

ARBORICULTURAL IMPACT ASSESSMENT

Stonehouse Farm,
Handcross Road,
Horsham

February 2025



Barton Hyett Associates
Arboricultural Consultants

In association with

CSA
environmental

Summary table		
Site Name:	Stonehouse Farm, Handcross Road, Horsham	
Project Reference:	5975	
Site Address:	Stonehouse Farm, Handcross Road, Plummers Plain, Horsham, RH13 6NZ	
Central Grid reference:	TQ 22949 28337	
Local Planning Authority:	Horsham District Council	
Relevant Planning Policies:	Horsham District Planning Framework (2015): Policy 25 - The natural environment & landscape character; 26 - Countryside protection; 31 - Green infrastructure & biodiversity; 32 - The quality of new development' 33 - Development principles.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	None	No
Soil Type: (Source: BGS online soils map © NERC 2024)	Superficial/Drift	Bedrock
	Deep - intermediate sandy loam to silty loam and deep clay to clayey loam.	Upper Tunbridge Wells Sand sandstone & siltstone - interbedded & Upper Tunbridge Wells Sand mudstone.
Proposed Site Plans:	6746_111_H Site-Wide Masterplan Stonehouse Business Park Site Layout Plan 2024.PL10C Anaerobic Digester (AD) Plant and Main Livestock Building Site Layout Plan 2024.PL7C Jackson's Ridge Proposed Site Plan 259101-110	
Report author:	Ian Monger <i>BSc (Hons), MSc, MICFor, MArborA</i>	
Date of issue:	28.02.2025	

REPORT CONTENTS:

SECTION 1:	TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT
SECTION 2:	TREE SURVEY & CONSTRAINTS PLANS
SECTION 3:	COMBINED TREE RETENTION/REMOVAL & PROTECTION PLANS
SECTION 4:	TREE SURVEY SCHEDULE
SECTION 5:	METHODOLOGY
SECTION 6:	DESIGN GUIDANCE AND GENERIC ADVICE
SECTION 7:	PRINCIPLES FOR TREE PROTECTION ON DEVELOPMENT SITES

1. INTRODUCTION

- 1.1. Barton Hyett Associates Ltd have been instructed by CSA Environmental on behalf of Lake Investment Limited to survey trees located at Stonehouse Farm, Plummers Plain ('the site') in accordance with the recommendations of British Standard 5837:2012 '*Trees in relation to design, demolition and construction - recommendations*'
- 1.2. The scope of the instruction was to inspect trees relevant to a planning application for development within three distinct areas at the site and provide written advice on how they inform feasibility and design options. The instruction also required an assessment of the potential impact (the Arboricultural Impact Assessment) of the proposed development on the site's arboricultural resource to be undertaken.

2. SITE DESCRIPTION

- 2.1. Stonehouse Farm is a landholding of approximately 37.5ha in area between Hammerpond Road to the north and Handcross Road (B2110) to the south. The boundary of the wider landholding is shown on the Site-Wide Masterplan CSA/6746/111/H. The approximate boundaries of the the three application areas within the landholding are shown edged yellow in Figure 1.
- 2.2. **Stonehouse Business Park** (Stepney Commercials Site) occupies an area of 1.08ha within the southeast of Stonehouse Farm with accesses from Handcross Road. There are several commercial units, largely surrounded by hard standing.
- 2.3. **Anaerobic Digester (AD) Plant and Main Livestock Building** occupies an area of 2.64ha within the southwest of Stonehouse Farm with access from Handcross Road. It consists of agricultural buildings previously used for livestock and a former anaerobic digester facility with hard-standing and areas of grassland and scrubby ground.
- 2.4. **Jackson's Ridge** occupies an area of redundant farm buildings of 0.49ha in area with access from Hammerpond Road. The farm buildings of the former Jackson's Farm are located on a raised plinth surrounded by hardstanding and scrubby ground.
- 2.5. The wider landholding of Stonehouse Farm is open pasture fields (pasture), with scattered woodlands connected by field boundary hedgerows. A stream flows east-west through the centre of the site. The valley slopes downwards towards the stream from about 105m AOD at Jackson's Farm to the north, and from 90m AOD at the Stepney Commercials site to the south.

3. TREE SURVEY FINDINGS

- 3.1. The survey recorded 49 arboricultural features. These are summarised in terms of quality in accordance with the recommendations of BS 5837 in Table 1 below and shown in more detail on the Tree Survey and Constraints Plans (**Section 2**) and within the Tree Survey Schedule (**Section 4**).

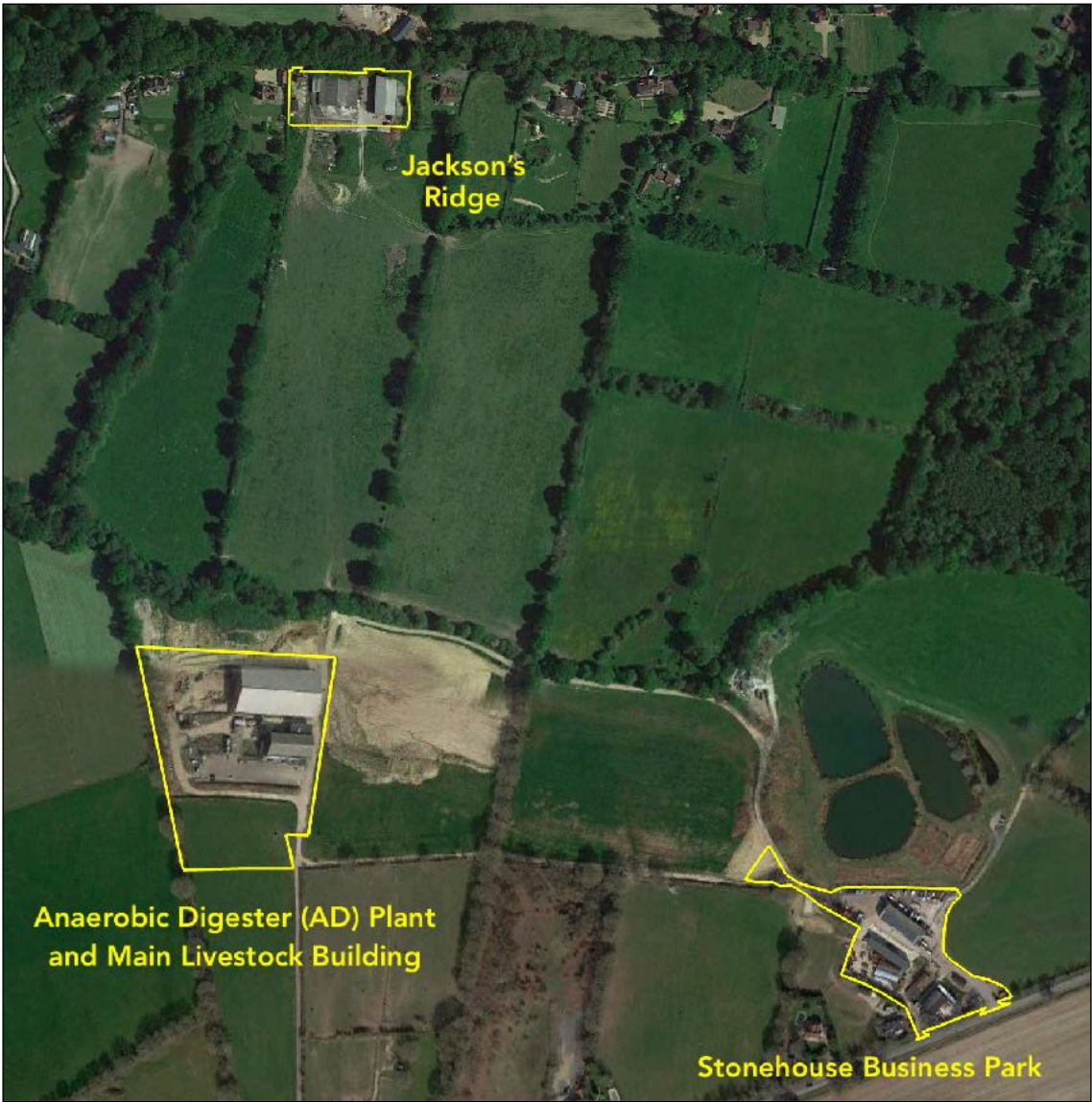


Figure 1: Approximate site boundaries edged yellow.

Table 1: arboricultural features by type and quality category.

