

Report Verification

Report Version	Date	Completed by:	Checked and Approved by:
Final	19/04/2023	Stefan Harrison BSc (Hons) MArborA Arboricultural Consultant Luke Webb BSc (Hons) MArborA Senior Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager
Revision A	30/05/2023	Luke Webb BSc (Hons) MArborA Senior Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager
Revision B	17/10/2023	Luke Webb BSc (Hons) MArborA Senior Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager

Declaration of Compliance

This study has been undertaken in accordance with British Standard 5837:2012 ‘Trees in Relation to Design, Demolition and Construction – Recommendations’.

Disclaimer

The contents of this report are the responsibility of Middlemarch. It should be noted that, whilst every effort is made to meet the client’s brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees, groups, and hedgerows on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such, following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

This Arboricultural Impact Assessment has been produced following a review of a proposed works layout for the site based on data provided by the client. Should the development proposals change, this report will need to be updated to assess the impact of the amended development.

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1. Introduction

1.1 Project Background

This Arboricultural Impact Assessment was commissioned by The Clancy Group as part of the installation of a new transfer pipe at Manning’s Heath Wastewater Treatment Works, Birch Grove, Horsham. A survey of the trees on site and within influencing distance of the boundaries was undertaken on the 15th February 2023 as part of a Preliminary Arboricultural Assessment to aid design and avoid unnecessary tree removal.

This Arboricultural Impact Assessment has been carried out in accordance with British Standard 5837:2012 ‘*Trees in Relation to Design, Demolition and Construction - Recommendations*’ (hereafter referred to as BS5837).

The purpose of this report is to:

- Review the relationship between the proposed works and the existing trees and hedgerows identified during the Preliminary Arboricultural Assessment.
- Provide a Tree Retention Plan to determine trees and hedgerows to be retained and removed in the context of the proposed works.
- Identify mitigation to offset any tree or hedgerow loss as part of the development proposals.
- Identify all areas where specific working methods are required to ensure protection of retained trees and hedgerows as part of an Arboricultural Method Statement.

1.2 Site Description, Drawings and Appendices

Attribute	Description
National Grid Reference	TQ 202 290
Topography	Levelled areas within the treatment works with steep banks and slopes grading away from the site towards the north and west. A steep ravine is situated towards the east of the survey area.
Tree Cover	The site is surrounded by high-quality woodland and several lower quality individual trees and groups of trees are located around the peripheries of the site boundary.
Drawings attached	Tree Survey Plan – C159801-01-01 Tree Retention Plan – C159801-02-01_RevA
Appendices	Appendix A – Tree Schedule

Table 1.1: Summary of Site and Surroundings

¹ British Standards Institution. (2012). *British Standard 5837:2012, Trees in relation to design, demolition, and construction – Recommendations*. British Standards Institution, London.

1.3 Proposed Works

The proposed works include the installation of a new transfer pipe which includes a pipe bridge crossing from an existing sewage treatment works into an adjacent field. The location of the pipe bridge will span an area of recorded ancient woodland.

1.4 Documentation Provided

This assessment is based upon the information provided by the client in addition to information collected by Middlemarch during the Preliminary Arboricultural Assessment, as detailed below.

Author	Document	Drawing Number	Date
Clancy Group	Pipe Bridge Location Plan	751162 - CD201	10th March 2023
Clancy Group	Pipe Bridge Layout Plan	751162 - CD202	15th March 2023
Clancy Group	Pipe Bridge Layout Plan	751162 - CD202	30th May 2023

Table 1.2: Documentation Provided

2. Survey Methodology

2.1 Survey Scope

To determine the status of the trees within the site, a full arboricultural survey has been undertaken, assessing the species and status of all trees present. This survey has been carried out in accordance with BS5837.

All individual trees with a stem diameter greater than 75 mm are shown on the Tree Survey Plan and have been assigned a unique reference number. Trees were visually assessed and a schedule prepared listing:

- Tree number
- Species
- Tree height
- Minimum crown clearance
- Stem diameter
- Crown spread
- Age class
- Vigour
- Structural condition

Measurements for tree height, minimum crown clearance and crown spread were taken to an accuracy of 0.5 m. Stem diameter measurements were recorded to the nearest 10 mm. Any specific observations were also noted. All observations and measurements are included in Appendix A Tree Schedule.

Trees were assessed and assigned one of the following categories:

Category U:

Trees 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.

Category A:

Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B:

Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

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 mm.

Categories A, B and C have further sub-categories with regards to the reasons for tree retention:

- Mainly arboricultural qualities.
- Mainly landscape qualities.
- Mainly cultural values, including conservation.

N.B. Certain trees considered unsuitable to retain in their current context (Retention Category U) may possess existing or potential conservation value which make them desirable to preserve in the context of wildlife habitat (e.g. areas with limited public access).

2.2 Root Protection Area (RPA)

To avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated for each of the Category A, B and C trees in accordance with section 4.6 of BS5837. BS5837 recommends this as the minimum area around a tree that contains sufficient roots and rooting volume to maintain viable tree vigour and structure. Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree stem in each group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon individual trees forming the combined group.

Protection of the roots and soil structure within the RPA should be treated as a priority. These figures have been calculated utilising the formulas within Section 4.6 and Annex D of BS5837.

2.3 Tree Schedule

Appendix A details the individual trees, groups, hedgerows, and woodlands (where present) and includes the relevant information for each at the time of inspection. General observations of any structural and physiological condition and the presence of any decay or physical defects have also been included.

2.4 Assessment Limitations

This survey has been undertaken in accordance with BS5837 and trees with a stem diameter of less than 75mm and the specific location of species within a hedgerow have not been identified in accordance with the guidance. It may therefore be necessary during detailed design to undertake further assessment and accurate positioning of juvenile trees or woody species within hedgerows and tree groups to assist structural calculations for foundation design of structures in accordance with current building regulations and NHBC Chapter 4.2 *Building near Trees*².

This survey is not a full or thorough assessment of the health and safety of the trees on or adjacent to the site; and therefore, it is recommended that detailed tree inspections are undertaken on a regular basis with the express purpose of complying with the landowner's duty of care to satisfy health and safety requirements.

For the purposes of this assessment, a hedgerow is described as a line of trees or shrubs with canopies less than 5m wide which is regularly managed through pruning. Where trees are present within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately. A tree survey in accordance with BS5837 does not assess hedgerows against the Hedgerow Regulations 1997³ or from an ecological perspective.

² National House Building Council. (2022). *NHBC Standards 2022: Chapter 4.2 - Building Near Trees*. NHBC, Milton Keynes.

³ Department of the Environment, Transport, and the Regions: London. (1997). *The Hedgerows Regulations 1997: A Guide to the Law and Good Practice*.

The exact position of individual trees or species included as part of a tree group, hedgerow or woodland should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken.

