-	-	-	-	-	4	4	-	4	3	MA	Multi stemmed at 1.5m, poor structural arrangement. Offsite tree in area of dense understorey planting, limited access to survey.		B1/ B2	55	4.2
T12	Oak	9	34	-	-	-	-	-	-	-	-	-	6	6	-	4	3	MA	Offsite tree located in area of dense understorey planting. Limited access to survey.		B1/ B2	52	4.1
T13	Oak	12	55	*	-	-	-	-	-	-	-	-	7	5	-		4	MA	Offsite tree located in area of dense understorey planting. Limited access to survey and restricted clear line of sight.		B1/ B2	137	6.6
T14	Apple	4	20	* at base	-	-	-	-	-	-	-	-	-	-	-	-		M	Small collapsed fruit tree.	Remove.	U	18	2.4

Appendix 2: Tree Schedule and Inventory

Tree No.	Species	Ht (m)	Single stem dia. at 1.5m (cm)	Est. Dia. *	STEM DIAMETERS (MULTIPLE)								Branch spread (m)				Height above ground (m)	Age class	Notes	Management proposals	BS cat	RPA area (m²)	RPA radius (m)
					Multi stemmed trees with 1 - 5 stems (cm)					Multi stemmed trees with 1 - 5 stems combined (cm)	Multi stemmed trees >5 stems												
					1	2	3	4	5		Mean stem dia. (cm)	No. of stems	N	E	S	W							
T15	Oak	12	45	* 0.5m	-	-	-	-	-	-	-	-	5	7	5	-	4	MA	Offsite boundary tree. Some crown asymmetry.		B1/ B2	92	5.4
T16	Oak	12	63	*	-	-	-	-	-	-	-	-	6	5	6	-	4	MA/ M	Offsite boundary tree. Stem covered in ivy. Limited access to survey. Some epicormic growth lower canopy.		B1/ B2	180	7.6
H17	Hawthorn	2	8	*	-	-	-	-	-	-	-	-	-	1	-	-	n/a	MA/ M	Clipped boundary hedge.		C2	3	1.0
T18	Oak	13	70	* at 0.5m	-	-	-	-	-	-	-	-	6	7	6	-	4	MA/ M	Offsite boundary tree located in hedge. Ivy on main stem and scaffolds. Limited access to survey. Multi stemmed at 2m.		B1/ B2	222	8.4
T19	Turkey oak	16	60	*	-	-	-	-	-	-	-	-	-	7	6	5	4	MA/ M	Deadwood throughout canopy and some dieback of branch extremities. Marginal Cat B tree.		B1/ B2	163	7.2

Appendix 2: Tree Schedule and Inventory

Tree No.	Species	Ht (m)	Single stem dia. at 1.5m (cm)	Est. Dia. *	STEM DIAMETERS (MULTIPLE)								Branch spread (m)				Height above ground (m)	Age class	Notes	Management proposals	BS cat	RPA area (m²)	RPA radius (m)
					Multi stemmed trees with 1 - 5 stems (cm)					Multi stemmed trees with 1 - 5 stems combined (cm)	Multi stemmed trees >5 stems												
					1	2	3	4	5		Mean stem dia. (cm)	No. of stems	N	E	S	W							
T20	Oak	11	45	*	-	-	-	-	-	-	-	-	-	5	5	5	4	MA	Offsite tree located in hedge. Limited access to survey. Deadwood and snags lower stem, with deadwood and epicormic growth in canopy.		B1/ B2	92	5.4
H21	Mixed species including hawthorn, blackthorn and field maple	2	8	* Avg	-	-	-	-	-	-	-	-	-	-	2		n/a	Y/ MA	Undermanaged boundary hedge.	Remove hedge section (see plan in Appendix 1) and cut back remainder as required.	C2	3	1.0

Abbreviations:

Abbreviations	Meaning	Abbreviations	Meaning	Abbreviations	Meaning
T	*Individual tree*	**M**	*Mature*	**RPA**	*Root Protection Area*
G	*Groups of trees*	**MA**	*Maturing*	<	*Less than*
H	*Hedge*	**Y**	*Young*	>	*More than*

Appendix 2: Tree Schedule and Inventory

Tree Schedule Notes:

Tree number	*Assigned during the site visit and also referenced on the plan in Appendix 1.*
Species	*Common name and referenced to scientific name in the above list. Where I have some doubt over the actual tree species, the genus will have been noted followed by sp. Where trees are numerous and present in groups, not every individual species may have been noted.*
Height	*Measurement of total tree height using a laser hypsometer to nearest metre or where clear line of site is not possible then an estimate based on interpolation of heights of nearby measured trees.*
Stem diameters	*Measurement of stem diameter either at 1.5m above ground (or in accordance with BS guidance where trees have multiple stems) with a forester's girth measuring tape.* ***Diameters followed by asterisk symbol indicate estimated diameters because of access difficulties, presence of ivy or other obstructions.*** *Where trees are present in a group, the tree with the largest stem diameter within the group will have been measured/estimated.*
Est. Dia.	*Estimated diameters due to access restrictions are indicated with an asterisk*
Branch spread	*Where appropriate and where ground conditions allow, an estimate of the crown spread at each of the cardinal compass points. Where only part of the site is affected by trees, measurement may be in one or two directions only*
Existing height above ground level	*Distance in metres to first significant branch or canopy or a height above which crown lifting operations would not be appropriate*
Age class	*Simplistic estimate of tree age in one of FOUR categories (young, maturing, mature or over mature).*
Notes	*Although this document is not intended to be a full and detailed report on tree health and safety, any significant structural defects or physiological conditions have been identified where these were visible. Where no entries are recorded, this indicates no observable issues were identified. Where there is restricted access to the base of a tree, its attributes are assessed from the nearest point of access. Climbing inspections are not carried out during a walkover tree survey and, if heavy ivy is present, tree condition is assessed from what can be seen from the ground.*

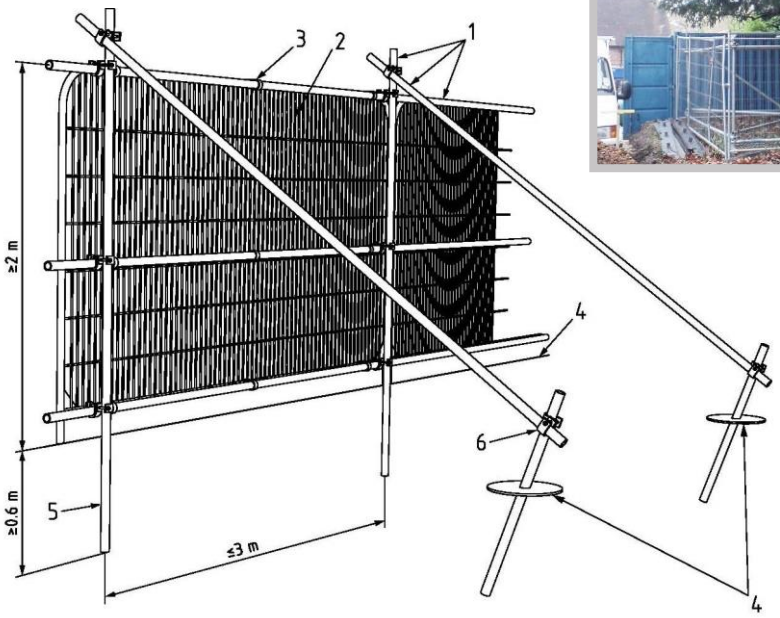
Appendix 2: Tree Schedule and Inventory

Management proposals	*The inspection of all trees was of a preliminary nature and only defects visible from the ground have been identified. Each individual tree may not have been inspected closely because of access difficulties and only defects visible from the inspection point have been identified. Monitoring may be indicated where tree risk can be adequately managed by increased frequency of site inspections. Further investigation may be indicated where additional data may be required beyond a purely visual assessment. However, a full post development tree inspection is recommended to establish that the trees retained during construction pose acceptable levels of risk once the development has been completed.*
BS 5837 (2012) Category	*Either U, A, B or C based on the BS 5837 (2012) guidance.*
RPA and RPA radius	*RPA and RPA radius calculations have been undertaken in accordance with the guidance set out in BS 5837 (2012).*

Tree Inventory:

Common Tree Names	Scientific Tree Names		Common Tree Names	Scientific Tree Names
Apple	*Malus domestica*		Holly	*Ilex aquifolium*
Blackthorn	*Prunus spinosa*		Oak	*Quercus robur*
Field maple	*Acer campestre*		Turkey oak	*Quercus cerris*
Hawthorn	*Crataegus monogyna*			

Appendix 3: Illustrative Specification for Tree Protection Barriers



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

Illustration taken from British Standard 5837 (2012): Trees in relation to design, demolition and construction – Recommendations.