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the proposal.	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	22	-	16	6	-
Groups	4	-	3	1	-
Hedgerows	11	-	5	6	-
Total	37	0	24	13	0

4. KEY ARBORICULTURAL FEATURES

- 4.1. No ancient or veteran trees were identified in the survey. No trees of high quality (Category A) were identified.
- 4.2. There is no ancient woodland affecting the three application areas. A small linear belt of ancient woodland, along the stream channel, abuts the western edge of the site but is c. 75m distance to the northwest of the Jackson's Business Park application area. The nearest ancient woodland to the Jackson's Ridge application area is Hammerhill Wood which lies c. 130m to the west.
- 4.3. At the **Stonehouse Business Park** application area, the root systems of oaks T21 (B1) and G3 (B2) have been severely impacted by the building up of levels by 2m to the north to improve the commercial yard and the compacted rubble/roadstone track that has been installed to the south. Oak T21 has historical fire or mechanical damage to the underside of its northern stem that extends downwards, and a concrete slab ramp constrains the tree to the immediate southeast. Despite these impacts, the trees appear to be in fairly good health.
- 4.4. Garden birch tree T22 (C1) is in a declining condition, with branch fractures and dieback and a very short life expectancy. A mature oak that previously grew within the site, to the immediate east of the western access from Handcross Road, had been removed at the time of the tree survey in March 2024 due to hollowing decay.
- 4.5. Boundary hawthorn hedge H6 grows within a narrow soil verge between the boundary fence and compacted aggregate yard area. Hedges H7 and H8 grow on top of a boundary bank within the garden of the adjoining property. They are of moderate quality for their screening value.
- 4.6. Trees at the **Anaerobic Digester (AD) Plant and Main Livestock Building** application area have not been surveyed because development of the area was not being considered at the time of the survey visit. However, the Impact Assessment will demonstrate that no trees would be impacted by the development proposal.
- 4.7. At the **Jackson's Ridge** application area, the linear belt of mostly early-mature and mature oaks and beeches, T4 to T18, grow along a narrow earth boundary bank between the highway and the farm. All but one (T14 - C1) are of moderate quality because of their good group form, although some have defects. Beech T9 has the fungus *Kretzschmaria deusta* present on a decayed stub, which is probably currently acting saprotrophically rather than colonising the sound wood of the main stem. Oak T12 and beech T13 (B2) have mechanical bark wounds associated with the use of the existing farm access by large vehicles, and the boundary bank at oak T12 has been eroded. Other excavations within the bank are evident at trees T11 and T18.
- 4.8. The boundary trees to the west of the access have existing structures within their Root Protection Areas (RPAs) and near their trunks, including concrete and compacted road stone hardstanding, farm buildings and the concrete structures supporting the two storage cylinders to the west (*Images 4 & 6 below*). To the east of the access, the ground is open soil that was historically excavated for the large barn that is partially within the calculated RPS of beech T13.

5. PROPOSED DEVELOPMENT

- 5.1. Development is proposed at three application areas within the Stonehouse Farm landholding. These are referred to as 'Stonehouse Business Park', 'Jackson's Business Park' and 'Jackson's Ridge'.
- 5.2. The development proposal is a Full Planning Application to form a comprehensive masterplan including:
 1. **'Stonehouse Business Park'**: Rationalisation and enhancement of existing commercial facilities (Use Classes E(g) B2 and B8 at Stonehouse Business Park including demolition of two buildings and their replacement with new Class E(g), B2 and B8 facilities. Extension of existing building to form a new office and wardens' accommodation. Existing mobile home removed.
 2. **'Anaerobic Digester (AD) Plant and Main Livestock Building'**: Decommissioning of the Anaerobic Digester and re-use of the existing 2no buildings for storage and office uses (Class E (g) and B8) and the diversion of a public footpath.
 3. **'Jackson's Ridge'**: Residential redevelopment of the Jacksons Farm site including the demolition of existing barns to provide 3no. dwellings with access, parking, and landscaping.
- 5.3. The proposed site layouts for each area are shown on the following plans:
 - Stonehouse Business Park Site Layout Plan 2024.PL0C
 - Jackson's Business Park Site Layout Plan 2024.PL7C
 - Jackson's Ridge Proposed Site Plan 259101-110.
- 5.4. The Site-Wide Masterplan (CSA/6746/111/H) has been prepared to highlight future aspirations for extensive habitat creation and enhancements as part of a proposed biodiversity habitat scheme. New and enhanced habitats will include woodland, scrub and hedgerow planting, as well as meadow and mosaic habitat restoration and wetland scrapes.

6. IMPACT ASSESSMENT

- 6.1. The impact assessment considers the effects of any tree loss required to implement the proposed development as well as any reasonably foreseeable potentially damaging activities proposed in the vicinity of retained trees. This is undertaken with reference to BS5837:2012 and considering the nature of the proposed development. Actual and potential impacts can include tree removal to facilitate the development, soil compaction in close proximity to trees, and direct impact damage to the canopy and roots of retained trees from construction activities. A summary of anticipated impacts resulting from the proposed development is provided below.

Trees to be removed

- 6.2. The only trees to be removed are low-quality goat willow T17 and goat willow, wild cherry and blackthorn group G2 at the Jackson's Ridge application area. These removals are shown on the Tree Retention and Removal Plan in **Section 3**. The removals are required to provide garden space and allow for ground level changes (as the area is currently partially excavated and has a spoil bund). It may be possible to retain some of the trees within the eastern part of G2. These removals would have a negligible visual impact.

- 6.3. New tree planting is proposed at the three application areas to enhance the landscape at each. A detailed landscape scheme for the three areas has the potential to deliver a significant net gain in tree canopy cover and species diversity at the site.

Impacts on retained trees

- 6.4. At the **Stonehouse Business Park** application area, the existing accesses and hard-surfaced areas mean that there would be no impacts on the trees and hedges. There is ample working space to demolish the existing structures, and the earth bank on which hedges H7 and H8 grow will afford their root systems natural protection from demolition and construction activity. Any resurfacing of hard surfacing within the existing hard-surfaced areas would have no impact on the trees and hedges. This includes the two mature oak trees growing within the highway site frontage hedgerow to the west of the main site entrance. Although these two trees were not surveyed, the hard surfacing within the site to the north is already present and there would be no increase in its extent. The proposal is feasible from an arboricultural perspective.
- 6.5. The separate Flood Risk Assessment and Drainage Strategy includes drainage schemes for each area of the site. A SuDS basin is required at Stonehouse Business Park and would be constructed in the northwestern part of the site. The existing built-up levels and compacted track to the north of T21/G3 means that the connecting pipe can be installed without further damage to these trees.
- 6.6. At the **Anaerobic Digester (AD) Plant and Main Livestock Building** application area, the existing access from Handcross Road will be utilised. Although the field boundary tree belt to the west and the growth along the stream have not been surveyed, there has been significant ground disturbance from the site's previous industrial activity. The proposed development sits within the area of existing activity and ground disturbance, so there would be no further impact on nearby trees than has occurred through the site's existing permitted use. Instead, the formalisation of the access routes would reduce significantly the future risk to nearby trees, and their soil rooting environment would improve with time through natural processes. The proposal is feasible from an arboricultural perspective.
- 6.7. The new drainage system is largely routed well away from trees and utilises small SuDS basins, Geocellular tanks and an existing surface water gravity pipe that discharges to the watercourse to the north. The pipes in the western part of the site have been located at a good distance from the western boundary trees and is within land that has existing disturbance and compaction, so would not significantly impact them.
- 6.8. At the **Jackson's Ridge** application area, the existing farm access would be utilised for Plots A and B, and a second access created to the west for Plot C, outside of the RPA of beech tree T4.
- 6.9. The dwellings are located outside of tree RPAs and on the existing level plinth on which the farm currently sits. It will be a straightforward matter to demolish the existing structures utilising the existing hard surfaces and to remove the hard surfacing to the south of trees T4 to T12. In the longer term, the removal of the hard surfacing will provide a significant improvement in the soil rooting environment for these trees.
- 6.10. The new driveways for Plots B and C are within the RPAs of some of the roadside trees, but are entirely within areas of existing structures and hard surfacing (shown as red lines on the Tree Retention & removal Plan in **Section 3**). The new driveway for Plot A is over the currently open ground to the south of beech T13

and oak T16. The ground here naturally slopes down gently away from the highway boundary. Subject to an assessment of detailed proposed levels, it is likely to be feasible to utilise a cellular confinement system to construct the driveway so that excavation to achieve levels is minimised, and so that the driveway surface remains highly porous to maintain gaseous exchange with the soil and tree root systems below. The driveway installation can take place on completion of the dwelling construction to ensure that the area within the tree RPAs is physically protected during most site activity. Given the existing hard surfacing and structures within the RPAs of most of the site's trees, the proposal is feasible from an arboricultural perspective.

- 6.11. The new drainage system is well away from retained trees and flows southwards from the driveways and dwellings to eventually discharge to the watercourse at the bottom of the valley to the south. The final location for discharge to the watercourse is not yet known but can be chosen to minimise impact on trees along the watercourse.
- 6.12. The locations of other utility connections for the new dwellings will need to be assessed at a later stage once the options are known so that impacts on the root systems of retained roadside trees can be avoided or minimised.

7. TREE PROTECTION MEASURES

- 7.1. At the **Stonehouse Business Park** and **Anaerobic Digester (AD) Plant and Main Livestock Building** application areas, the physical protection of retained trees will be a straightforward matter of installing protective barriers at specified locations, to remain in situ for the duration of demolition, groundwork and construction and only removed before final soft landscaping.
- 7.2. At the **Jackson's Ridge** application area, protection barriers will need to be phased according to demolition and construction phases so that the maximum areas of exposed ground can be excluded from construction activity until the installation of the final driveway surfaces for the dwellings.