2.5 Conditions of Tree Survey

The survey was completed by a suitably qualified and experienced Arboriculturist from ground level and from within the boundary of the site. Aerial tree inspections or the internal condition of the stem/s or branches was not undertaken at this stage. Evaluation of tree condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

All survey data is based on a topographical survey where possible, supplied by the client. Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees and hedgerows have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of tree and hedgerow locations through a topographical survey of the site is recommended to ensure future design accuracy.

2.6 Tree Survey Plan

The Tree Survey Plan identifies the existing trees including above and below ground constraints which should be considered during the design process.

2.7 Tree Retention Plan

The Tree Retention Plan identifies which trees and hedgerows are to be retained and incorporated as part of the site development and which are to be removed.

3. Statutory Protection

3.1 Tree Preservation Order and Conservation Area Protection

A desk-based study was undertaken to identify if any of the trees present within or near the site are affected by statutory constraints as detailed below.

Statutory Constraint	Present		Source	Details
	✓	✗		
TPO	✗		Local Authority website	N/A
Conservation Area	✗		Local Authority website	N/A
Ancient Woodland	✓		Multi Agency Geographical Information for the Countryside (MAGIC)	Gaggle Wood Ancient Woodland

Table 3.1: Summary of Statutory Constraints that Affect the Site

Where a tree preservation order, conservation area or ancient woodland applies to trees within the assessment area, statutory constraints will apply to the development in respect of trees.

No works must be undertaken on the protected trees without prior permission from the Local Authority; works include pruning, topping, lopping, uprooting or wilful damage or wilful destruction of these trees.

Ancient Woodland

Ancient woodland and ancient semi-natural woodland including plantations on ancient woodland sites in England is defined as an area that has been continuously wooded since at least 1600 AD. It must also be noted that the designation Ancient Woodland refers to the site including the soils, ground flora and fungi and is not limited solely to trees.

Ancient Woodland and Ancient Semi-Natural Woodland require greater protection due to their fragile nature and therefore RPA calculations defined as a distance equal to 15 times the trees stem diameter, or five metres beyond the canopy, whichever is the greater is required in accordance with current guidance for these niche habitats.

3.2 Protected Species

Bats

Mature trees often contain cavities, hollows, peeling bark or woodpecker holes which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017)⁴. They receive further legal protection under the

⁴ HM Government – The National Archives (2017) [online] *The Conservation of Habitats and Species Regulations 2017*. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

Wildlife and Countryside Act (WCA) 1981⁵, as amended. Consequently, causing damage to a bat roost constitutes an offence.

Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

Trees offer potential habitat for nesting birds which are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

As the trees on, and adjacent, to the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (Generally March to September).

If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If any active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have naturally fledged.

⁵ HM Government – The National Archives 2017. *Wildlife and Countryside Act 1981*. [online] Available at: <http://www.legislation.gov.uk/ukpga/1981/69/contents>

4. Results Summary

4.1 Preliminary Arboricultural Assessment

The assessment identified twenty-three individual trees, five groups of trees and one area of woodland as detailed in Appendix A Tree Schedule and Table 4.1 below

BS5837:2012 Category	Tree/ Group/ Hedgerow Reference
U	-
A	T1, T16, T17, T19, G2, W1.
B	T2, T3, T4, T5, T6, T7, T8, T9, T10, T13, T20, T22.
C	T11, T12, T14, T15, T18, T21, T23, G1, G3, G4, G5.

Table 4.1: Summary of Trees, Groups and Hedgerows in BS5837:2012 Categories

The study area was located at the end of an access track off Gaggles Wood, Golding Lane, Manning's Heath which is situated to the southeast of the local town, Horsham within the borough of West Sussex. The assessment area covered an irregular shaped parcel of land, designated as a wastewater treatment works which was surrounded by an area of recorded Ancient Woodland. Overall, the site was heavily affected by steep topography, but tree stock was generally found to be of high quality, with numerous prominent groups of trees and high value woodland that formed part of the natural landscape around the site.

The assessment for this site was conducted as a BS5837 compliant survey to form part of proposed utilities wastewater transfer pipeline installation, but no tree-related defects were recorded as part of this assessment, therefore, tree safety should only be considered as part of a future Tree Safety Assessment. It should also be noted that due to a lack of accurate topographical data, tree location data was mostly estimated based on combined field observations and aerial imagery. In addition, thorough inspection was not possible on many trees due to a combination of unsafe terrain, dense ivy and dense vegetation which impeded access and also resulted in many dimensions requiring estimation.

The site was within influencing distance of numerous high-quality trees that were considered 'Retention Category A' due to their significant arboricultural and landscape contribution to the surrounding area (see drawing C159849-01-01). These high-quality specimens included four individual trees, one group of trees and one area of woodland which encompassed the site on most of its boundaries. The most distinctive arboricultural feature recorded throughout the survey was the area of woodland (W1) which encompassed the site on its north, east and southern boundaries. This important ecosystem presented significant arboricultural, landscape and conservation value and should be considered as one of the most important natural assets included in the assessment. The woodland area listed as W1 is formally listed as Ancient Woodland according to MAGIC maps (see Table 3.1), offering a wealth of natural tree cover and notable trees of varying age classes. Altogether, the retention of 'Retention Category A' trees should be considered a priority due to their potential future contribution to the surrounding landscape, which would be expected to exceed 40 years.

Twelve individual trees were found to be of moderate retention value and categorised as 'Retention Category B' (see Table 4.1) during the assessment. Most of these trees were prominent, due to a combination of their height, maturity, species, and visibility throughout the local landscape. The recorded trees within this grouping included a variety of native tree species (refer to Appendix A – Tree Schedule), however, the most common was Alder (*Alnus glutinosa*). The trees within this group presented good retention value due to their arboricultural and landscape qualities which would be expected to continue for at least twenty years.

The remaining seven individual trees and four groups of trees, identified within the survey were considered low retention value and were designated Retention Category C. These trees were mostly located around the peripheries of the site but were also notably concentrated in an area to the west of the site within the larger W1 area. The trees situated in this area and designated as 'Retention Category C' were predominantly located on a steep bank and presented lower quality compared to the surrounding trees in the wider woodland group due to etiolated and suppressed forms. Overall, the trees within W1 exhibited low-quality due to a combination of defects or their juvenility and they provided limited beneficial impact to the site, offering an estimated remaining contribution timescale of approximately ten to twenty years.

5. Arboricultural Impact Assessment

5.1 Introduction

This section of the report details the potential impacts that the proposed works may have upon the site's tree stock. The assessment has been based upon the documents detailed in Table 1.1 with reference to the results of the Preliminary Arboricultural Assessment.

5.2 Tree Retention and Removal

The trees to be removed are detailed below and are identified on the Tree Retention Plan. All trees, groups of trees and hedgerows not featured within the table below, are to be retained as part of the proposed works.