The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed.
– BS 5837 (2012)

Ref: Tree Protection Barriers (Type 1)	**Drawing No. TPB1**
Scale: N/A	

Appendix 4: Illustrative Specification for Ground Surface Protection

New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;

b) 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 (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;

c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

– BS 5837 (2012)

Ref: Ground Protection	**Drawing No. GP1**
Scale: N/A	

Appendix 5: Illustrative Specification for 'Low Invasive' Type Surfacing

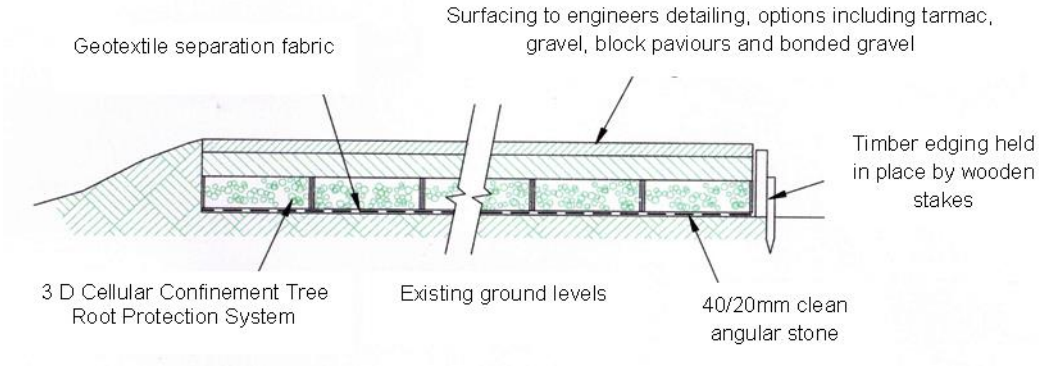


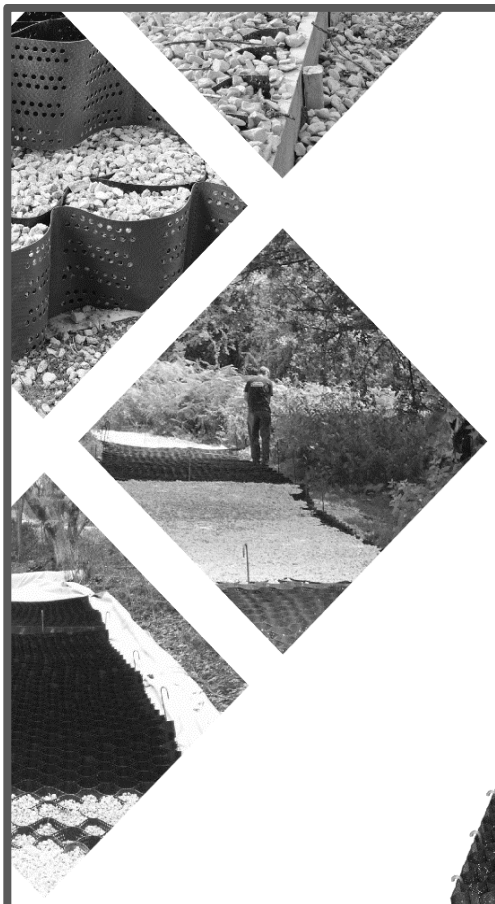
Illustration adapted from original drawings provided by Geosynthetics Ltd.

Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems. Alternatively, piles, pads or elevated beams can be used to support surfaces to bridge over the RPA or, following exploratory investigations to determine location, to provide support within the RPA while allowing the retention of roots greater than 25 mm in diameter.

– BS 5837 (2012)

Ref: No dig surfacing	**Drawing No. NDS 1**
Scale: N/A	

Appendix 5: Illustrative Specification for 'Low Invasive' Type Surfacing



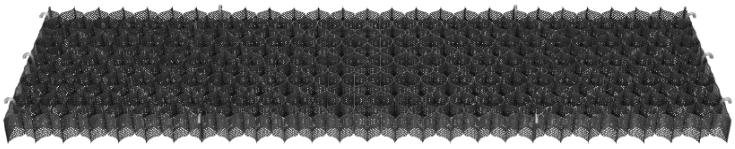
Cellweb®TRP

Why protect trees?

Trees provide a wealth of benefits within the urban environment including cleaning the air, prevention of flooding and moderation of the climate.

As a result, within the UK it is an offence to cut down, lop, uproot, top, wilfully damage or destroy a protected tree without authorisation. Fines, if the defendant is found guilty in a Crown Court, are unlimited.

To minimise the environmental impact and avoid legal proceedings, we offer the independently tested Cellweb®TRP system.



What is Cellweb®TRP?

Cellweb®TRP is a cellular confinement system specifically designed for tree root protection. The system creates a stable, load-bearing surface for traffic or footfall whilst eliminating damage to roots through compaction and desiccation.

The Cellweb®TRP system comprises of three specific elements, Cellweb®TRP, Treetex™ pollution control geotextile and an infill of clean angular stone. The system has been designed to create an unparalleled solution to tree root protection applications.

Cellweb®TRP is a no-dig solution that ensures that the load placed upon it is laterally dissipated rather than transferred to the soil and roots below. The use of Treetex™ pollution control geotextile allows for drainage and separation whilst preventing contaminants from reaching the roots.

The walls of the cells are perforated and when combined with the infill of clean angular stone, enables free movement of water and oxygen, ensuring that supplies to the tree roots are maintained.

Geosynthetics
Engineered Solutions

"Creating Innovative Solutions with Outstanding Products"

Appendix 5: Illustrative Specification for 'Low Invasive' Type Surfacing

What makes Cellweb®TRP different?

With over 15 years of captured data and thousands of installations, the Cellweb®TRP system has developed a reputation for excellence.

We are so confident in our system, we offer a guarantee that covers the replacement of the trees and of the system itself. With Cellweb®TRP being quick to install and having a 100% success rate it is clear to see why the Cellweb®TRP is regularly specified by tree officers and arboriculturalists across the country.

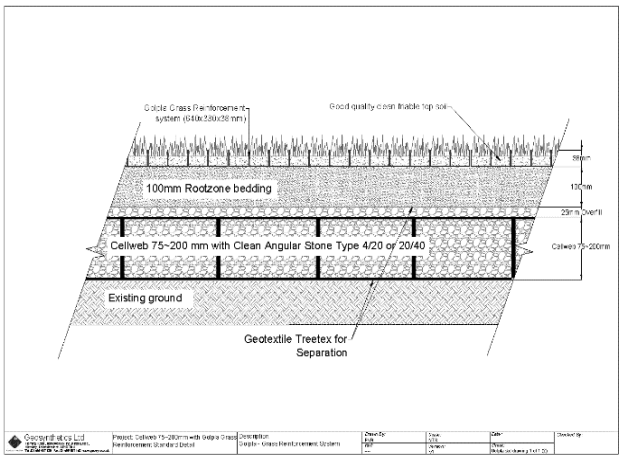
From the drawing board to installation, we are here to help.

We have been supplying the Cellweb®TRP system since 1998 and our technical team have vast experience with tree root protection and the associated legislation.

Delivering complete peace of mind to customers is our number one priority. As part of this customer care package we offer free on site consultations, technical recommendations and on site installation guidance on all projects.

Our in-house engineering team provide site specific recommendations to ensure the solution used is cost effective and environmentally sound.

For more information on Cellweb®TRP or Geosynthetics Limited please contact our sales office on 01455 617139 or visit www.geosyn.co.uk.



ISOQAR UKAS 0026 CERTIFICATE NO. 11161 ISO 14001:2004

ISOQAR UKAS 0026 CERTIFICATE NO. 11161 ISO 9001:2008

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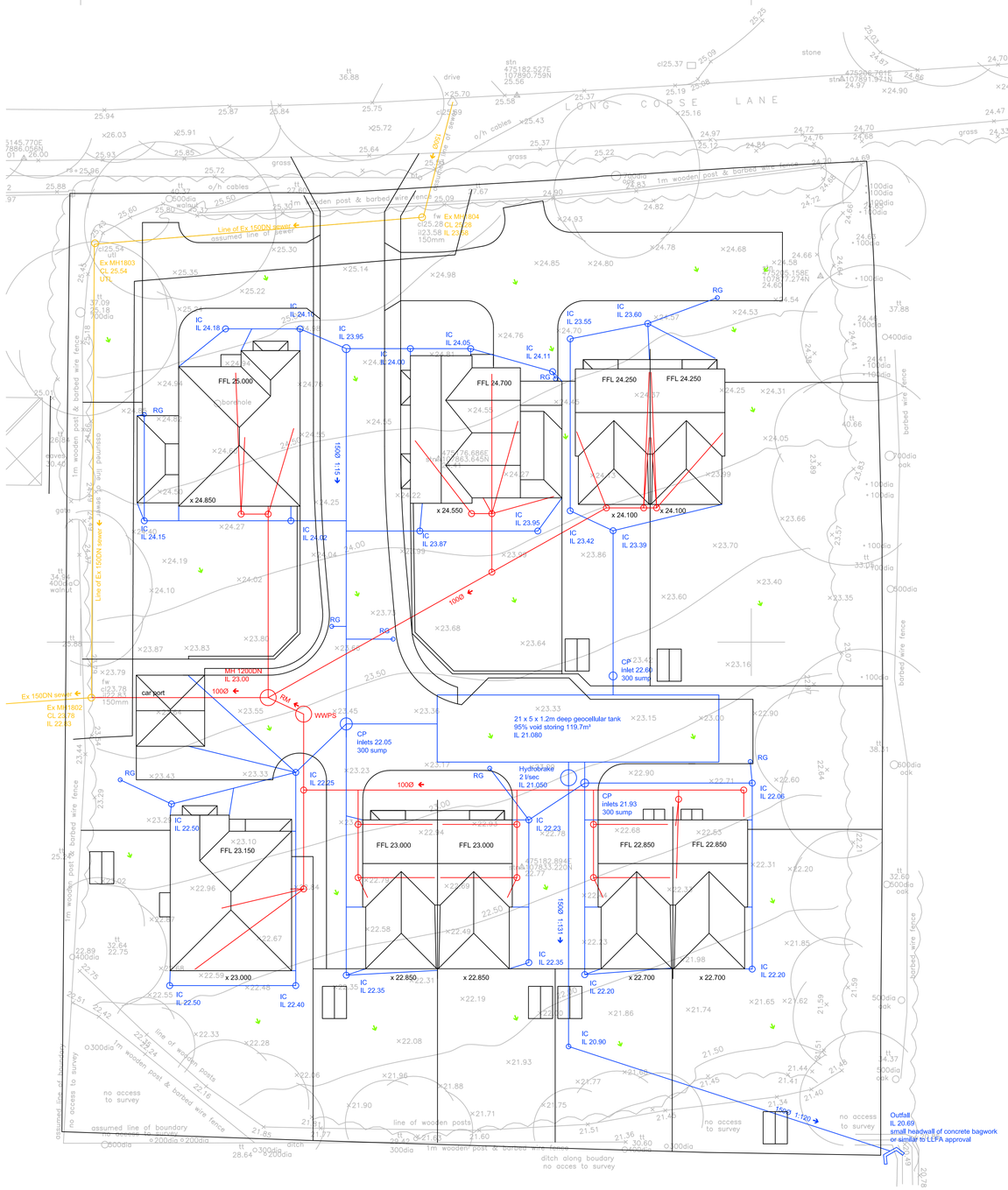
Appendix 6: Drainage Drawing

1 A1 plan



Rev.	Amendment	Date
B	Site layout updated	25-11-2021
A	Drainage layout updated for actual sewer position	12-06-2021
-	Initial issue to illustrate ditch connection only	13-07-2020

Original Sheet Size A1 (841 x 594)

0 10 mm 50

Aqua Callidus CONSULTING
52 Common Lane
Titchfield
Hants
PO14 4BU
07717 759149

Project
Land adjacent
54 Long Copse Lane
Emsworth

Subject
Drainage Strategy

Scale	Project No.	Drawing No.	Sheet No.	Revision
1:200	20053	ACC-20053-11	-	B

Appendix 7: BS 5837 (2012) – Assessment Categories

TREES FOR REMOVAL		
Category and definition	**Criteria**	**Identification on plan**
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• 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 *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve.*	RED

TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	**Criteria — Subcategories**			**Identification on plan**
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
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 within 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)	GREEN
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 attract 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	BLUE
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 150 m	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 significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	GREY

Appendix 8: Qualifications and Experience of Barrie Draper

1 **Qualifications:** I have a BSc degree (with Honours) in Arboriculture from the University of Central Lancashire. I also hold a BTEC Higher National Diploma (HND) in Forestry (Lowland Management), the Arboricultural Association's Technician's Certificate in Arboriculture (Tech Cert), the Royal Forestry Society's Certificate in Arboriculture (Cert Arb) and the National Examinations Board Certificate in Forestry.

2 **Career experience:** I began my arboricultural career in 1993 as an arborist with Portsmouth City Council. During my time with the council I worked for both the direct labour organisation and for a private contractor where I obtained valuable hands on experience in all aspects of arboriculture. From 1999 to 2002 I was employed as Senior Arborist by Parchment Housing Group, a housing association based near Portsmouth. I managed the Groups' tree stock on their behalf, carrying out tree inspections and practical management operations. I have also worked in local government, spending time with Thurrock Borough Council in Essex where I was the Tree and Landscape Officer, and with Winchester City Council, where I was Arboricultural Officer for a period of 2 years. During my time working in local government I was responsible for making Tree Preservation Orders, administering applications to work on protected trees and advising on planning applications when trees were considered material constraints on development. Working within a planning environment allowed me to gain valuable experience in the management of trees in development situations and an understanding of the planning process and how it relates to trees. From January 2005 I worked for Barrell Tree Consultancy Ltd advising clients on a wide range of tree related issues. I left the company in September 2008 and set up ecourban ltd.

ecourban
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