8. HEADS OF TERMS FOR AN ARBORICULTURAL METHOD STATEMENT (AMS)

- 8.1. BS5837:2012 (Figure 1) recommends that detailed/technical design of tree protection and arboricultural methodologies should be resolved and finalised following the approval of the feasibility of a scheme by the Local Planning Authority.
- 8.2. Annex B and Table B.1 of BS5837:2012, an informative, advises that Arboricultural Method Statement (AMS) Heads of Terms are a sufficient level of information in order to deliver tree-related information into the planning system. The table also advises that a detailed AMS might reasonably be required as a 'reserved matter' or planning condition.
- 8.3. In relation to the site, it is anticipated that arboricultural working methods are likely to be quite straightforward. A brief summary of the principles of tree protection on development sites is included in **Section 7**.
- 8.4. A draft, 'Heads of Terms' for an AMS is set out below:
 - Project arboriculturist – schedule of monitoring and supervision to be agreed with the applicant and LPA
 - Pre-commencement site meeting - to be attended by the project arboriculturist, client, site manager and other relevant parties. Project arboriculturist to ensure that all parties have copies of the tree protection plan and this report
 - Tree removals at Jackson's Ridge - as shown on the Tree Retention and Removal Plan (TRR)
 - Erection of tree protection barriers and temporary ground protection as may be required as per the Tree Protection Plan (TPP)
 - Site preparation and groundwork - no access for any machinery within the fenced tree protection areas
 - Locations and installation timing and methods for new drainage and utility connections, with on-site arboricultural supervision for any installation work within the RPAs of retained trees
 - Main construction phase - all tree protection measures shall remain in situ and intact for the duration of the construction phase
 - Removal of tree protection barriers - only to occur following approval of site conditions by the project arboriculturist
 - Final landscaping including tree planting.

9. CONCLUSIONS AND RECOMMENDATIONS

- 9.1. In conclusion, the development proposals for the three application areas are feasible, and the potential impacts on retained trees and hedgerows can be kept at a negligible to low level by further arboricultural input into the drainage and utility connection schemes, and through the protective measures and precautions set out in an Arboricultural Method Statement.
- 9.2. At the **Stonehouse Business Park** application area, the existing accesses and hard-surfaced areas mean that there would be no impacts on the trees and hedges. Any resurfacing of hard surfacing within the existing hard-surfaced areas would have no impact on the trees and hedges because there would be no increase in its extent.
- 9.3. At the **Anaerobic Digester (AD) Plant and Main Livestock Building** application area, the proposed development and access sits within the area of existing activity and ground disturbance so there would be no further impact on nearby trees than has occurred through the site's existing permitted use, and a reduction of future impacts with an overall improvement in the soil rooting environment.
- 9.4. At the **Jackson's Ridge** application area, the removal of the existing hard surfacing and structures within the RPAs of the roadside trees will provide a significant improvement in the soil rooting environment. Subject to an assessment of proposed levels, a cellular confinement system construction of the driveway for Plot A would reduce the impact on trees T13 and T16 to an acceptable level.
- 9.5. The proposed new drainage connections will have a negligible impact on retained trees.
- 9.6. A detailed AMS and a finalised Tree Protection Plan for each area will need to be produced with reference to the construction method statement(s). Where the feasibility of a scheme has been agreed upon by the Local Planning Authority, this detail can be agreed upon and submitted later to comply with a pre-commencement planning condition (by agreement with the applicant).



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Senior Arboriculturist



IMAGE 1: The existing access from Hammerpond Road at the Jackson's Ridge application area, looking southwest.



IMAGE 2: General view of the Jackson's Ridge application area, looking northeast.



IMAGE 3: View of the Jackson's Ridge application area looking north from lower ground.



IMAGE 4: Detail of the existing hard surfacing to the south of the belt of trees along Hammerpond Road, looking west from the access.



IMAGE 5: Detail of the area to the south of the belt of trees along Hammerpond Road, looking east from the access.



IMAGE 6: View along the western frontage of the Jackson's Ridge application area, looking west.



IMAGE 7: The western access to the Stonehouse Business Park application area from Handcross Road, looking north.



IMAGE 8: The western access to the Stonehouse Business Park application area from Handcross Road, looking north.



IMAGE 9: View of 'Commercial Building 3' at the Stonehouse Business Park application area proposed for demolition and replacement building.



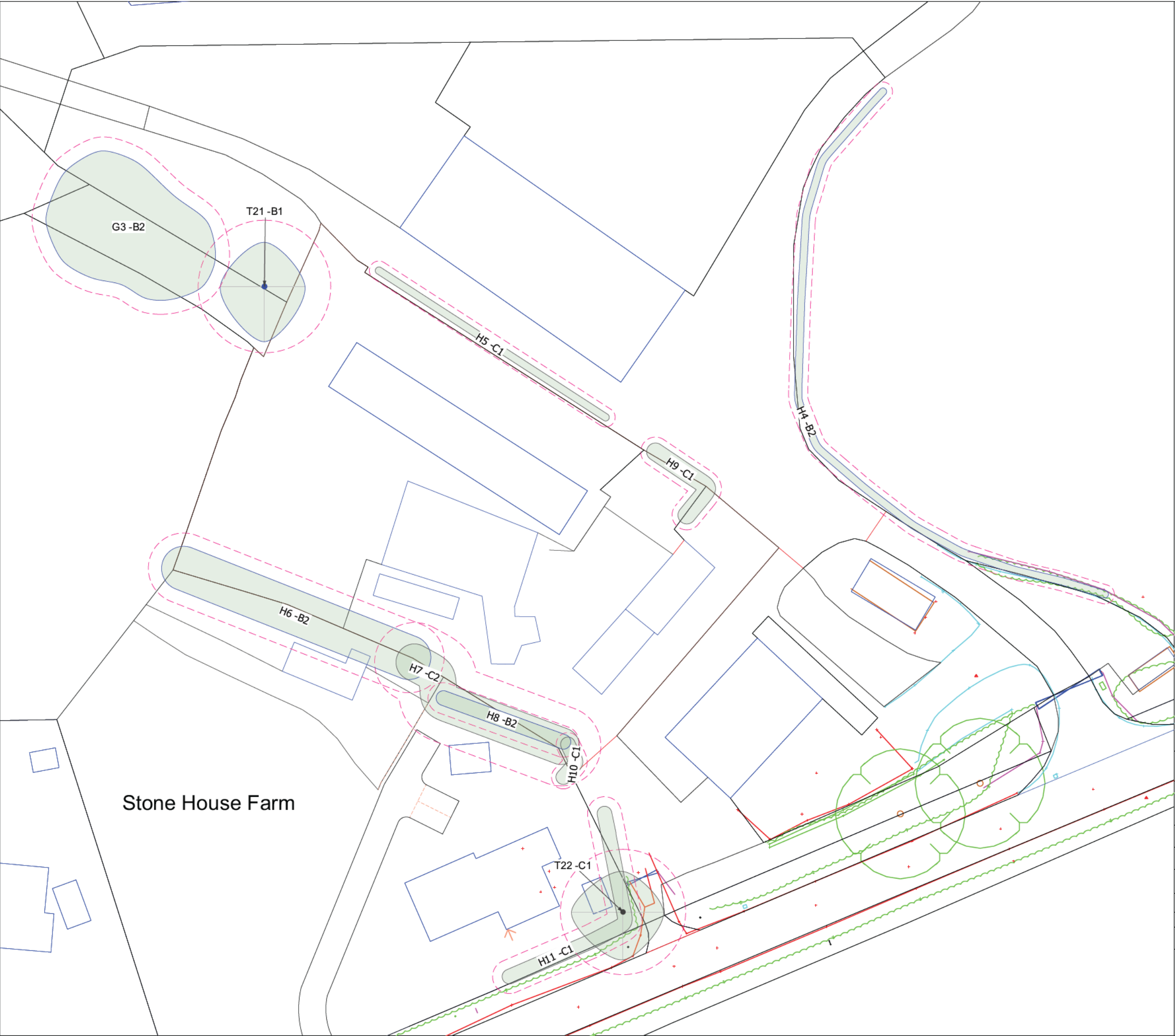
IMAGE 10: The earth bank separating the existing concrete hardstanding at the Stonehouse Business Park application area from properties to the south.



IMAGE 11: The linear group of mature oaks at the Stonehouse Business Park application area, looking northwest.



IMAGE 12: General view towards the Anaerobic Digester (AD) Plant and Main Livestock Building application area, looking northwest.