Tree/ Group/ Woodland Reference	Species	Retention Category	Reason for Removal
T12	Hawthorn	C	Tree is within the proposed easement in close proximity to the pipe bridge and is unsuitable for coppicing or translocation.
T20	Beech	B	Tree is within the proposed easement in close proximity to the pipe bridge and is unsuitable for coppicing or translocation.
T23	Holly	C	Tree is within the proposed easement in close proximity to the pipe bridge and is unsuitable for coppicing or translocation.
Key *: Partial removal of trees within group or woodland			

Table 5.1: Tree Removal

The proposed works will require the removal of three individual trees to facilitate the pipe bridge installation. Where possible all understory and coppicable specimens will be retained in situ through coppice management where possible. Where this is not possible, specimens that are suitable for translocation will be moved to alternative positions outside the easement to avoid the loss of arboricultural and ecological features and promote the conservation of the important woodland ecosystem.

An individual tree identified for removal (T20), which was a semi-mature Beech tree was considered to be of moderate value (Retention Category B). The tree measured 15m in height and 200mm in diameter at breast height (DBH), but it should be noted that the tree did present an etiolated form and was mostly only visible from the sewage treatment works due to its location and lacked visibility to the surrounding area.

The remaining two individual trees - T12, a semi mature Holly and T23, a semi mature Hawthorn that have been specified for removal were considered to be of low value (Retention Category C) during the Preliminary Arboricultural Assessment. Translocation and coppicing are considered unsuitable for these trees and therefore they will be completely removed but will be replaced by suitable mitigation planting as specified in the site specific ecological recommendations.

5.3 Works within Root Protection Areas (RPA)

Some aspects of the proposed works will require works within the RPAs of retained trees as detailed below.

Tree/ Group Reference	Species	Retention Category	Proposed Works
T17	English oak	A	Installation of proposed sewer.
T19	English oak	A	Installation of proposed sewer.

Table 5.2: Works in RPAs

The majority of the proposed pipe bridge installation within the RPAs of T17 and T19 will be located above ground to enable it to span across a stream and the steep topography towards the west of the site. In this section of the sewer route the sewer will be on a bridge with foundations on either side of the bank and as such the bridge is not expected to present a significant impact upon the RPAs of retained trees. The installation of the subterranean sections of the sewer and the construction of the bridge foundations will be undertaken according to methodologies devised as part of the Arboricultural Method Statement in accordance with BS5837.

5.4 Tree Pruning

Several understory trees that will be retained as part of the proposed development will require Coppice pruning. It should be noted that pruning works should be undertaken during the winter months when the tree is dormant or during the summer months when the tree is fully active. Autumn pruning (when fungal spores are abundant in the surrounding atmosphere) should be avoided if possible.

All tree pruning works will be detailed as part of an Arboricultural Method Statement and completed in accordance with the current best practice guidance set out within BS3998:2010 “*Tree Work – Recommendations*”⁶ by suitably competent, qualified, and insured arboricultural contractors. The extent of pruning should be identified to contractors in a pre-commencement site meeting as part of enabling works.

5.5 New Tree Planting

As part of the current development proposals, no additional tree planting has been demonstrated, however, this is being addressed through ecological recommendations for the project and will be implemented if deemed necessary by the local planning authority to offer mitigation for the proposed tree removals.

The purpose and function of the new tree planting should be carefully considered so that key objectives from a wildlife habitat and landscape perspective can also be achieved.

⁶ British Standards Institution. (2010). *British Standard 3998:2010, Tree Work – Recommendations*. British Standards Institution, London.

6. Conclusion

6.1 Summary of Impacts

The proposed works are unlikely to significantly impact the visual amenity of the local area as a result of the proposed tree removals which are located within a ravine area and are not visible to the surrounding area.

Although the trees that have been identified for removal are situated within an area of ancient woodland, the trees selected are only representative of a low retention value. This area has been identified because there is a lower density of trees which do not represent the 'Retention Category A' characteristics of the surrounding woodland (refer to drawing C159801-02-01_RevA). Overall, it is considered that the comparatively small section will result in minimal loss of ancient woodland habitat which has been inferred by ecological assessments at the site, moreover the proposed working area has been chosen because the trees in this area are more diminutive and are typically of low retention value.

Whilst a section of the works are to be undertaken within the RPAs of retained trees, the nature of those works are such that they can be completed without causing significant impact, subject to the adoption of appropriate working practices as detailed in the site specific Arboricultural Method Statement.