KEY

- Category A Tree - High quality (Retention highly desirable)
- Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/offsite tree/out of scope (OOS)

Tree No	Species	Ht (m)	Life Stage	RPA Radius (m)	RPA Area (m2)
T1	Holly	4.5	SM	1.8	10
T2	Yew (Common)	2.5	EM	7	152
T3	Holly	3.0	EM	2.4	18
T4	Beech (Common)	19.0	M	8.9	248
T5	Oak (English)	15.0	M	5.4	92
T6	Oak (English)	16.0	M	5.8	104
T7	Oak (English)	17.0	EM	4.4	62
T8	Oak (English)	16.0	EM	3.5	38
T9	Beech (Common)	16.0	M	9.4	275
T10	Oak (English)	20.0	M	7.7	185
T11	Oak (English)	16.0	M	6.6	137
T12	Oak (English)	16.0	M	6.2	122
T13	Beech (Common)	16.0	M	11.2	391
T14	Oak (English)	4.5	SM	2.5	20
T15	Beech (Common)	16.0	EM	4.5	65
T16	Oak (English)	18.0	M	6.8	147
T17	Willow (Goat)	6.0	SM	2.2	15
T18	Oak (English)	18.0	M	7.2	163
T19	Willow (Goat)	6.5	SM	2.9	26
T20	Willow (Goat)	8.0	SM	3.6	41
T21	Oak (English)	12.0	M	9	254
T22	Birch (Downy)	14.0	M	8.5	228
G1	Holly; hawthorn	4.5-8	EM	4.4	-
G2	Goat willow; wild cherry; blackthorn	4-9	SM	2.4	-
G3	English oak	16	M	8.9	-
G4	Holly; downy birch	7-13	SM	3.1	-
H1	Lonicera nitida; rhododendron; holly; hazel; privet; blackthorn	2.0	M	1.5	-
H2	Hawthorn, holly; common beech	3.0	Y	1	-
H3	Damson; holly; hawthorn blackthorn; wild privet	7.0	M	1.8	-
H4	Blackthorn; field maple; hawthorn; hazel; dogwood; dog rose	1.5	Y	0.8	-
H5	Blackthorn; hawthorn; dog rose	1.5	Y	0.8	-
H6	Hawthorn; hornbeam; hazel; spindle	5.5	SM	1.8	-
H7	Leyland cypress	7.0	SM	2.9	-
H8	Hawthorn	3.0	SM	1.1	-
H9	Common beech; hazel; hawthorn; blackthorn; field maple	4.5	Y	0.8	-
H10	Lonicera nitida	1.5	EM	0.6	-
H11	Cherry laurel; sycamore; holly; Lonicera nitida	2.5	EM	1.3	-

Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice

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PROJECT TITLE
Stonehouse Business Park - Stonehouse Farm, Horsham

DRAWING TITLE
Tree Survey & Constraints Plan

SCALE
1:500 @ A3

DRAWING NUMBER
BHA_5974_01

DRAWN BY IM	APPROVED BY RH	REVISION B	SHEET -	DATE 19/02/2025
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TOPOGRAPHICAL SURVEY **S24845 - Jacksons Farm - Topo Survey**

CLIENT **Lake Investment Limited**

COORDINATE SYSTEM / DATUM **British National Grid / Newlyn Datum (AOD)**

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H1	Lonicera nitida; rhododendron; holly; hazel; privet; blackthorn	2.0	M	1.5	-
H2	Hawthorn; holly; common beech	3.0	Y	1	-
H3	Damson; holly; hawthorn; blackthorn; wild privet	7.0	M	1.8	-
H4	Blackthorn; field maple; hawthorn; hazel; dogwood; dog rose	1.5	Y	0.8	-
H5	Blackthorn; hawthorn; dog rose	1.5	Y	0.8	-
H6	Hawthorn; hornbeam; hazel; spindle	5.5	SM	1.8	-
H7	Leyland cypress	7.0	SM	2.9	-
H8	Hawthorn	3.0	SM	1.1	-
H9	Common beech; hazel; hawthorn; blackthorn; field maple	4.5	Y	0.8	-
H10	Lonicera nitida	1.5	EM	0.6	-
H11	Cherry laurel; sycamore; holly; Lonicera nitida	2.5	EM	1.3	-

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TOPOGRAPHICAL SURVEY
S24845 - Jacksons Farm - Topo Survey

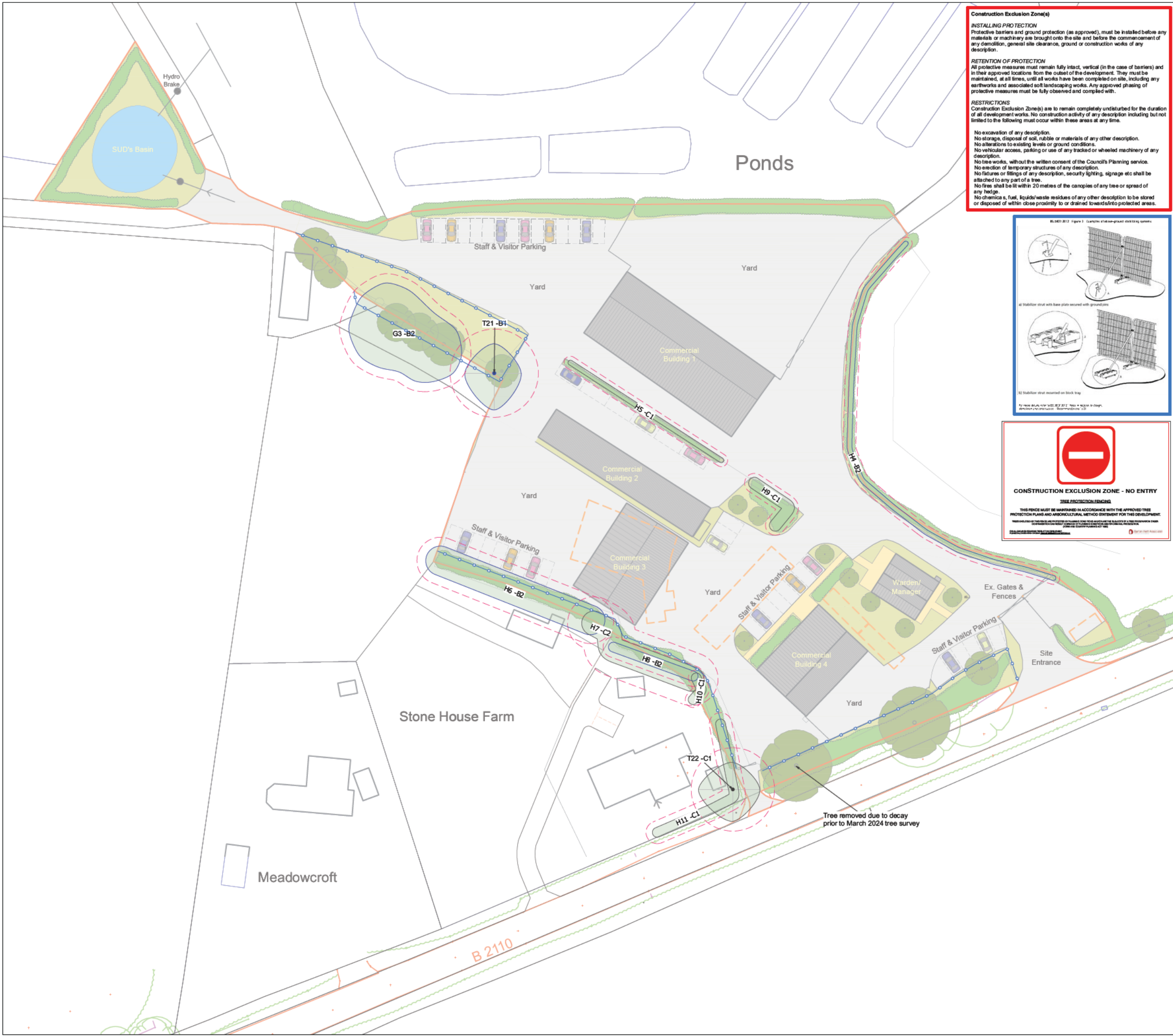
CLIENT
Lake Investment Limited

COORDINATE SYSTEM / DATUM
British National Grid / Newlyn Datum (AOD)

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Barton Hyett Associates
Arboricultural Consultants

Tel: 01386 576161 Website: www.barton-hyett.co.uk
Address: Office 5E, Deer Park Business Centre,
Eckington, Pershore, Worcestershire, WR10 3DN



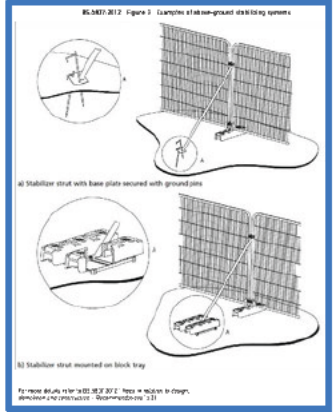
Construction Exclusion Zone(s)

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No vehicular access, parking or use of any tracked or wheeled machinery of any description.
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No erection of temporary structures of any description.
No fixtures or fittings of any description, security lighting, signage etc shall be attached to any part of a tree.
No tree shall be left within 20 metres of the canopies of any tree or spread of any hedge.
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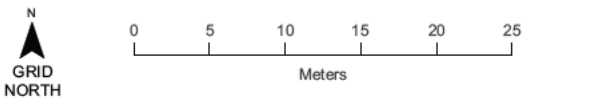


KEY

- Category A Tree - High quality (Retention highly desirable)
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- Tree / Hedgerow / Group to be removed
- Protection Measures
- Tree Protection Barrier to specification of Figure 3 of BS5837:2012

Tree No	Species	Ht (m)	Life Stage	RPA Radius (m)	RPA Area (m²)
T1	Holly	4.5	SM	1.8	10
T2	Yew (Common)	2.5	EM	7	152
T3	Holly	3.0	EM	2.4	18
T4	Beech (Common)	19.0	M	8.9	248
T5	Oak (English)	15.0	M	5.4	92
T6	Oak (English)	16.0	M	5.8	104
T7	Oak (English)	17.0	EM	4.4	62
T8	Oak (English)	16.0	EM	3.5	38
T9	Beech (Common)	16.0	M	9.4	275
T10	Oak (English)	20.0	M	7.7	185
T11	Oak (English)	16.0	M	6.6	137
T12	Oak (English)	16.0	M	6.2	122
T13	Beech (Common)	16.0	M	11.2	391
T14	Oak (English)	4.5	SM	2.5	20
T15	Beech (Common)	16.0	EM	4.5	65
T16	Oak (English)	18.0	M	6.8	147
T17	Willow (Goat)	6.0	SM	2.2	15
T18	Oak (English)	18.0	M	7.2	163
T19	Willow (Goat)	6.5	SM	2.9	26
T20	Willow (Goat)	8.0	SM	3.6	41
T21	Oak (English)	12.0	M	9	254
T22	Birch (Downy)	14.0	M	8.5	228
G1	Holly; hawthorn	4.5-8	EM	4.4	-
G2	Goat willow; wild cherry; blackthorn	4-9	SM	2.4	-
G3	English oak	16	M	8.9	-
G4	Holly; downy birch	7-13	SM	3.1	-
H1	Lonicera nitida; rhododendron; holly; hazel; privet; blackthorn	2.0	M	1.5	-
H2	Hawthorn; holly; common beech	3.0	Y	1	-
H3	Damson; holly; hawthorn blackthorn; wild privet	7.0	M	1.8	-
H4	Blackthorn; field maple; hawthorn; hazel; dogwood; dog rose	1.5	Y	0.8	-
H5	Blackthorn; hawthorn; dog rose	1.5	Y	0.8	-
H6	Hawthorn; hornbeam; hazel; spindle	5.5	SM	1.8	-
H7	Leyland cypress	7.0	SM	2.9	-
H8	Hawthorn	3.0	SM	1.1	-
H9	Common beech; hazel; hawthorn; blackthorn; field maple	4.5	Y	0.8	-
H10	Lonicera nitida	1.5	EM	0.6	-
H11	Cherry laurel; sycamore; holly; Lonicera nitida	2.5	EM	1.3	-

Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice



PROJECT TITLE
Stonehouse Business Park - Stonehouse Farm, Horsham

DRAWING TITLE
Tree Retention / Removal & Protection Plan

SCALE
1:500 @ A3

DRAWING NUMBER
BHA_5974_02

DRAWN BY
IM

APPROVED BY
RH

REVISION
B

SHEET
-

DATE
28/02/2025

SITE LAYOUT
Proposed Site Layout 2024 PL10C

CLIENT
Lake Investment Limited

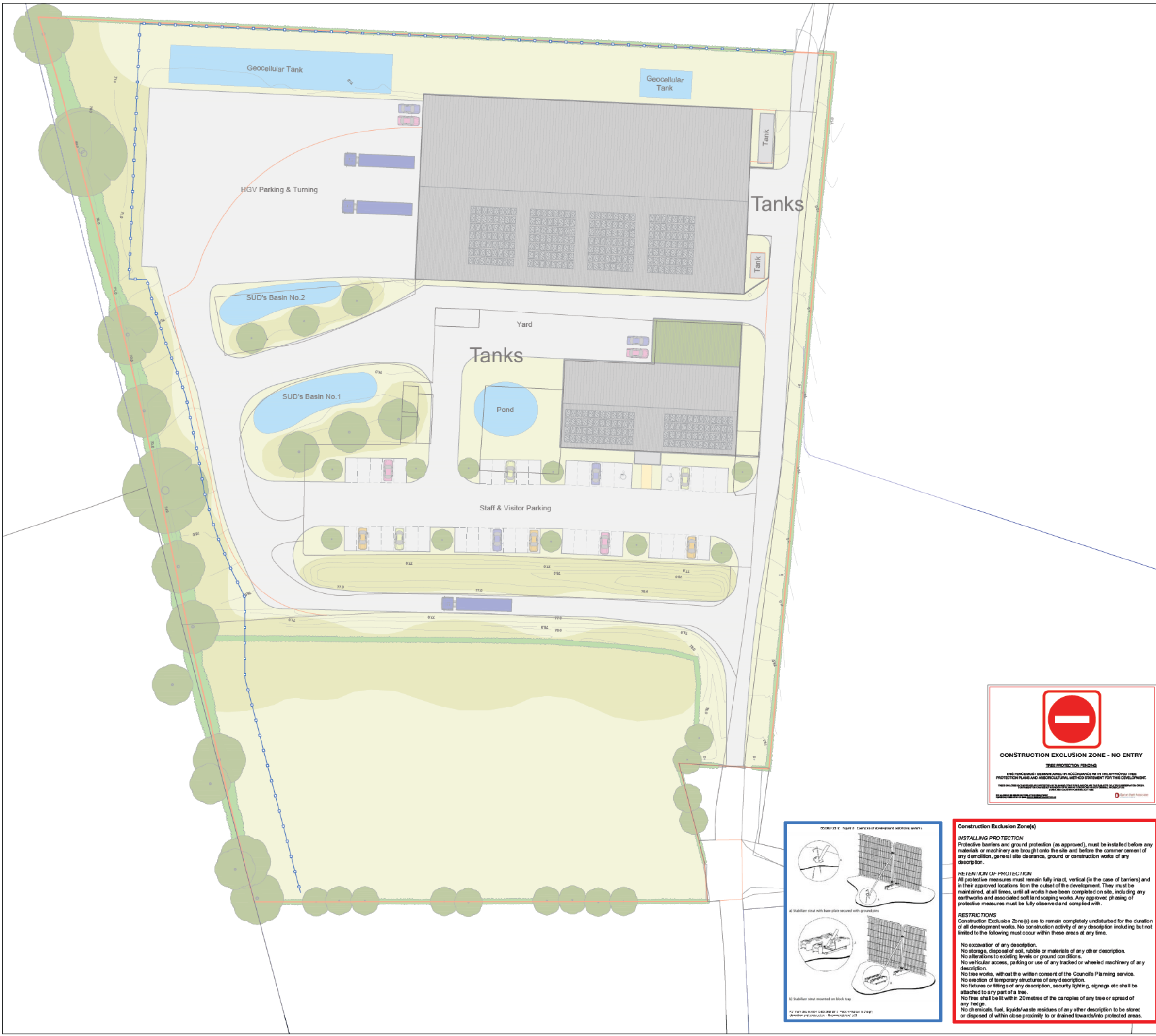
COORDINATE SYSTEM / DATUM
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CSA
environmental



KEY

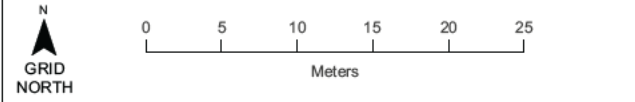
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Protection Measures

- Tree Protection Barrier to specification of Figure 3 of BS5837:2012

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H11	Cherry laurel; sycamore; holly; Lonicera nitida	2.5	EM	1.3	-

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PROJECT TITLE
**Anaerobic Digester (AD) Plant and Main Livestock Building
Stonehouse Farm, Horsham**

DRAWING TITLE
Tree Retention / Removal & Protection Plan

SCALE	1:500 @ A3	DRAWING NUMBER	BHA_5974_02
DRAWN BY	IM	APPROVED BY	RH
REVISION	B	SHEET	-
DATE	28/02/2025		

SITE LAYOUT Proposed Site Layout 2024.PL7C

CLIENT Lake Investment Limited

COORDINATE SYSTEM / DATUM British National Grid / Newlyn Datum (AOD)