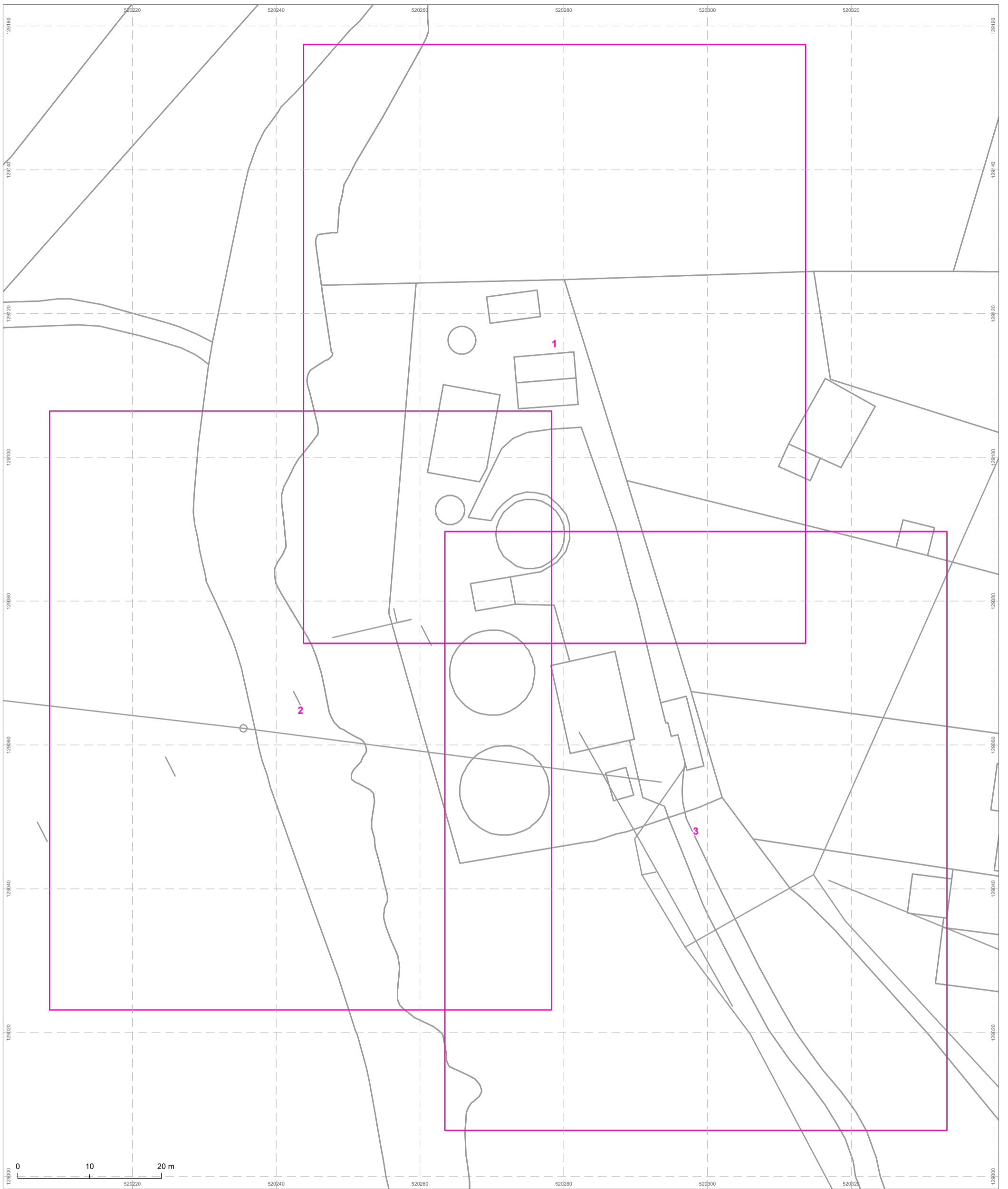
7. Arboricultural Method Statement

7.1 Introduction

An Arboricultural Method Statement will be required for the site as various aspects of the proposed works affect retained trees. The purpose of an Arboricultural Method Statement is to ensure that all site operations occur with minimal risk of adverse impact upon trees that are to be retained.

In relation to this development the Arboricultural Method Statement should address the following:

Action	Required
Tree Surgery	✓
Site set up and logistics	✓
Installation of utilities within RPAs	✓
Site access, material storage contractor's parking and site compound location	✓
Protective barrier and ground protection location and specification	✓
Pre-commencement site meeting	✓
Arboricultural Clerk of Works supervision	✓
Audit timetable	✓

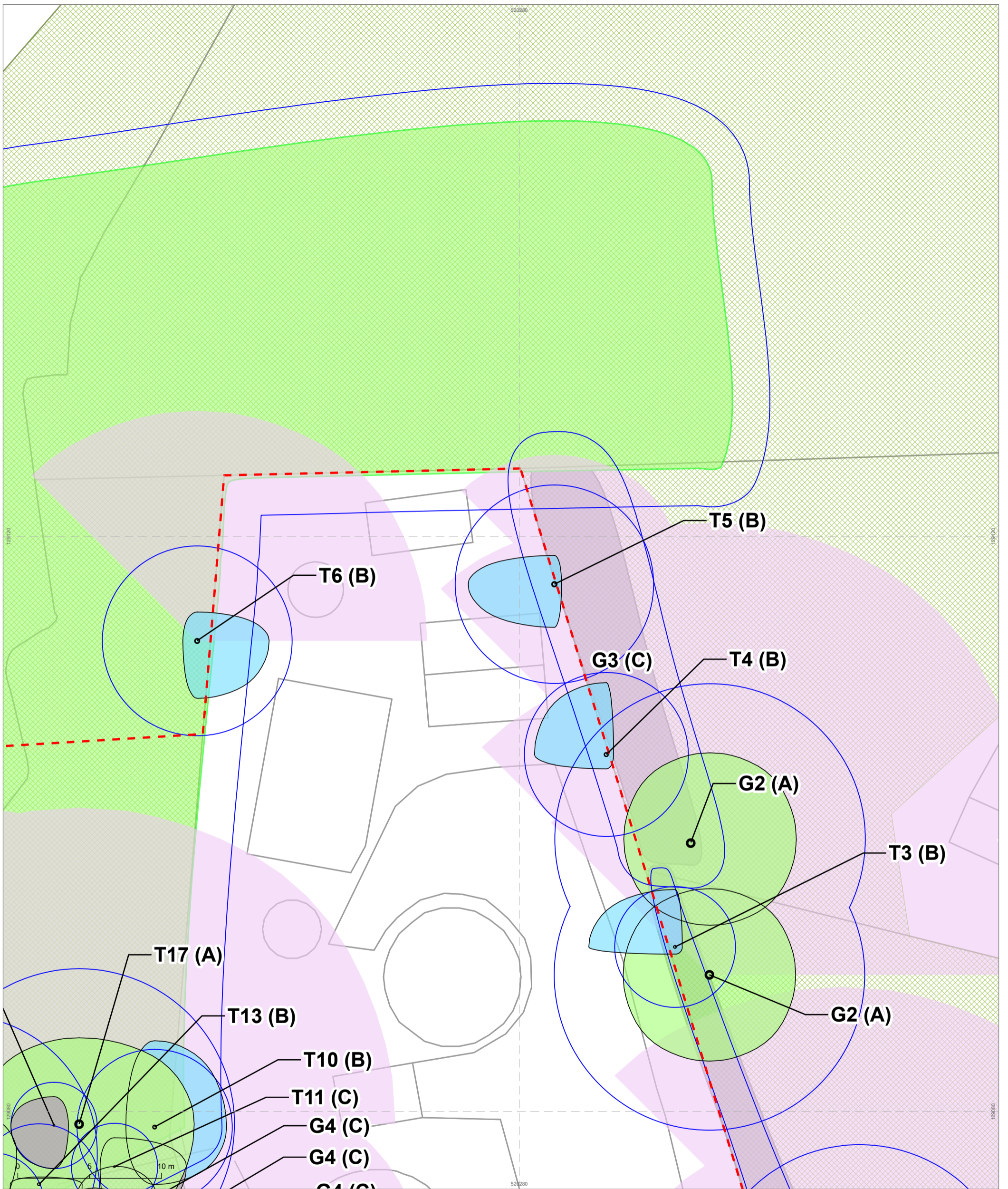


- Legend**
- Page extents
 - Survey extent

NOTES
 All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with Project Arboriculturist. Drawing to be read in conjunction with Preliminary Arboricultural Assessment and Tree Schedule.
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 Further survey work would be required for calculating foundation depths in accordance with current Building Regulations requirements.
 Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the Project Arboriculturist should works commence 12 months after the date of this survey.
 TREES INCLUDED DURING THE ASSESSMENT MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.
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Project Mannings Heath WTW, Birch Grove, Horsham	
Drawing Site Overview	
Client The Clancy Group	
Drawing Number C159801-01-01-RevA	Revision RevA
Scale @ A3 1:500	Date April 2023
Approved By LW	Drawn By VO
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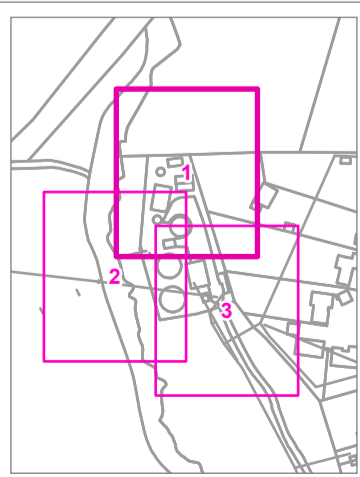
C159801-01-01-RevA



Legend

- Stem location and diameter
- Category A tree
- Category B tree
- Category C tree
- Current canopy extent
- Root protection area
- Indicative tree shadow
- Ancient woodland
- - - Survey extent

Note: tree locations are approximate, based on combined field observations and aerial imagery



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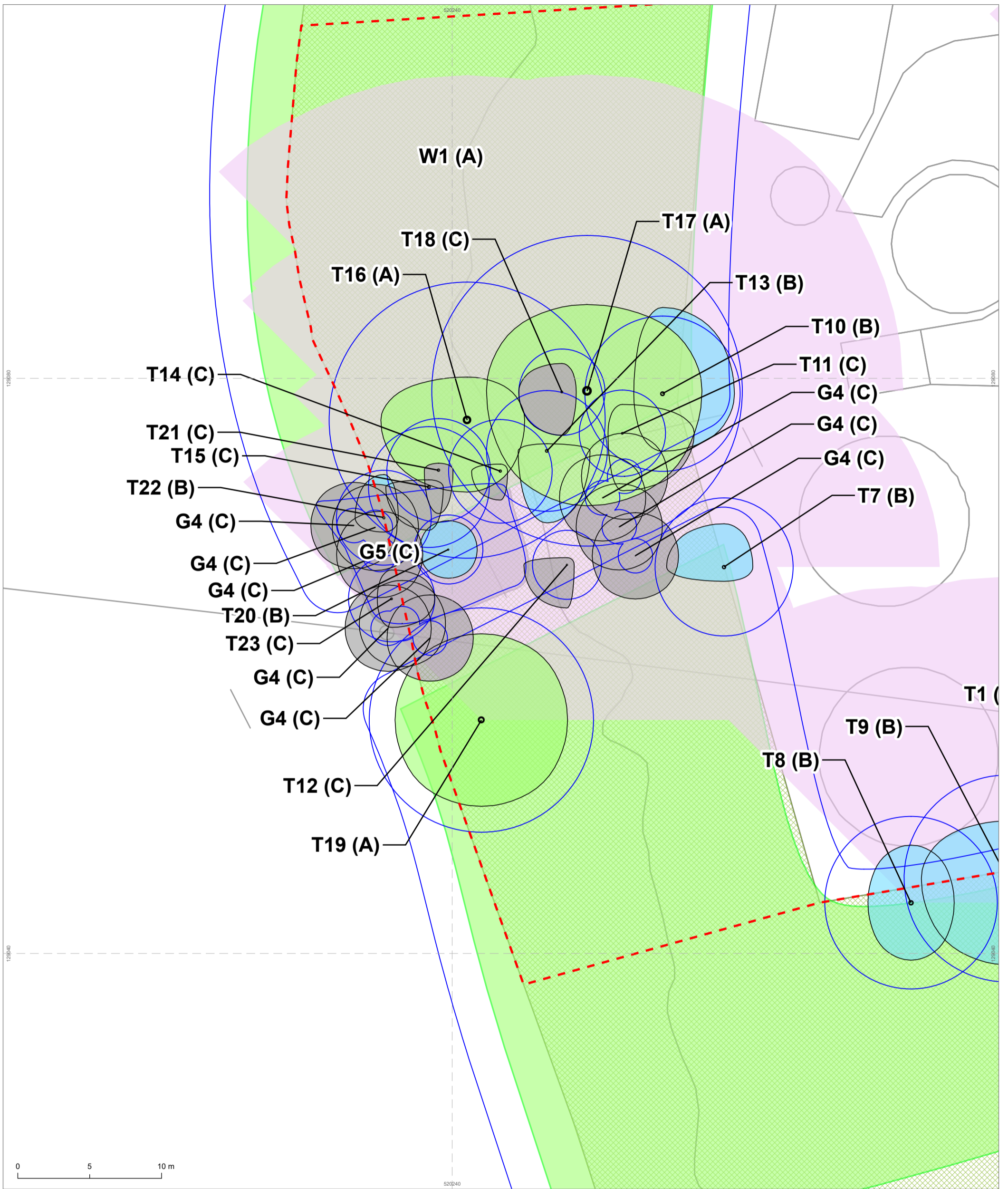
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Project Mannings Heath WTW, Birch Grove, Horsham	
Drawing Tree Survey Plan	
Client The Clancy Group	
Drawing Number C159801-01-01-RevA	Revision RevA
Scale @ A3 1:250	Date April 2023
Approved By LW	Drawn By VO
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C159801-01-01-RevA



Legend

- Stem location and diameter
- Category A tree
- Category B tree
- Category C tree
- Current canopy extent
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- Indicative tree shadow
- Ancient woodland
- Survey extent

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Project Mannings Heath WTW, Birch Grove, Horsham	
Drawing Tree Survey Plan	
Client The Clancy Group	
Drawing Number C159801-01-01-RevA	Revision RevA
Scale @ A3 1:250	Date April 2023
Approved By LW	Drawn By VO

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 E:admin@middlemarch-environmental.com

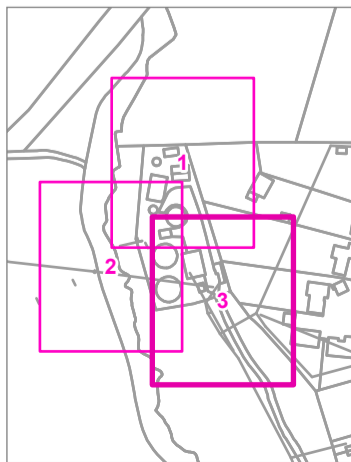
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C159801-01-01-RevA




- Legend**
- Stem location and diameter
 - Category A tree
 - Category B tree
 - Category C tree
 - Current canopy extent
 - Root protection area
 - Indicative tree shadow
 - Ancient woodland
 - Survey extent

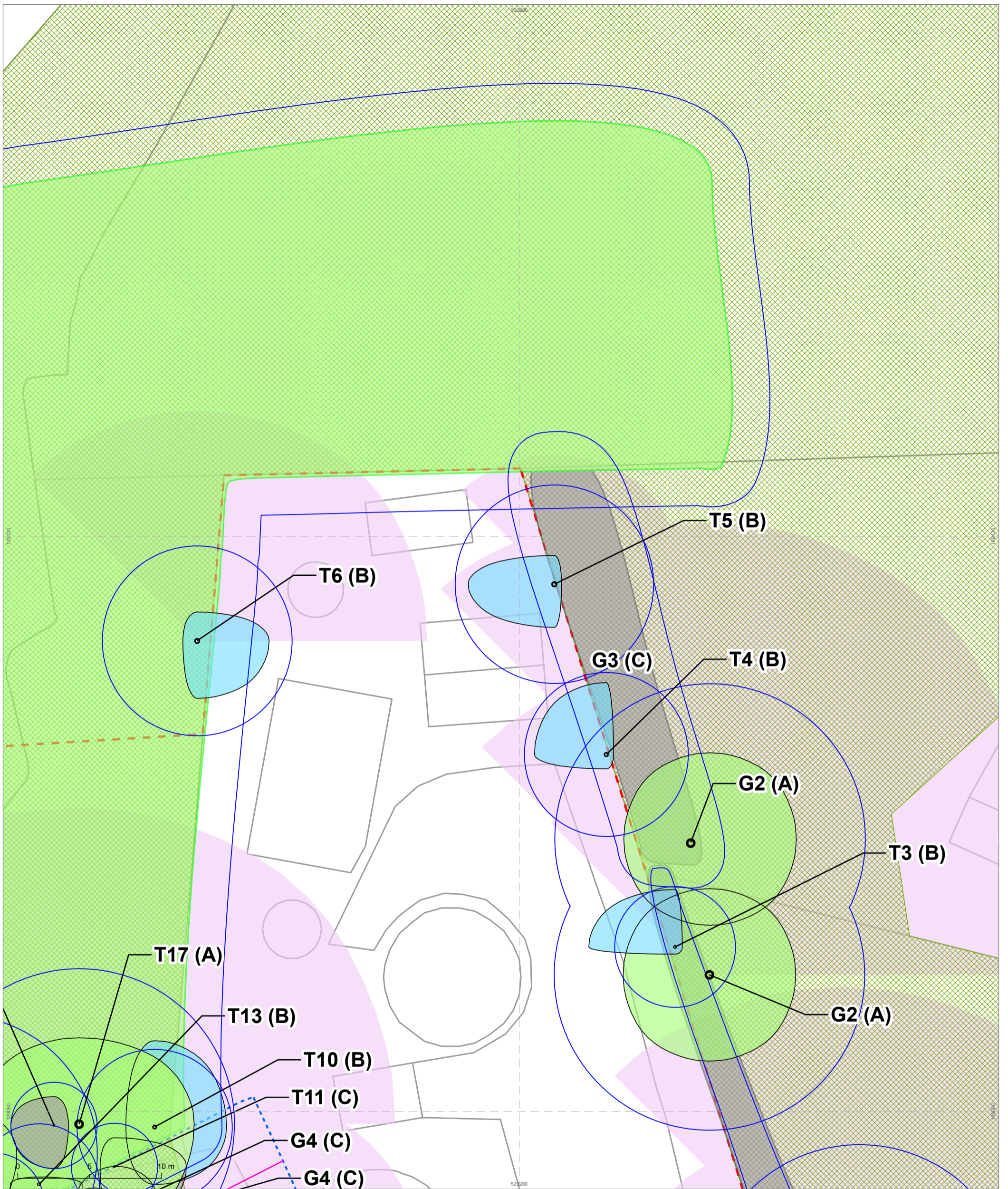
Note: tree locations are approximate, based on combined field observations and aerial imagery



NOTES
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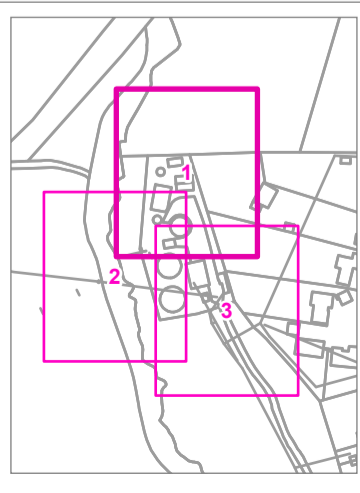
C159801-01-01-RevA



Legend

- Stem location and diameter
- Category A
- Category B - to be removed
- Category B
- Category C - to be removed
- Category C - to be translocated
- Category C
- Root protection area
- Current canopy - to be removed
- Current canopy - to be retained
- Indicative tree shadow
- Ancient woodland
- 10 m easement
- Proposed pipeline route
- Survey extent

Note: tree locations are approximate, based on combined field observations and aerial imagery



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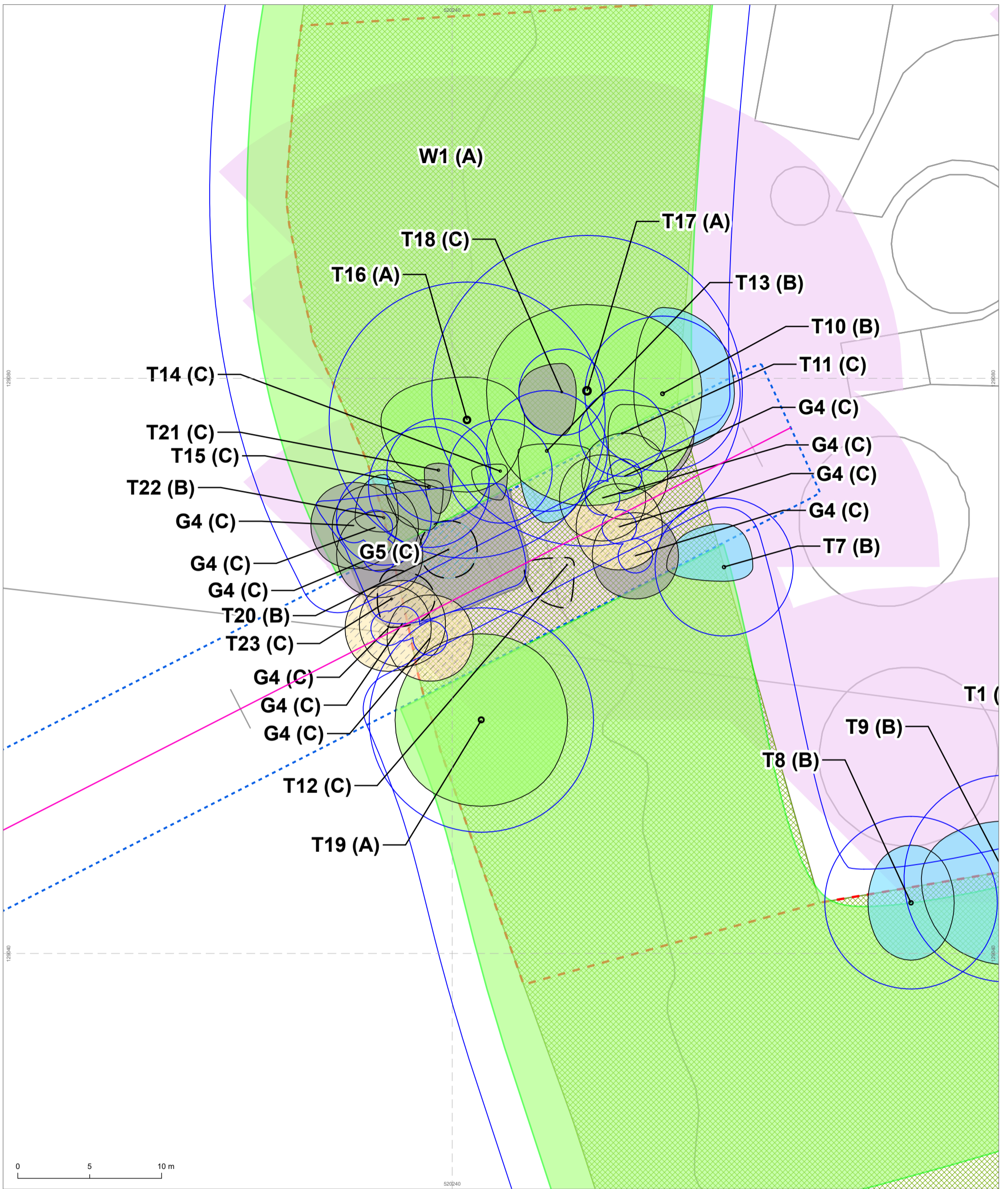
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Project Mannings Heath WTW, Birch Grove, Horsham	
Drawing Tree Retention Plan	
Client The Clancy Group	
Drawing Number C159801-02-01	Revision Rev-A
Scale @ A3 1:250	Date October 2023
Approved By LW	Drawn By AW/KB
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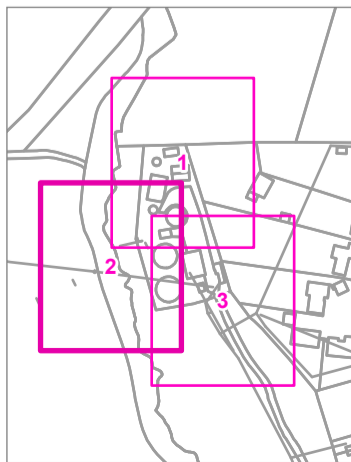
C159801-02-01




Legend

- Stem location and diameter
- Category A
- Category B - to be removed
- Category B
- Category C - to be removed
- Category C - to be translocated
- Category C
- Root protection area
- Current canopy - to be removed
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- Indicative tree shadow
- Ancient woodland
- 10 m easement
- Proposed pipeline route
- Survey extent

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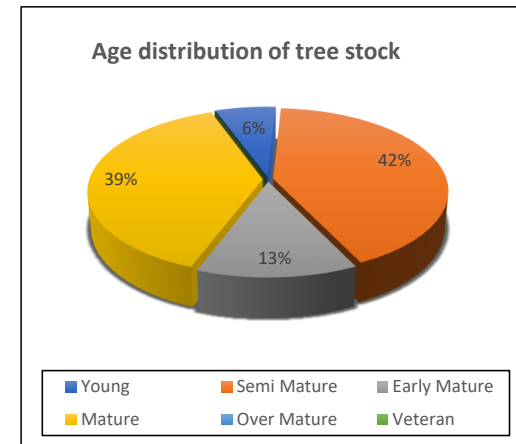
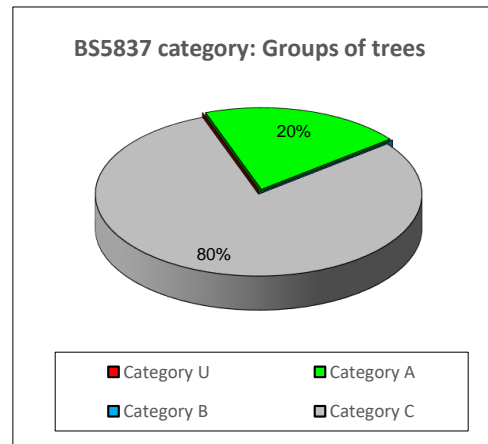
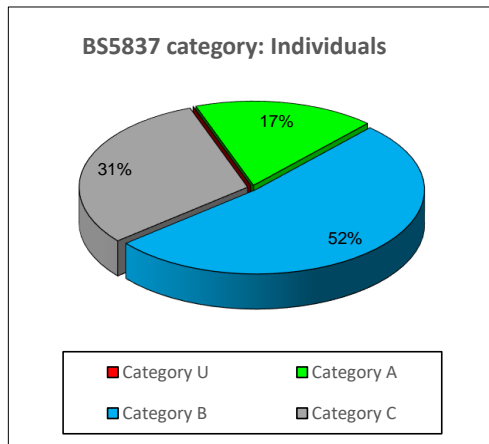
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Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - measured from ground level at base of stem/s (m).	YNG: Juvenile trees that have been recently planted.	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention.	<ul style="list-style-type: none"> • The RPA column gives the required area (m²). • The RPA Radius column gives the radius (m) of an equivalent circle. • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the required rooting area in order for a tree to be retained.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837.	SM: Semi-mature, trees upto 1/3 life expectancy.	F - Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.	
Crown - crown spread estimated radially from the main stem (m).	EM: Early mature, trees 1/3 – 2/3 life expectancy.	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term.	
Abbreviations Est - Estimated stem diameter Avg - Average stem diameter Max - Maximum stem diameter	M: Mature trees, upto 2/3 life expectancy.	D - Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.	
	OM: Over mature, declining or moribund trees of low vigour.	In the assessment, of the BS category, particular consideration has been given to the following <ul style="list-style-type: none"> • The health, vigour and condition of each tree • The presence of any structural defects in each tree and its future life expectancy • The size and form of each tree and its suitability within the context of a proposed development • The location of each tree relative to existing site features e.g. its screening value or landscape features 	
	V: Veteran, tree possessing certain attributes relating to veteran trees.	<ul style="list-style-type: none"> • Age class • Life expectancy 	

Structural Condition
<p>The following has been considered when inspecting structural condition:</p> <ul style="list-style-type: none"> • The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay. • Soil cracks and any heaving of the soil around the base. • Any abrupt bends in branches and limbs resulting from past pruning. • Tight or weak 'V' shaped forks and co-dominant stems. • Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994). • Cavities as a result of limb losses or past pruning. • Broken branches or storm damage. • Canker formations. • Loose or flaking bark. • Damage to roots. • Basal, stem or branch / limb cavities. • Crown die-back or abnormal foliage size and colour. • Any changes to the timing of normal leaf flush and leaf fall patterns.

Quality Assessment of Retention Category
<p>Category U - Trees 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.</p>
<p>Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.</p>
<p>Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.</p>
<p>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 150mm.</p>
<p>Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value</p>



Appendix A - Summary

	Individual Trees	Totals	Tree Groups	Totals
Category U		0		0
Category A	T1, T16, T17, T19	4	G2	1
Category B	T2, T3, T4, T5, T6, T7, T8, T9, T10, T13, T20, T22	12		0
Category C	T11, T12, T14, T15, T18, T21, T23	7	G1, G3, G4, G5	4
	Total	23	Total	5

	Hedgerows	Totals	Woodlands	Totals
Category U		0		0
Category A		0	W1	1
Category B		0		0
Category C		0		0
	Total	0	Total	1

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T1	English oak	16.0	5.0	1	660	6.0	5.0	7.0	5.0	M	F	F	206	8.1	A 1	
T2	Alder	17.0	4.0	1	300	7.0	0.5	0.5	8.0	EM	F	G	41	3.6	B 1	Estimated dimensions Limited inspection due to dense vegetation Limited inspection due to access
T3	Silver birch	12.0	5.0	1	350	4.0	0.5	0.5	6.0	EM	F	F	55	4.2	B 1	Tree is located off site but overhangs the study area Limited inspection due to access Limited inspection due to dense vegetation Estimated dimensions
T4	Alder	16.0	5.0	2	300 350	5.0	0.5	1.0	5.0	EM	F	G	102	5.7	B 1	Estimated dimensions Tree is located off site but overhangs the study area Limited inspection due to access
T5	Alder	9.0	3.0	2	380 420	2.0	0.5	3.0	6.0	M	P	F	150	6.9	B 1	Limited inspection due to access Tree is located off site but overhangs the study area Estimated dimensions
T6	Alder	16.0	4.0	1	550	2.0	5.0	4.0	1.0	M	F	G	137	6.6	B 1	Estimated dimensions Tree is located off site but overhangs the study area Limited inspection due to access Limited inspection due to dense vegetation Limited inspection due to ivy Limited inspection due to safety concerns
T7	Alder	15.0	3.0	1	400	3.0	2.0	1.0	4.0	M	F	F	72	4.8	B 1	Estimated dimensions Limited inspection due to access Limited inspection due to ivy Limited inspection due to safety concerns
T8	Alder	22.0	14.0	1	500	4.0	3.0	4.0	3.0	M	G	F	113	6.0	B 1	Estimated dimensions Limited inspection due to access Limited inspection due to dense vegetation Limited inspection due to safety concerns Tree is located off site but overhangs the study area
T9	Ash	21.0	12.0	1	600	4.0	3.0	6.0	6.0	M	F	F	163	7.2	B 1	Estimated dimensions Tree is located off site but overhangs the study area Limited inspection due to access Limited inspection due to dense vegetation

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T10	Hazel	6.0	2.0	14	450	6.0	5.0	4.0	2.0	M	F	F	92	5.4	B 1	Estimated dimensions Limited inspection due to access Limited inspection due to ivy Limited inspection due to safety concerns Requires recoppicing
T11	Ash	8.0	3.0	2	150 200	2.0	5.0	4.0	1.0	SM	P	F	28	3.0	C 1	Estimated dimensions Limited inspection due to access Limited inspection due to safety concerns
T12	Hawthorn	7.0	2.0	1	200	0.5	0.5	3.0	3.0	SM	P	F	18	2.4	C 1	Estimated dimensions Limited inspection due to access Limited inspection due to safety concerns Limited inspection due to ivy
T13	Alder	16.0	10.0	1	350	0.5	3.0	5.0	2.0	EM	F	F	55	4.2	B 1	Estimated dimensions Limited inspection due to access Limited inspection due to safety concerns
T14	Ash	18.0	14.0	1	300	0.5	0.5	2.0	2.0	SM	F	P	41	3.6	C 1	Estimated dimensions Limited inspection due to ivy Limited inspection due to access Limited inspection due to safety concerns
T15	Ash	18.0	12.0	1	350	0.5	1.0	3.0	3.0	SM	F	P	55	4.2	C 1	Estimated dimensions Limited inspection due to access Limited inspection due to safety concerns
T16	English oak	24.0	9.0	1	800	3.0	4.0	5.0	6.0	M	G	G	290	9.6	A 1	Estimated dimensions Limited inspection due to access Limited inspection due to safety concerns
T17	English oak	22.0	7.0	1	900	6.0	8.0	8.0	7.0	M	G	F	366	10.8	A 1	Estimated dimensions Limited inspection due to access Limited inspection due to ivy Limited inspection due to safety concerns
T18	Holly	7.0	0.5	4	200 100 70 80	2.0	1.0	3.0	3.0	SM	F	G	28	3.0	C 1	Limited inspection due to access Limited inspection due to dense vegetation Limited inspection due to ivy Limited inspection due to safety concerns Estimated dimensions
T19	English oak	23.0	13.0	1	650	6.0	6.0	6.0	6.0	M	G	G	191	7.8	A 1	Estimated dimensions Limited inspection due to access Limited inspection due to dense vegetation Limited inspection due to safety concerns

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T20	Beech	15.0	7.0	1	200	2.0	2.0	2.0	2.0	SM	G	G	18	2.4	B 1	Estimated dimensions Limited inspection due to access Limited inspection due to safety concerns
T21	Ash	18.0	7.0	1	300	0.5	1.0	3.0	1.0	SM	F	P	41	3.6	C 1	Estimated dimensions Limited inspection due to access Limited inspection due to safety concerns
T22	Hawthorn	7.0	2.0	2	240 110	3.0	1.0	1.0	2.0	M	F	F	34	3.3	B 1	Limited inspection due to dense vegetation
T23	Holly	7.0	1.0	4	150 80 100 130	2.0	3.0	2.0	1.0	SM	F	G	28	3.0	C 1	Limited inspection due to dense vegetation

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
G1	Hazel Holly Cherry laurel Rhododendron	4.0	0.5	-	150	2.0	2.0	2.0	2.0	SM	P	G	10	1.8	C 2	Group is located off site but overhangs the study area Limited inspection due to access Limited inspection due to dense vegetation Estimated dimensions
G2	English oak	22.0	6.0	-	900	6.0	6.0	6.0	6.0	M	F	G	366	10.8	A 1,2	Group is located off site but overhangs the study area Limited inspection due to dense vegetation Limited inspection due to access Estimated dimensions
G3	Lawson cypress	10.0	2.0	-	300	2.0	2.0	2.0	2.0	SM	F	F	41	3.6	C 2	Group is located off site but overhangs the study area Limited inspection due to access Limited inspection due to dense vegetation Estimated dimensions
G4	Hazel	6.0	0.5	-	100	3.0	3.0	3.0	3.0	SM	P	F	5	1.2	C 1	Limited inspection due to access Limited inspection due to safety concerns Estimated dimensions, Lapsed coppice stool
G5	Holly Hazel Ash Hawthorn Alder	9.0	0.5	-	150	2.0	2.0	2.0	2.0	Y SM	F,P	G,F	10	1.8	C 2	Limited inspection due to access Limited inspection due to dense vegetation Limited inspection due to safety concerns Limited inspection due to ivy Estimated dimensions

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
W1	Ash Hazel Silver birch English oak Holly Alder Sycamore	25.0	1.0	-	800	7.0	7.0	7.0	7.0	SM EM M Y	G,F	G,F	290	9.6	A 1,2,3	Areas of group are located off site but overhangs the study area Limited inspection due to access Limited inspection due to dense vegetation Limited inspection due to safety concerns Limited inspection due to ivy Estimated dimensions