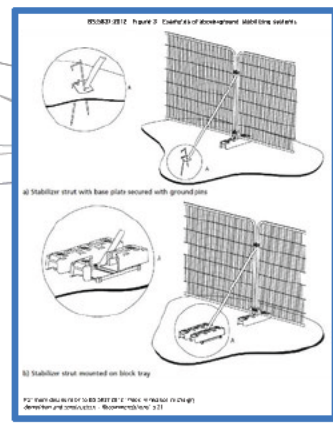
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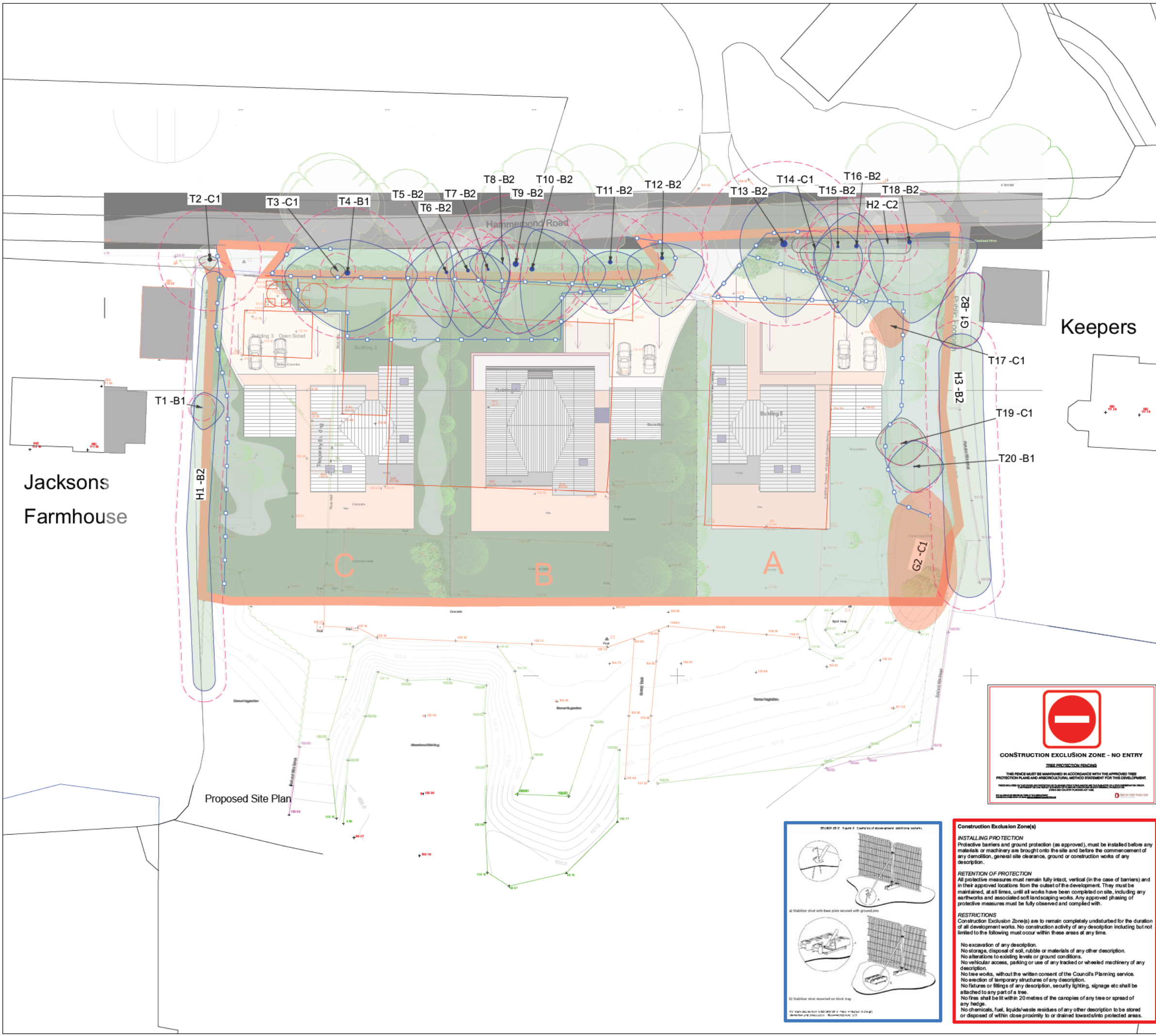
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GRID NORTH

0 5 10 15 20 25 Meters

PROJECT TITLE
Jackson's Ridge, Stonehouse Farm, Horsham

DRAWING TITLE
Tree Retention / Removal & Protection Plan

SCALE	1:500 @ A3	DRAWING NUMBER	BHA_5974_02
DRAWN BY	IM	APPROVED BY	RH
REVISION	B	SHEET	-
DATE	28/02/2025		

SITE LAYOUT
259101-110 Jacksons Farm - Proposed Site Plan

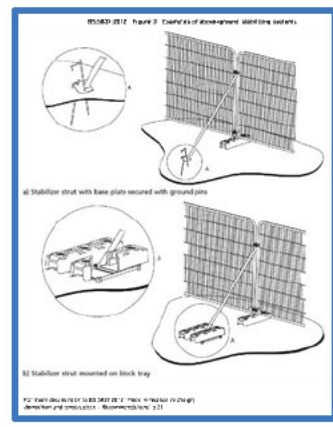
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INDIVIDUAL TREES

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. low crown height (m)	1st branch ht (m)	1st branch dir.	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)	RPA m²
T1	Holly	Off	4.5	1	Yes	150	2.0-3.0-3.0-1.5	1.5	2.0	-	SM	Outgrown hedgerow tree. Smaller outgrown holly within hedgerow to south.	Good	Good	40+	B1	1.8	10
T2	Yew (Common)	On	2.5	15	-	580	0.5-1.0-1.5-1.5	0.5	0.5	S	EM	Topped at 2.5m; presumably for power line installation/clearance above.	Fair	Fair	20+	C1	7.0	152
T3	Holly	On	3.0	1	-	200	1.0-1.0-1.0-1.0	0.5	1.5	-	EM	Topped at 2.5m.	Good	Fair	20+	C1	2.4	18
T4	Beech (Common)	On	19.0	1	-	740	4.5-9.5-8.0-8.5	6.0	5.0	W	M	Fence to south installed to accommodate root flare. Historical crown lift sounds; mostly occluded.	Good	Good	40+	B1	8.9	248
T5	Oak (English)	On	15.0	1	-	450	4.0-1.0-7.5-5.5	5.0	5.5	S	M	Crown lift wounds.	Good	Good	40+	B2	5.4	92
T6	Oak (English)	On	16.0	2	-	480	3.0-5.5-9.0-4.0	6.0	6.0	S	M	Two stems from 1m. Old branch removal wound at 0.5m.	Good	Good	40+	B2	5.8	104
T7	Oak (English)	On	17.0	1	-	370	2.0-1.5-8.0-5.0	10.0	2.5	N	EM	Suppressed form. Crown biased to south.	Good	Good	40+	B2	4.4	62
T8	Oak (English)	On	16.0	1	-	290	3.0-1.0-4.0-4.5	12.0	12.0	S	EM	Slender form. Dead branch at 8m north. Semi-mature holly growing at base.	Good	Good	40+	B2	3.5	38
T9	Beech (Common)	On	16.0	2	-	780	5.0-8.5-9.5-4.5	5.0	3.0	E	M	Twin-stemmed from ground. Third stem to south removed to 1m stub which has hollowed through decay down into base of remaining two stems. <i>Kretzschmaria deusta</i> fungal bodies on upper side of decayed stub probably currently acting saprotrophically.	Good	Fair	20+	B2	9.4	275
T10	Oak (English)	On	20.0	1	-	640	5.0-10.0-9.0-1.5	5.5	3.0	SE	M	Crown biased to SE as tree has grown away from adjacent beech.	Good	Good	40+	B2	7.7	185
T11	Oak (English)	On	16.0	1	-	550	1.5-4.0-7.0-3.5	2.5	4.0	S	M	Boundary bank to west historically excavated. Deadwood.	Good	Good	40+	B2	6.6	137
T12	Oak (English)	On	16.0	1	-	520	2.0-5.5-8.0-4.5	4.5	3.5	S	M	Eroded/excavated boundary bank at entrance to east. Historical trunk wound at 1.5m south has occluded/ compartmentalised.	Good	Good	40+	B2	6.2	122
T13	Beech (Common)	On	16.0	8	Yes	930	7.0-6.5-10.0-6.0	6.0	6.0	S	M	Coppiced-original; with 6 primary stems from near ground. Roadside stem has decay cavity at 2m probably associated with vehicle strike wound. Included bark basal stem unions. Shrouded power line and phone line cables through centre of lower crown/stems.	Good	Good	40+	B2	11.2	391

CLIENT: LAKE INVESTMENT LTD

SURVEY DATE: 07/03/2024

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. low crown height (m)	1st branch ht (m)	1st branch dir.	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)	RPA m²
T14	Oak (English)	On	4.5	1	-	210	1.0-2.0-3.5-2.0	1.5	1.5	S	SM	Previously topped tree. Suppressed. Leader dieback. Strip of decay from topping wound to ground; leaving strip of live cambium on other side of stem.	Fair	Fair	20+	C1	2.5	20
T15	Beech (Common)	On	16.0	1	-	380	2.5-3.0-9.0-3.0	2.0	5.0	S	EM	Crown biased to south.	Good	Good	40+	B2	4.5	65
T16	Oak (English)	On	18.0	1	-	570	4.5-3.5-11.0-5.5	2.5	5.0	S	M	Ground level probably historically raised to south. Occluding branch removal wounds.	Good	Good	40+	B2	6.8	147
T17	Willow (Goat)	On	6.0	2	Yes	180	2.5-2.5-3.0-3.0	0.5	1.0	-	SM	Natural regeneration on edge of levelled area.	Good	Good	20+	C1	2.2	15
T18	Oak (English)	On	18.0	1	-	600	0.5-9.0-11.0-5.0	2.5	4.0	S	M	Cable trench excavated within 1m of trunk base to south from utility pole to barn. Occluding branch removal wounds. Deadwood.	Good	Good	40+	B2	7.2	163
T19	Willow (Goat)	On	6.5	1	Yes	240	3.5-3.5-3.0-3.5	0.5	0.0	-	SM	Multi-stemmed; with cambium dysfunction in main stem. Natural regeneration on slope of built up area.	Fair	Fair	20+	C1	2.9	26
T20	Willow (Goat)	On	8.0	1	-	300	3.5-4.0-3.5-3.5	2.0	1.5	-	SM	Natural regeneration on slope of built up area.	Good	Good	40+	B1	3.6	41
T21	Oak (English)	On	12.0	1	-	750	6.0-5.5-7.5-6.0	5.0	4.5	S	M	Root system has been severely impacted by built up levels by 2m to north; construction of concrete slab ramp to southeast and imported rubble/roadstone track installed to south. Historical fire or strike damage to underside of north stem extending down.	Fair	Fair	20+	B1	9.0	254
T22	Birch (Downy)	On	14.0	1	-	710	5.5-5.5-6.5-7.0	4.5	3.0	S	M	Tree in state of decline; with branch dieback and fractures. Dieback in central leader. One larger low branch juts out to SW over highway. Tarmac and concrete slab over calculated RPA.	Poor	Fair	10+	C1	8.5	228

GROUPS OF TREES

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	Holly; hawthorn	Off	4.5-8	4	Yes	370	4.5	2.0	EM	Off-site garden boundary group. Hollies are early-mature. One mature hawthorn.	Good	Good	40+	B2	4.4
G2	Goat willow; wild cherry; blackthorn	On	4-9	5	-	200	3.5	0.5	SM	Natural regeneration on slope of built up area.	Good	Fair	20+	C1	2.4
G3	English oak	On	16	3	Yes	740	7.0	5.5	M	Root systems severely impacted by build up of levels to north to 2m; tapering to west; and compacted rubble/roadstone track to south. Scattered hawthorns and dog rose below.	Fair	Good	20+	B2	8.9
G4	Holly; downy birch	On	7-13	6	Yes	260	2.0	0.0	SM	Linear group of holly with two slender birches.	Good	Good	20+	B2	3.1

HEDGEROWS

Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H1	Lonicera nitida; rhododendron; holly; hazel; privet; blackthorn	Off	2.0	3	120	0.0	M	Trimmed garden hedge.	Good	Good	40+	B2	1.5
H2	Hawthorn, holly; common beech	On	3.0	2	80	0.0	Y	Sparse linear planting; possibly associated with construction of barn to south for screening. Generally suppressed. Two hawthorns to 5/6m.	Fair	Fair	20+	C2	1.0
H3	Damson; holly; hawthorn blackthorn; wild privet	Off	7.0	6	150	2.0	M	Off-site outgrown hedgerow along side of public footpath. High level of ivy. Some subsided stems.	Good	Fair	40+	B2	1.8
H4	Blackthorn; field maple; hawthorn; hazel; dogwood; dog rose	On	1.5	1	60	0.5	Y	Established young hedgerow.	Good	Good	40+	B2	0.8
H5	Blackthorn; hawthorn; dog rose	On	1.5	1	60	0.0	Y	Gappy hedge presumably planted as part of unit construction. Retained by concrete wall.	Good	Good	20+	C1	0.8
H6	Hawthorn; hornbeam; hazel; spindle	On	5.5	6	150	0.5	SM	Planted on earth bank between concrete slab of barn area and farmhouse garden. HV power line immediately above. Sides currently unmaintained but height previously reduced for clearance. Could be significantly flailed back to maintain tighter form.	Good	Good	40+	B2	1.8
H7	Leyland cypress	On	7.0	5	240	1.0	SM	Planted on top of 1m high earth bank at edge of farmhouse garden and fenced; concrete slab at base of bank on commercial side. Partially topped below HV power lines.	Good	Good	20+	C2	2.9
H8	Hawthorn	On	3.0	2	90	0.0	SM	Planted along top of earth bank and previously maintained at 1.5m height.	Good	Good	20+	B2	1.1

Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H9	Common beech; hazel; hawthorn; blackthorn; field maple	On	4.5	2.5	60	0.0	Y	Currently unmaintained hedge presumably planted as screening against unit. Manhole and excavations nearby.	Good	Good	20+	C1	0.8
H10	Lonicera nitida	On	1.5	2	50	0.0	EM	Trimmed garden hedge.	Good	Good	20+	C1	0.6
H11	Cherry laurel; sycamore; holly; Lonicera nitida	On	2.5	2	100	0.0	EM	Trimmed garden hedge.	Good	Good	20+	C1	1.3

- The tree survey was carried out with reference to the methodology set out in BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups and/or woodlands were also surveyed as individuals.
- Within the tree survey schedule, each surveyed TREE (T), GROUP (G), HEDGEROW (H), WOODLAND (W) or SHRUB MASS on or adjacent to the site is given a reference number which refers to its position on the tree survey and constraints plan.
- TREE SPECIES are listed by common name.
- OOS: The recorded Out Of Scope trees and features refer to either a dead-standing or failed tree; a stump or minor shrubs; where trees are inaccessible or located off-site and unlikely to be affected by the development or, it is found that the trees are undersized according to BS 5837:2012, which stipulates a minimum recordable diameter of 75mm.

The **DIMENSIONS** taken are:

- STEM-No. indicates the number of main stems (i.e. whether the trunk divides at or below 1.5m; (used in the calculation of root protection area (RPA)) "m-s" = Multi-stemmed.
- STEM DIAMETER (measured in millimetres), obtained from the girth measured at approx. 1.5m. For trees with 2 to 5 sub-stems, a notional figure is derived from the sum of their cross-sectional areas. For multi-stemmed trees, the notional diameter may be estimated on the basis of the average stem size x the number of stems. Note: a notional diameter may be estimated where measurement is not possible.
- HEIGHT (measured in metres), recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- The CROWN SPREAD, taken at the four cardinal points to derive an accurate representation of the tree crown, recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m.
- CROWN CLEARANCES, expressed both as the existing height above ground level of the first significant branch along with its direction of growth (e.g., 2.5m-N) and also in terms of the overall crown e.g., the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES: where any measurement has had to be estimated, e.g., due to inaccessibility, this is indicated by a "##" suffix to the measurement as shown in the Tree Survey Schedule.

LIFE STAGE is defined as follows:

- Y Young: Normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread but as yet making a limited impact upon the landscape.
- SM Semi-mature: Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment. Semi-mature are still capable of being transplanted without preparation, up to 300mm girth and not yet sexually mature.

- EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment.
- M Mature: Well-established trees, still growing with some vigour but tending to fill out and increase spread. Bark may be beginning to crack and fissure. In the middle half of their safe, useful life expectancies.
- LM Late-mature: In full maturity but possibly beyond mature and in a state of natural decline. Still retaining some vigour but any growth is slowing.
- A Ancient: A tree that has passed beyond maturity and is old/aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):

Essentially a snapshot of the general health of the tree based upon its general appearance, its apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress etc. (fungal infections may be recorded here but decay giving rise to structural weakness would be recorded under 'Structural Condition' – see next parameter):

- Good: No significant health issues.
- Fair: Indications of slight stress or minor disease (e.g., the presence of minor dieback/deadwood or epicormic shoot growth).
- Poor: Significant stress or disease noted; larger areas of dieback than above.
- Dead: (or Moribund).

STRUCTURAL CONDITION:

Features affecting the structural stability of the tree include decay, significant deadwood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members) etc. Classified as:

- Good: No obvious structural defects: basically sound.
- Fair: Minor, potential or incipient defects.
- Poor: Significant feature(s) likely to lead to actual failure in the medium- to long-term.
- Dead: (or Moribund).

ESTIMATED REMAINING CONTRIBUTION:

An estimate of the length of time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued routine maintenance):

- Less than 10 years
- 10+ years
- 20+ years
- 40+ years

SPECIAL IMPORTANCE:

Trees that are particularly notable as high-value trees such as ancient trees/woodland or veteran trees. Such trees may be regarded as the principal arboricultural features of a site and pose a significant constraint to potential development.

An **ancient** tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life stage. **Veteran** trees are often very old but not necessarily so; they may be regarded as 'survivors' that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

The term '*notable*' carries no weight within the National Planning Policy Framework (NPPF), but is a term that recognises a mature tree which may stand out in the local environment because it is large in comparison with other trees around it.

Ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW).

QUALITY CATEGORY:

Trees are classed as category U, A, B or C, based on criteria given in BS 5837:2012; summary definitions as follows (see BS 5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value. These are:

- (1) arboricultural qualities
- (2) landscape qualities, and
- (3) cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only.

Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.

CATEGORY A: HIGH QUALITY:

Trees or groups whose retention should be given a particularly high priority within the design process. Normally with an expected useful life expectancy of at least 40 years.

- A1: Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g., dominant trees within an avenue etc.).
- A2: Trees, groups or woodlands of particular visual importance as landscape features.
- A3: Trees, groups or woodlands of particular significance by virtue of their conservation, historical, commemorative or other value (e.g., veteran trees or wood pasture).

CATEGORY B: MODERATE QUALITY

Trees or groups of some importance with a likely useful life expectancy in excess of 20 years. Their retention would be desirable; selective removal of certain individuals may be acceptable but only after full consideration of all alternative courses of action.

- B1: Fair quality but not exceptional; good specimens showing some impairment (e.g., remediable defects, minor storm damage or poor past management).
- B2: Acceptable trees situated such as to have little visual impact within the wider locality. Also the number of trees, perhaps in groups or woodlands, whose value as landscape features is greater collectively than would warrant as individuals (such that the selective removal of an individual would not impact greatly upon the trees' overall, collective value).
- B3: Trees, groups or woodlands with clearly identifiable conservation or other cultural benefits.

CATEGORY C: LOW QUALITY:

Trees or groups of rather low quality, although potentially capable of retention for at least approx. 10 years. Also small trees with stems below 150mm diameter.

Potentially retainable, but not of sufficient value to be regarded as a significant planning constraint.

- C1: Unremarkable trees of very limited merit or significantly impaired condition.
- C2: Trees offering only low- or short-term landscape benefits; also secondary specimens within groups or woodlands whose loss would not significantly diminish their landscape value.
- C3: Trees with extremely limited conservation or other cultural benefits.

CATEGORY U: VERY LOW QUALITY

Trees likely to prove to be unsuitable for retention for longer than 10 years should any significant increase in site usage arise as a result of development. E.g., dead or moribund trees; those at risk of collapse or in terminal decline; trees that will be left unstable by other essential works such as the removal of nearby category U trees; trees infected by pathogens that could materially affect other trees; low-quality trees that are suppressing better specimens. (Category U trees may have conservation values that it might be desirable to preserve. This category may also include trees that should be removed irrespective of any development proposals.)

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times the stem diameter, measured at 1.5m above ground level. The shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

In line with the Standing Advice produced by the Forestry Commission and Natural England, this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

In line with the Standing Advice produced by the Forestry Commission and Natural England, this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

THE IMPORTANCE OF TREES

Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places people live.

Some *Economic* benefits of trees include:

- Trees can increase property values
- As trees grow larger, the lift they give to property values grows proportionately
- They can improve the environmental performance of buildings by reducing heating and cooling costs, thereby cutting bills
- Mature landscapes with trees can be worth more as development sites
- Trees create a positive perception of a place for potential property buyers
- Urban trees improve the health of local populations, reducing healthcare costs

Some *Social* benefits of trees include:

- Trees help create a sense of place and local identity
- They benefit communities by increasing pride in the local area
- They can create focal points and landmarks
- They have a positive impact on people's physical and mental health
- They can have a positive impact on crime reduction

Some *Environmental* benefits of trees include:

- Urban trees reduce the 'urban heat island effect' of localised temperature extremes
- They provide shade, making streets and buildings cooler in summer
- They help remove dust and particulates from the air
- They help to reduce traffic noise by absorbing and deflecting sound
- They help to reduce wind speeds
- By providing food and shelter for wildlife they help increase biodiversity
- They can reduce the effects of flash flooding by slowing the rate at which rainfall reaches the ground
- They can help remediate contaminated soil

On new development sites:

Trees bring many benefits to new development. Where retained successfully they can form important and sustainable elements of green infrastructure, contribute to urban cooling and reduce energy demands in buildings. Their importance is acknowledged in relation to adaptation to the effects of climate change. Other benefits brought by trees include:

- increasing property values;
- visual amenity
- softening, complementing and adding maturity to built form
- displaying seasonal change
- increasing wildlife opportunities in built-up areas
- contributing to screening and shade
- reducing wind speed and turbulence

NATIONAL PLANNING POLICY

The National Planning Policy Framework December 2024 (NPPF paragraph 193 states that, when determining planning applications, local planning authorities should apply the following principle:

c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons and a suitable compensation strategy exists.'

In this respect, the following definitions apply:

'Ancient woodland: An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)', and

'Ancient or veteran tree: A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life stage.'

Note: Further information from the National Planning Policy Guidance Suite and Standing Advice is provided in the design guidance section.

Other paragraphs of the NPPF 2023 of relevance to this report are:

Paragraph 136: *'Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and*

community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.'

Paragraph 187: 'Planning policies and decisions should contribute to and enhance the natural and local environment by:

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.'

STATUTORY CONTROLS

Statutory tree protection

Works to trees which are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area (CA) require permission or consent from the Local Planning Authority. Where information is available on any Statutory designations such as this they are identified within the summary table in Section 1 and on the Tree Survey and Constraints Plan at Section 2.

Notwithstanding specific exceptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of protected trees or woodlands without the prior written consent of the LPA.

Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine if the matter is determined by the Crown Court.

Similarly, and again notwithstanding specific exceptions, it is an offence to carry out any works to a tree in a Conservation Area with a trunk diameter greater than 75mm diameter at 1.5 height without having first provided the LPA with 6 weeks written notification of intent to carry out the works.

On many non-residential sites (excluding specific exemptions) there is also a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic terms, it is an offence to remove more than 5 cubic metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with the statutory controls outlined. Therefore, we recommend that a further check is made with the LPA before any tree works are carried out.

Statutory Wildlife Protection

Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside of the scope for this report.

Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for protected species such as bats in addition to birds and small mammals. It is advised that in some instances specialist ecological advice may be required. This may result in tree works being carried out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the site manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by the appointed Ecologist or Natural England.

It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. This time period only provides an indication of likely nesting times and as such diligence is required when undertaking tree works at all times.

Irrespective of the time of year and other than any actions approved under General Licence, it is an offence to intentionally kill, injure or take any wild bird or to intentionally take, damage or destroy the nest or eggs of any wild bird. Ideally, tree operations should be avoided during the likely bird nesting period. However, any tree works should always only be carried out following a preliminary visual check of the vegetation.

For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in England and Wales. A different legislative framework applies in Scotland and Northern Ireland.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with any relevant statutory controls, outlined above.

DESIGN GUIDANCE

Approach

The approach adopts the guidelines set out in the British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The process is broken down to coordinate with the key elements within both the RIBA Plan of Work (2013) and British Standard 5837:2012 as set out in the table below:

Information Stage	RIBA Stage	BS5837:2012
Stage A – Tree Survey	2: Concept	4: Feasibility
Stage B – Arboricultural Impact Assessment	3: Developed design	5: Proposals
Stage C – Arboricultural Method Statement	4: Technical design	6: Technical Design
Stage D – Arboricultural Site Supervision	5: Construction	7: Demolition and construction

A hierarchical approach is adopted in order to achieve optimum use of the site and location of built structures. This is set out below:

Avoid

The starting point of Site layout design should be to avoid the RPA of retained trees and provide suitable clearance from above ground constraints [tree canopies]. Where possible building lines should be at least 2m outside the RPA to provide working space for construction. However, protection measures can be taken if such clearance is not achievable.

Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

Foundations that avoid trenching e.g. screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods subject to site-specific soil conditions.

Service runs that cannot be routed outside the RPA(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable or desirable. Off-site provision may be considered in some circumstances but this will require negotiation with the local planning authority.

Considerations:

For proposed residential developments, consideration must be given to numerous factors future tree growth and orientation.

Tree constraints

Root Protection Areas:

With reference to BS5837:2012, a root protection area (RPA) is defined as “a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure should be treated as a priority”. **“The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained”.**

BS5837:2012 states (4.6.2) that, “where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced.” The BS goes on to state that, “modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution,” and that any deviation from the original circular plot should take into account:

- Morphology and disposition of roots;
- topography and drainage;
- soil type and structure;
- the likely tolerance of the tree to root damage/disturbance.

Additional buffer zones beyond the RPA:

The following text is taken from the Standing Advice produced by the Forestry Commission and Natural England as included in the National Planning Policy Guidance:

‘A buffer zone’s purpose is to protect ancient woodland and individual ancient or veteran trees. The size and type of buffer zone should vary depending on the scale, type and impact of the development’.

Ancient woodland buffer:

‘For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, you’re likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic’.

Ancient and veteran tree buffer:

'A buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter'.

Above ground:

Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, movement of trees during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated requests to fell or heavily prune retained and protected trees.

Shade:

Adverse shading and blocked views from windows raise concerns for incoming residents, which may lead to pressure to fell or remove trees in the future. Wherever possible it is advisable to arrange fenestration away from tree canopies to lessen the conflict, or increase window size to accommodate ambient light.

Conversely, appropriate designed development can use existing or new trees to create necessary and welcome shade and screening.

As part of the adopted approach the above considerations and constraints are assessed cumulatively in order to provide clear and site-specific advice on the areas of a site most suitable for the location of development.

Dependent on the site and nature of the proposed development, the Tree Survey and Constraints Plans may show the following:

Recommended Developable area - an advisory area defined in order to minimise arboricultural impacts using standard approaches to construction. Restricting proposed development to this area will limit the risk of harm to retained trees and of the Local Planning Authority objecting to the proposed development. It may be possible to propose development outside of this area but specific 'low impact' construction techniques may be needed recommended.

Recommended Buffer to development - similar to the Recommend Developable Area but defined as a line marking a suitable buffer to retained trees. More commonly used on large sites or sites where the presence of trees is localised.

Tree Opportunities

Depending on the scale of developments existing trees can often provide opportunities to enhance the existing arboricultural resource of a site by bringing it into good management or by putting in place remedial measures e.g. soil amelioration.

Appropriately designed new tree planting is extremely important in maintaining healthy and sustainable tree populations. For the reasons highlighted, new trees can bring many benefits to new developments. It is critical to the establishment of new tree planting that the locations, species and specification of new trees is appropriate. Subsequently the sourcing of high-quality stock, suitable planting and the provision of post planting maintenance are essential to allow new trees to establish and to allow them to mature.

HOW TREE DAMAGE CAN OCCUR

Above the ground

Damage can occur as a result of knocks and scuffs, breakages of branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, tele handlers, high sided vehicles and crane use. Other forms of above ground damage include fixings to trunk and unauthorised cutting back of branches. Wounds will harm a tree's health and shorten its life by letting in disease-causing organisms.

Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in three ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations.
- Root dieback and death can result from compaction of the soil. Compaction can occur as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.
- Pollution of the soil with chemicals such as oil or cement washings can destroy the soil environment, making it inhospitable for the tree cause causing it stress.

The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

Tree protection barriers and load distributing 'no-dig' paths are specified in order to prevent soil compaction from taking place.

GENERAL SITE RULES FOR TREE PROTECTION

Do not independently carry out any activity that is at odds with the site scheme of tree protection. This is contained within an approved Arboricultural Method Statement (AMS) and accompanying Tree Protection Plan.

In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels (unless advised), deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- No lighting of fires or disposal of liquids
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree