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ARBORICULTURAL IMPACT ASSESSMENT SURVEY & REPORT

Land at Whitestone Industrial Estate,
Whitestone, Herefordshire
Report Reference: BG19.331.1
REV2 January 2022

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This report has been prepared in accordance with guidance issued by the Arboricultural Association.

www.brindlegreen.co.uk

Sheffield Office
Brindle & Green Limited
Horizon House
Whiting Street
Sheffield S8 9QR

Barnsley Office
Brindle & Green Limited
Sergeants House
36 Edderthorpe Lane
Barnsley S73 9AT

Head Office
Brindle & Green Limited
Unit 3 Silverhill Court
Radbourne
Derby DE6 4LY
Tel: 0800 222 9105

London Office
Brindle & Green Limited
Nutter Lane
Wanstead
London E11 2HZ

Kent Office
Brindle & Green Limited
Sandy Lane
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Kent TN13 3TP


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Report	Name	Signature	Date
Prepared by	Laura Emmerson	[redacted]	12/12/2019
1st Check by	Joe Gilmour		13/12/2019
2nd Check by	Neil Crofts		18/12/2019
Issued by (PDF)	Neil Crofts		18/12/2019
Rev1	Laura Emmerson		08/09/2021
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Project Details

Project carried out by:

Brindle and Green

Unit 3, Silverhill Court
Radbourne
Derby.
DE6 4LY
Head Office: 0800 222 9105
Email: info@brindlegreen.co.uk
Website: www.brindlegreen.co.uk

Project carried out for:

Piper Homes (Whitestone) Ltd.

168 Birmingham Road,
Shenstone,
Lichfield,
WS14 0NX

Project site:

Land at Whitestone,

Whitestone,
Hereford
HR1 3SE

Grid Ref. SO 56667 42579

Contents

1 Summary

1.1 Brindle & Green were commissioned by Piper Homes to undertake an arboricultural survey at an area of land at Whitestone Industrial Estate, Whitestone, Herefordshire. This report summarises any potential arboricultural impacts and outlines a Tree Protection Plan in relation to a full planning application for a residential development of 33 dwellings, complete with road infrastructure and soft landscaping. Design plans (PL002, Rev H) have been included within Appendix 4 of this report. The survey was carried out on the 11th of November 2019.

1.2 This report is concerned with trees that have the possibility to be impacted as a result of development proposals at an area of land at Whitestone Industrial Estate. This includes trees within the site boundary as well as any outside the boundary that may be impacted by the development and any subsequent post development activity.

1.3 Use of Herefordshire Council's administrative map revealed an absence of any Tree Preservation Orders (TPOs), Conservation Areas (CAs) and other regulatory protection within the site boundary.

1.4 The report and accompanying tree survey schedule are produced in accordance with the guiding principles of British Standard BS5837:2012 '*Trees in Relation to Design Demolition and Construction - Recommendations*'.

1.5 A small section of G3 (approximately 25m) is to be removed to enable creation of an attenuation basin for the development. Trees T11-T13 are recommended for removal irrespective of development due to their low-value and limited future potential. A Tree Protection Plan, complete with removal recommendations and mitigation measures has been proposed for the development. The proposed mitigation will be the use of construction exclusion zones (CEZs), to protect retained trees during the development. The Tree Protection Plan can be seen in Appendix 2 of this report.

Arboricultural Considerations	Recommendations	Timing
Arboricultural	Exclusion fencing and root protection areas should be placed to protect trees to be retained where applicable.	Pre-construction secured as condition of planning.
Replanting/ Planting	Replanting of native broadleaf species, proposed locations shown in Appendix 2 of this report.	Post Construction.

Arboricultural Considerations	Recommendations	Timing
Felling/Clearance	Any felling/shrub removal should be completed outside of the breeding bird season or under ecological supervision.	Between October - February (or March – September under supervision).
CEZ's & Root protection	Construction exclusion zones and geocell root protection should be implemented before the commencement of works to ensure that no damage is sustained to trees aimed at retention (If applicable). Geocell root protection not required in this instance.	Pre-Construction

2 Introduction

2.1 The purpose of this assessment was to provide an assessment of trees which may be impacted by proposals at an area of land at Whitestone Industrial Estate, Whitestone, Hereford. A tree survey schedule compliant with the guiding principles of British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' is contained within this report and all survey data is recorded in this schedule.

2.2 The site is approximately 1.2 ha and comprises an area of grazing pasture, bordered by mixed species groups of trees of different qualities and maturities. The A4103 runs along the northern boundary of the site, a residential property with high-quality mature trees borders the site to the east, commercial development occurs to the south (Whitestone Industrial Estate) and an access road borders the site to the west. Arable land and residential development dominate the surrounding landscape, with the village of Withington approximately 0.2 km to the north-west. Most arboricultural value is located off-site, within the garden of the residential property that borders site to the east; low-quality trees occur within the red-line site boundary, in the form of Category C groups (under BS5837:2012 guidance) to the west, north and south. The site is the subject of a full planning application for a residential development of 33 dwellings, complete with road infrastructure and soft landscaping. Design plans (PL002, Rev H) have been included within Appendix 4 of this report.

2.3 Results and recommendations contained within this report have been prepared by an experienced arboriculturalist and are therefore the view of Brindle & Green Limited. The survey is based on information provided by our client, the development proposals, and the results of the desk study and our survey of the site. This report pertains to this information only.

3 Methodology

3.1 The survey was undertaken in accordance with the guiding principles of British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations.' Information recorded during the survey. Information recorded in the survey includes:

3.1.1 **Species** – the species identification is based on visual observations and the common English name of what the trees appeared to be is listed. In the case of groups only the principal species are recorded, other minor species may be omitted.

3.1.2 **Tree Height** – are estimated in metres. Estimated mature heights are given in brackets. In the case of groups, the mean current height is recorded.

3.1.3 **Crown Height** – the height to the lowest branch is estimated in metres. In the case of groups of trees minimum crown height was recorded.

3.1.4 **Trunk Diameters** – measured at 1.5 metres above ground and recorded in millimetres to the nearest 10mm. However, in accordance with British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations.' where the trunk of any tree divides below 1.5 metres it is considered a multi-stemmed tree and an average is recorded. In the case of groups of trees, the maximum diameter was recorded.

3.1.5 **Crown Spread** – was recorded in metres along each of the cardinal points. In the case of groups of trees, the maximum peripheral spread was recorded.

3.1.6 **Life Stage** – recorded as follows:

NP: **Newly planted** – a tree within 3 years after planting

Y: **Young**– a tree within its first one third of life expectancy

SM: **Semi-mature** – a tree within its second third of life expectancy

M: **Mature** – a tree in its final one third of life expectancy

V: **Veteran** - a tree with habitat features such as wounds or decay. A veteran may be a young tree with a relatively small girth in contrast to an ancient tree, but

bearing the 'scars' of age such as decay in the trunk, branches or roots, fungal fruiting bodies, or dead wood.

A: **Ancient** – a tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species and is of interest biologically, aesthetically or culturally because of its age, size and condition.

3.1.7 **The Condition of Trees -** is based upon a preliminary assessment categorised thus:

Good
Fair
Poor
Very Poor/Dead

In the case of groups, the category awarded is that typical of the group.

3.1.8 **Preliminary Recommendations** – works required regardless of development proposals.

3.1.9 **Life Expectancy** – estimated; i.e. given as follows which corresponds with Table 1 of British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations.' - <10, 10+, 20+, 40+.

3.1.10 **BS 5837:2012 Tree Category:**

Cascade Chart for Tree Quality Assessment (see BS5837:2012 for full reference)			
Trees Unsuitable For Retention			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. Trees infected with pathogens of significance to the health and/or safety for the trees nearby, or very low-quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve		
Subcategory	1. Mainly Arboriculture Qualities	2. Mainly Landscape Qualities	3. Mainly Cultural Values, Including Conservation

Trees to be considered for retention			
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
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	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/ transient landscape benefits	Trees with no material conservation or other cultural value

3.1.11 **Root Protection Area** - The root protection areas (RPA's) are calculated and recorded in the Tree Survey Schedule where it is expressed both in linear and square metres; it is at this distance/around this area that the tree protective barriers should be erected around any trees to be retained. Where construction is proposed within these areas, special techniques should be employed, and general guidance is therefore provided herein.

3.1.12 **Limitations** - Significant trees included within the plan provided were plotted using a Trimble TDC100 handheld device. Normal error of 1-2m can be experienced using this device however, care was taken to make sure the most accurate reading possible at the time of survey was taken.

4 Arboricultural Impact Assessment

4.1 Presence of Tree Preservation Orders (TPO's) or Conservation Areas (CA's) or Other Regulatory Protection

4.1.1 Use of Herefordshire Council's administrative map revealed an absence of any Tree Preservation Orders (TPOs), Conservation Areas (CAs) and other regulatory protection within the site boundary.

4.2 Potential Incompatibilities Between the Layout and the Trees Proposed for Retention

4.2.1 Severing just one of a tree's major roots during careless excavation for construction or services can cause the loss of up to 20 per cent of the root system; this undermines the tree's ability to absorb water and leaves it unstable in high winds. In general, 80-90 per cent of all tree roots are found in the top 600mm of soil and almost 99 per cent of the tree's total root length occurs within the topmost 1m of soil, with some variations depending on soil porosity. The undoubted nuisance that fine root systems create for the development of specific sites must be weighed against the importance that they play in soil stabilisation on sloping ground (acting in a similar way to geotextile matting).

4.2.2 Development can, without mitigation, cause compaction of the soil and reduction in soil aeration, thus preventing the uptake of nutrients. This can ultimately cause root death and may result in the premature loss of the tree.

4.2.3 The site plans have minimal impact on the existing trees, both those located offsite and within the redline ownership boundary. The onsite trees were restricted to groups along the site boundaries (G1 and G2); most trees were young or semi-mature, with average stem diameters in the range of 100-200mm. While some plots are positioned close to the site boundaries (see plots 2 and 22), significant conflict is not expected with the RPAs.

4.2.4 The revised site layout (Rev H) shows the internal access road running parallel to the southern boundary group, G3, which was previously the location of residential gardens. The relocation of the access road alleviates previous issues of shading (due to G3). A negligible amount of overlap occurs between the RPAs of trees within G3

and the access road. A minimum 500mm clearance is to be provided between the edge of the hardstanding and tree stems, to allow for future growth.

4.2.5 Tree protection fencing will be installed between the boundary tree groups and the development works to establish a Construction Exclusion Zone (CEZ). The protection fencing is to be installed prior to the commencement of works onsite. No equipment or machinery will be stored within CEZs, nor will vehicles or personnel enter these areas. Ground levels will not be changed within CEZs and existing vegetation will be left undisturbed. The indicative locations of the CEZs can be seen on the Tree Protection Plan in Appendix 2; the precise fencing location may require minor adjustment onsite, due to local site conditions, but is not expected to differ from that shown on the Tree Protection Plan.

4.3 The Working and Access Space Needed for Construction

4.3.1 Site proposals demonstrate the establishment of the existing access point from Whitestone Industrial Estate, to the south-west of site. In its current state, this access point is not hard standing and instead is an extension of the grassland of the site. Establishment of a hard-standing access in this location is highly unlikely to conflict with the RPAs of trees in G1 (see photographs in Appendix 5). The CEZ described in Section 4.2.4 is to be established prior to the establishment of the access road.

4.3.2 Work vehicles must not enter the RPA of any trees proposed for retention, without prior amendments to the mitigation proposed. Similarly, building materials must also be stored outside of the root protection area of trees to be retained.

4.4 Trees proposed for removal and justification to facilitate the development.

4.4.1 The redline boundary contains limited arboricultural value, with two Category C groups spanning the northern and southern boundaries (G1 and G3); three trees within G3 were surveyed individually due to their significantly lower quality (Category U). A small section of G3 (approximately 25m) is to be removed to allow an area of swale to be established, providing an attenuation basin for the development. One individually surveyed bay willow, T13, is located within this section for removal. Trees T11-T13 are proposed for removal irrespective of development at the site due to their low-value and limited future potential a Category U individuals. The proposed removal comprises low-quality trees and will not impact the visual amenity of the surrounding area;

furthermore, the proposed new planting within the development will increase the arboricultural value of the site.

4.5 Mitigatory Replanting/planting

4.5.1 A small amount of replanting has been incorporated into the site layout, primarily focusing on the area surrounding the proposed attenuation basin. The new planting will help provide landscape interest and screening in the area where a section of G3 (approximately 25m) is to be removed. Stock selection should consider the species already present within the site (e.g. alder, birch, cherry, elder, hawthorn, willow) and species characteristics required for the soil conditions surrounding the attenuation basin. Replanting will use high-quality stock (native and/or ornamental species) to provide ecological, landscape and aesthetic value to the scheme. Stock selection should be discussed with a qualified arboricultural consultant to ensure appropriate trees are selected for the space available.

4.6 Proximity of Trees to Structures – the Default Position – Development Outside of the RPA or Technical Solutions Where There is an Overriding Justification

4.6.1 Stout fencing and CEZs will be put in place before the commencement of works to protect the trees in the boundary groups G1, G2 and G3. Where applicable, the ecotone/shrubbery between the tree and the proposed location may need to be cut back and reduced to incorporate the fencing (Appendix 2). All fencing should be implemented before the commencement of building works and stay intact for the duration. Regular checks of the stout fencing should be carried out to ensure it remains intact. See Appendix 2 for the proposed location of exclusion fencing.

4.6.2 All structures are to be placed outside of the RPAs of retained trees, exceeding the recommendations of BS5837:2012.

4.6.3 Service installation should follow the proposed access road into the site. This follows the existing gated entrance to the site and will have a minimal impact on trees for retention. If the service routes are to go through existing groups on site alternative installation methods should be considered after consultation with a suitably qualified arboriculturalist.

4.6.4 Overall, the processes of construction are highly unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made in this report are always adhered to by the contractors e.g. the positioning of a stout fence between the retained trees and construction activities prior to commencement of works.

4.7 **Shading – Buildings and Open space, Privacy and Screening, Direct Damage, Future Pressure for Removal and Seasonal Nuisance**

4.7.1 As previously discussed, the relocation of the access road to the southern boundary (parallel with G3) alleviates the shading issues associated with the previous layout. A shading plan for all trees surveyed can be seen in Appendix 3.

4.7.2 The impact of trees on buildings and vice versa and allowance for future growth have all been considered in the siting of the proposed plans. Tree size, future growth, light/shading, leaf and fruit nuisance etc have received due attention and are not considered to be an issue.

5 Conclusion

5.1 Trees T11-T13 are considered suitable for removal, in addition to a small section (approximately 25m) of G3. Care must be taken to prevent damage to all other trees identified within this report.

5.2 Felling will take place outside of the breeding bird season (March-September) to prevent disturbance. Alternatively, this may be completed under ecological supervision/ reasonable avoidance measures.

5.3 The Tree Protection Plan is subject to discussion and we endeavour to produce a pragmatic approach to the subsequent Arboricultural Method Statement and final tree retention plan.

5.4 Due to the nature of the development, there is unlikely to be any major impacts on trees with higher landscape and amenity values if the CEZ is implemented (Appendix 2). Fencing should be placed prior to any construction works and can be removed after the works are completed. Appendix 3 provides details of the fencing requirements for construction exclusion zones.

5.5 New planting, using a mix of native and/or ornamental species, will increase the amenity value of the site and provide new habitat for wildlife.

6 Issues to Be Addressed Within the Method Statement

6.1 The method for installing CEZ locations.

6.2 Replanting/new planting schedule with species selection and methodology of implementation.

Appendix 1: Tree Survey Schedule

Tree ID	Common Name	Maturity	Height and direction of first significant branch (m)	Height (m)	No. of Stems	Calculated Stem Diameter (mm)	Radius of Nominal Circle (m)	RPA^(m2)	Crown Spread (m)				Crown Height (m)				Crown	Stem	Basal Area	BS5837 Category	Subcategories	Life Expectancy	Phys Condition	Comment
									N	E	S	W	N	E	S	W								
T1#	Black Locust	Mature	SW 4	13	1	450	5.4	91.6	4	2.5	3	3.5	7	8	5	7	Fair	Ivy	Fair	C	1 Arboricultural Values; 2 Landscape Values	20 to 40 yrs	Fair	Ivy to the stem, extending into the lower canopy. Mistletoe present in the canopy. Abundant woody scrub plants to the base.
T2#	Common Walnut	Mature	S 1	12	2	435	5.2	85.6	4.5	4.5	5.5	5.5	3	3	2	2	Good	Fair	Fair	B	1 Arboricultural Values; 2 Landscape Values	>40 yrs	Good	Good structural form. Fungal fruiting body on the stem – unable to ascertain species due to limited visibility.
T3#	Scots Pine	Mature	NE 8	17	1	500	6.0	113.1	4	3	3	3	11	11	10	13	Fair	Good	Good	B	1 Arboricultural Values; 2 Landscape Values	>40 yrs	Good	Set further back in group, surrounded by fewer trees at the base; however, large Turkey oak at the south-west, slightly restricting canopy growth to this elevation.
T4#	Turkey Oak	Mature	NE 5	12	2	390	4.7	68.8	5	4.5	6	5	5	6	3.5	5	Good	Fair	Fair	B	1 Arboricultural Values; 2 Landscape Values	>40 yrs	Good	Some ivy to the stem. Less than 1m from mature Scot's pine to south.
T5#	Scots Pine	Mature	SW 8	19	1	580	7.0	152.2	3	3	4.5	3	12	11	10	11	Good	Good	Fair	B	1 Arboricultural Values; 2 Landscape Values	>40 yrs	Good	Some ivy. Canopy to the north restricted by the Turkey Oak.
T6#	Leyland Cypress	Mature	S 1.5	15	1	385	4.6	67.1	1.5	1.5	2.5	1.5	2	2	2	2	Good	Good	Fair	B	1 Arboricultural Values; 2 Landscape Values	>40 yrs	Good	Good physiological condition. Even canopy.
T7#	Scots Pine	Mature	W 4	17	1	430	5.2	83.6	2.5	2	4.5	3	9	9.5	7	5.5	Fair	Good	Fair	B	1 Arboricultural Values; 2 Landscape Values	>40 yrs	Good	Canopy skewed to south-west due to the mature Leyland cypress (T6)

Tree ID	Common Name	Maturity	Height and direction of first significant branch (m)	Height (m)	No. of Stems	Calculated Stem Diameter (mm)	Radius of Nominal Circle (m)	RPA**(m2)	Crown Spread (m)				Crown Height (m)				Crown	Stem	Basal Area	BS5837 Category	Subcategories	Life Expectancy	Phys Condition	Comment
									N	E	S	W	N	E	S	W								
T8#	Leyland Cypress	Mature	S 1	11	1	290	3.5	38.0	2	1	1	1	2	2	2	2	Fair	Good	Poor	C	1 Arboricultural Values; 2 Landscape Values	20 to 40 yrs	Fair	Poor quality basal area. Fair overall condition.
T9#	Leyland Cypress	Mature	S 4	11	1	330	4.0	49.3	1	1	1.5	1	2	2	2	2	Fair	Good	Poor	C	1 Arboricultural Values; 2 Landscape Values	20 to 40 yrs	Fair	Poor quality basal area. Fair overall condition.
T10#	Leyland Cypress	Mature	E 1.3	12	1	310	3.7	43.5	2.5	2	3	2	2	2	2	2	Fair	Good	Poor	C	1 Arboricultural Values; 2 Landscape Values	20 to 40 yrs	Fair	Poor quality basal area. Fair overall condition.
T11	Bay Willow	Mature	N 2.5	12	2	117.5	1.4	6.2	3.5	2	3	2	4	5	7	6	Fair	Poor	Fair	U	N/A	< 10 yrs	Poor	Poor overall condition snapped branches.
T12	Bay Willow	Mature	NE 1.5	15	2	305	3.7	42.1	3	5.5	4	3	2.5	3	4	4	Fair	Poor	Fair	U	N/A	< 10 yrs	Poor	Poor overall condition, snapped branches.
T13	Bay Willow	Mature	NE 4	13	2	300	3.6	40.7	2.5	3	2.5	2	2	4	5	6.5	Fair	Poor	Fair	U	N/A	< 10 yrs	Poor	Poor overall condition, snapped branches.

*RPA = The minimum distance, measured from the tree's trunk, at which tree protective barriers should be erected.

**RPA = The minimum area in M^2 around which tree protective barriers should be erected.

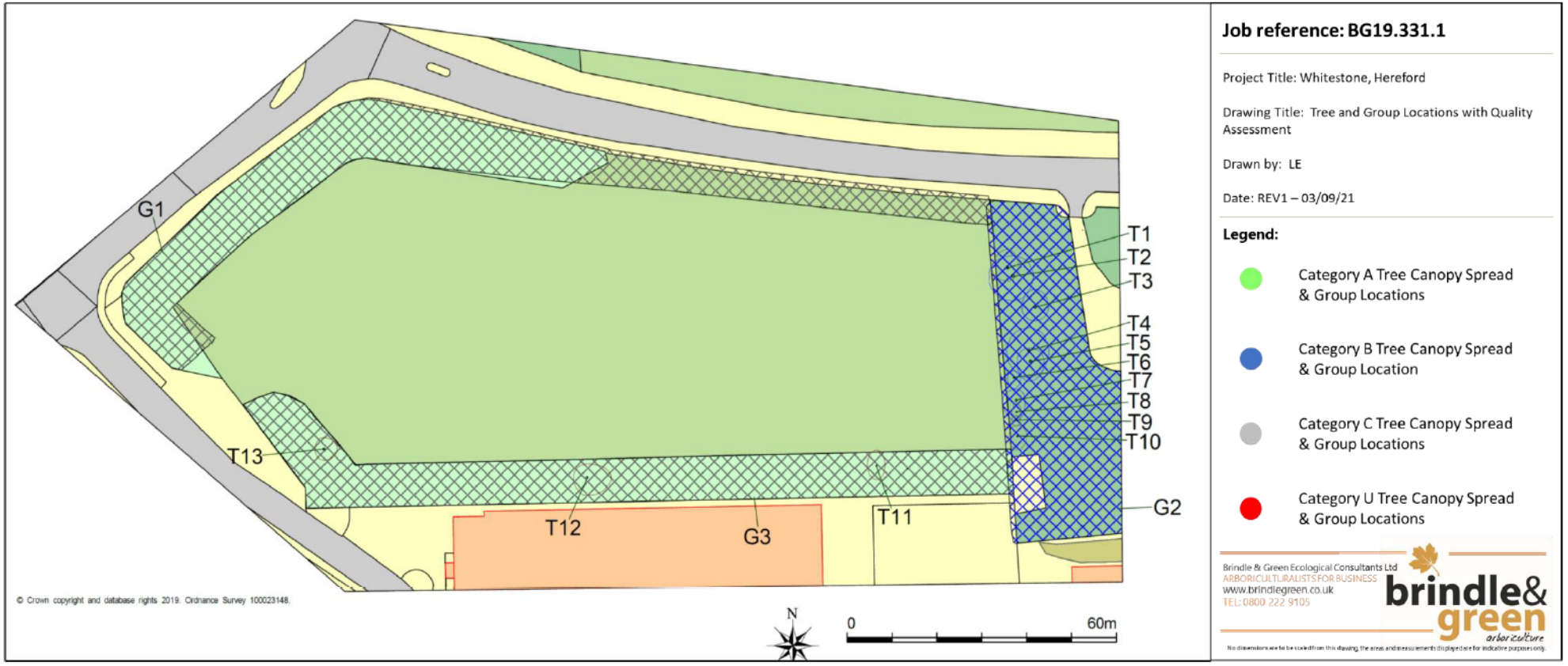
#Access restricted, inspection limited, dimensions limited.

Key: **Life Stage** – recorded as follows:

NP: Newly planted – a tree within 3 years after planting
Y: Young– a tree within its first one third of life expectancy
SM: Semi-mature – a tree within its second third of life expectancy
M: Mature – a tree in its final one third of life expectancy
V: Veteran - a tree with habitat features such as wounds or decay. A veteran may be a young tree with a relatively small girth in contrast to an ancient tree but bearing the 'scars' of age such as decay in the trunk, branches or roots, fungal fruiting bodies, or dead wood.
A: Ancient – a tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species and is of interest biologically, aesthetically or culturally because of its age, size and condition

Group ID	Species	BS5837 Category	Description/Comments
G1	Silver Birch, Sycamore, Common Hazel, Common Oak, Common Hawthorn, Larch, Bay Willow, Italian Alder, Field Maple, Wild Cherry, Common Ash	C	Group dominated by semi-mature silver birch. Height up to 10m, width up to 8m. Combination of multi and single stemmed trees. Leans to some stems, damage to some stems. Provides a screening landscape feature from the A4103,
G2	Wild Cherry, Leyland Cypress, Common Hawthorn, Black Locust, Common Walnut, Scot's Pine, Common Elder, Cherry Laurel	B	Off-site boundary mixed-species group, good quality. Dominated by mature trees. Located in the garden of the adjacent property to the east of site. Average height from 18-22m.
G3	Bay Willow, Sycamore, Silver Birch, Larch, Common Ash, Italian Alder, Common Elder, Field Maple, Wild Cherry, Common Hazel, Goat Willow	C	Height of group up to 15, width up to 6m. Mixture of single and multi-stemmed trees. Provides screening. Three bay willow (T11-T13) surveyed individually and highlighted as Category C due to significantly impaired condition.

Appendix 2: Tree Plans & Tree protection Plan


G1
T1
T2
T3
T4
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T13
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T11
G2
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60m
Job reference: BG19.331.1
Project Title: Whitestone, Hereford
Drawing Title: Tree and Group Locations with Quality Assessment
Drawn by: LE
Date: REV1 – 03/09/21
Legend:
Category A Tree Canopy Spread & Group Locations
Category B Tree Canopy Spread & Group Location
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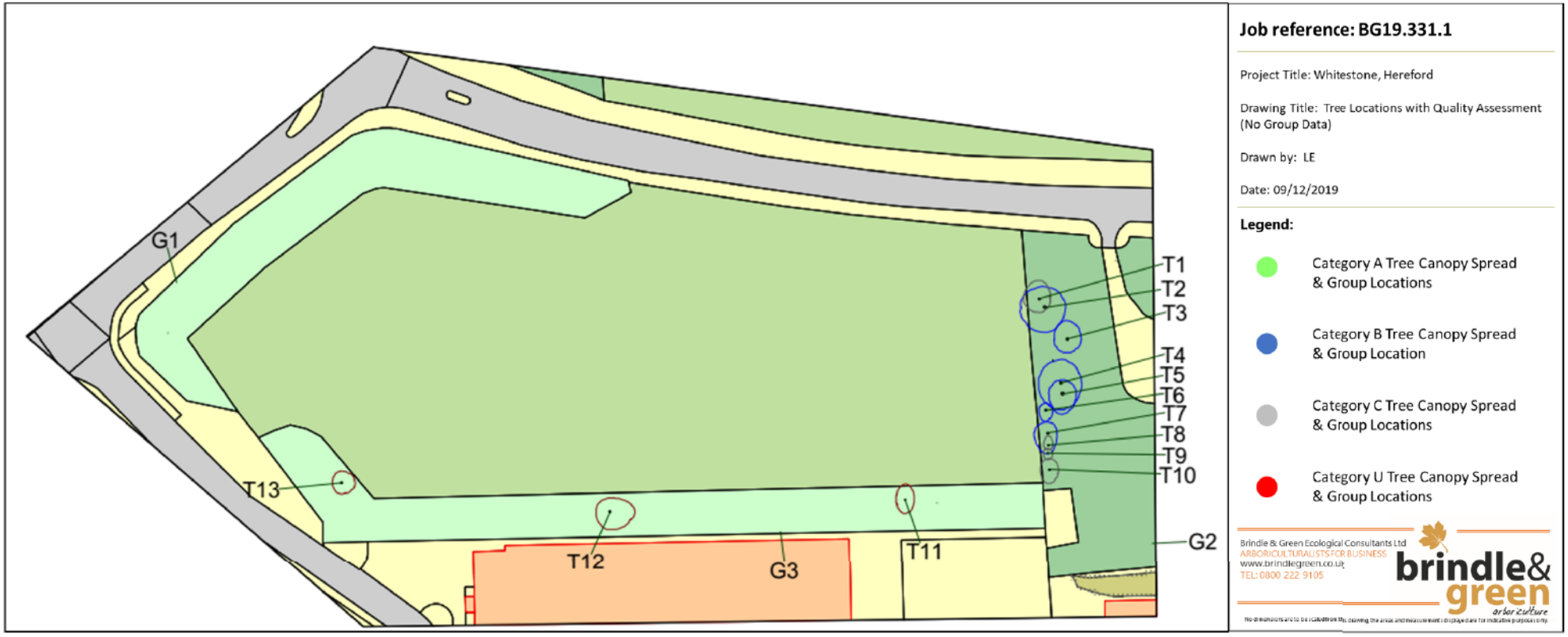
No dimensions are to be scaled from this drawing, the areas and measurements displayed are for indicative purposes only.


G1
T1
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G3
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G2
Job reference: BG19.331.1
Project Title: Whitestone, Hereford
Drawing Title: Tree Locations with Quality Assessment (No Group Data)
Drawn by: LE
Date: 09/12/2019
Legend:
Category A Tree Canopy Spread & Group Locations
Category B Tree Canopy Spread & Group Location
Category C Tree Canopy Spread & Group Locations
Category U Tree Canopy Spread & Group Locations
Brindle & Green Ecological Consultants Ltd
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TEL: 0800 222 9105
brindle& green
arbor culture


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© Crown copyright and database rights 2019. Ordnance Survey 100023148.
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Job reference: BG19.331.1
Project Title: Whitestone, Hereford
Drawing Title: Tree and Group Locations with Quality Assessment
Drawn by: LE
Date: REV2 – 08/12/2021
Legend:
Category A Tree Canopy Spread & Group Locations
Category B Tree Canopy Spread & Group Location
Category C Tree Canopy Spread & Group Locations
Category U Tree Canopy Spread & Group Locations
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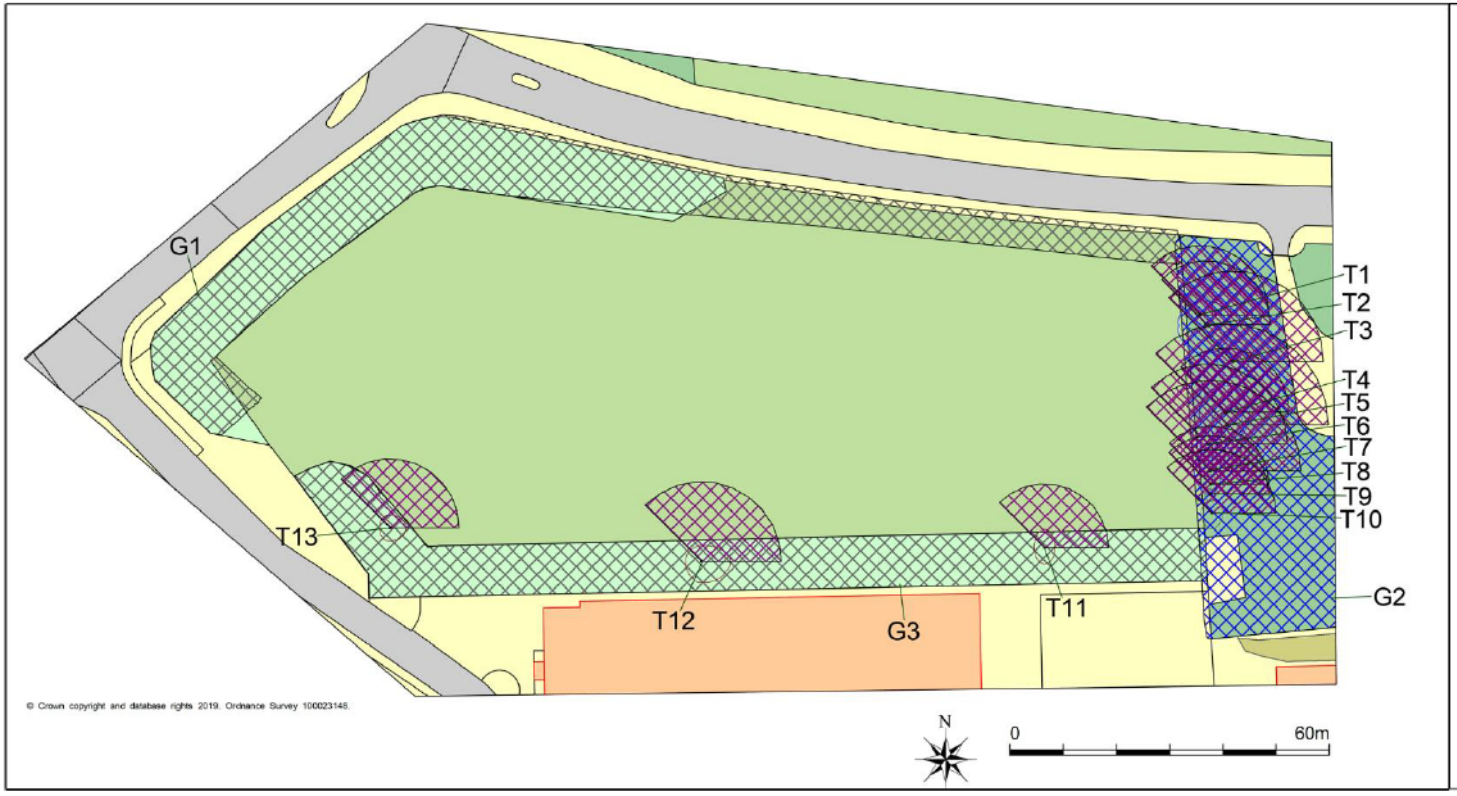

Job reference: BG19.331.1

Project Title: Whitestone, Hereford

Drawing Title: Shade Plan

Drawn by: LE

Date: REV1 – 03/09/21

Legend:

Current Shading

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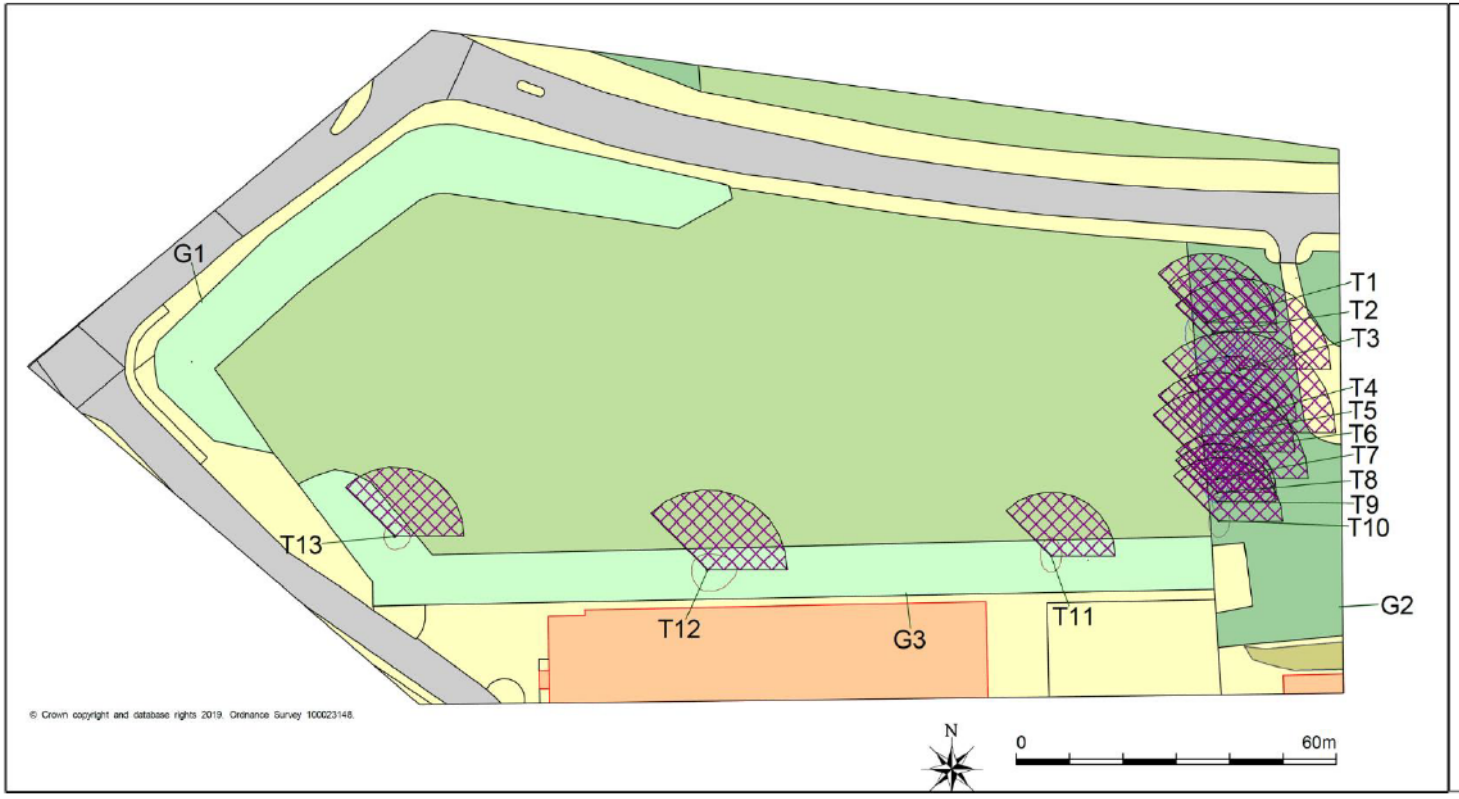
No dimensions are to be scaled from this drawing. The areas and measurements displayed are for indicative purposes only.



Job reference: BG19.331.1

Project Title: Whitestone, Hereford

Drawing Title: Shade Plan

Drawn by: LE

Date: REV1 – 03/09/21

Legend:

Current Shading

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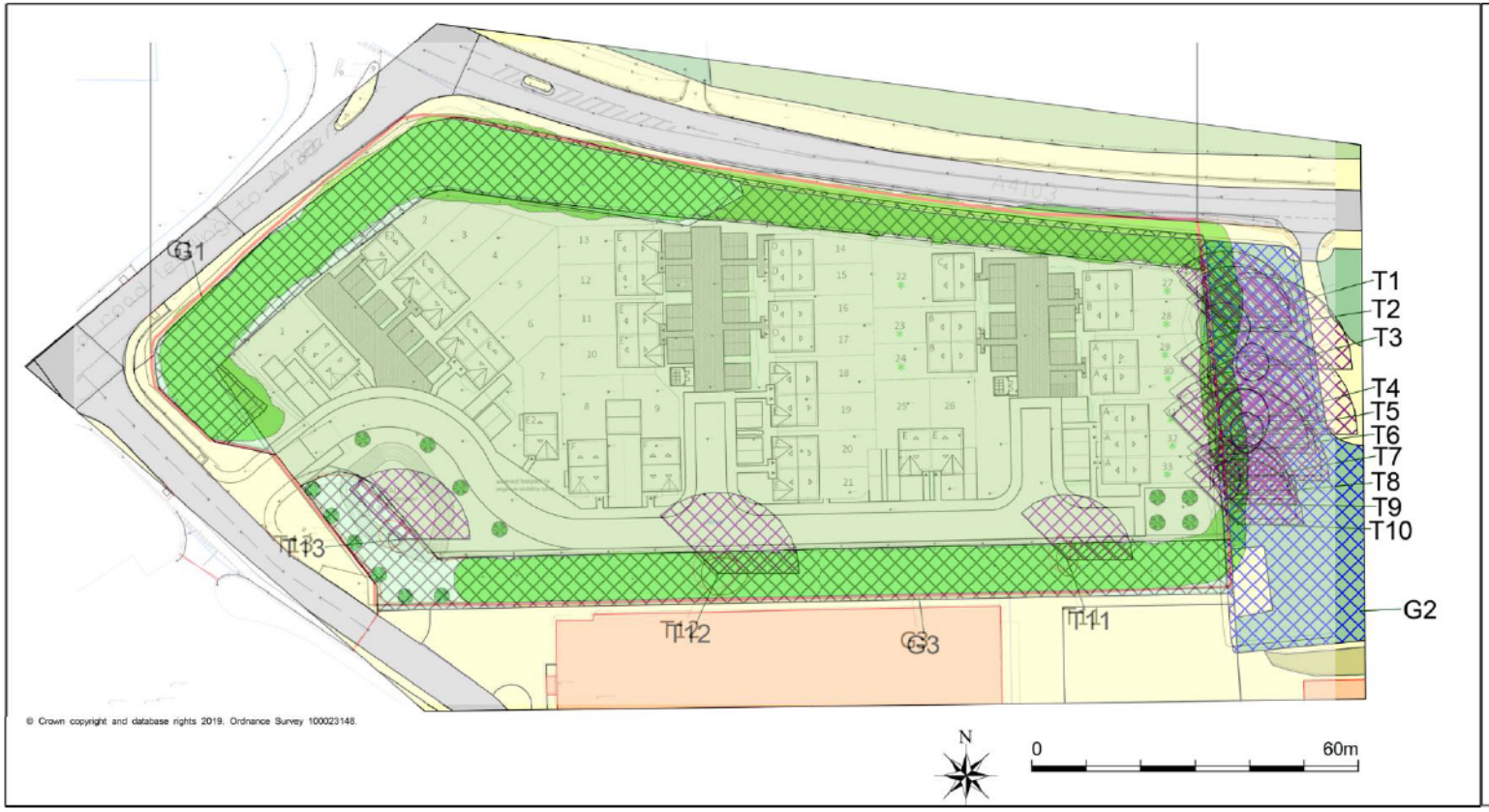

Job reference: BG19.331.1

Project Title: Whitestone, Hereford

Drawing Title: Shade Plan

Drawn by: LE

Date: REV2 – 08/12/2021

Legend:

Current Shading

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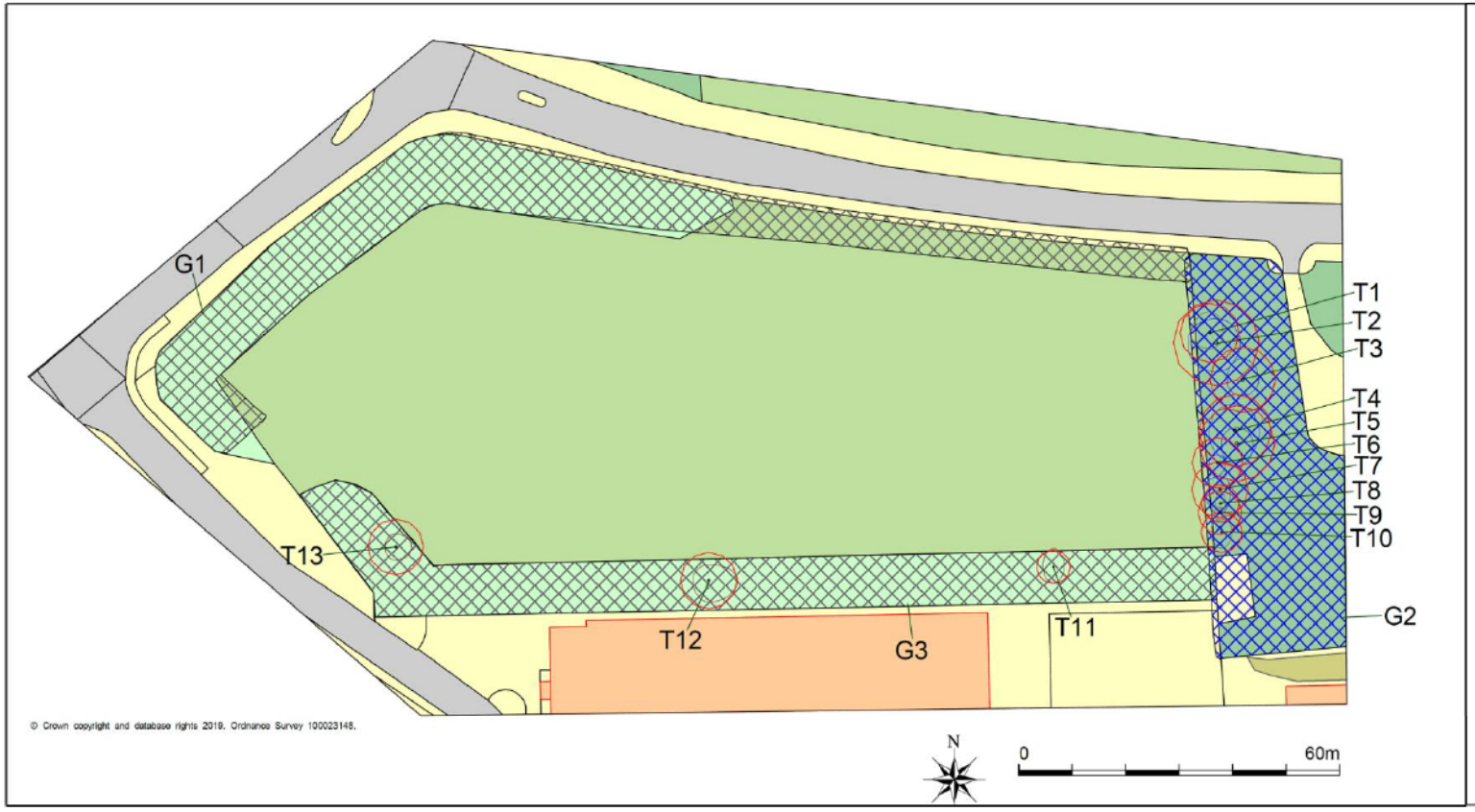

Job reference: BG19.331.1

Project Title: Whitestone, Hereford

Drawing Title: Root Protection Area

Drawn by: LE

Date: REV1 – 03/09/21

Legend:

- Root Protection Area (RPA)
- Category A Tree Canopy Spread
- Category B Tree Canopy Spread
- Category C Tree Canopy Spread
- Category U Tree Canopy Spread

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G2
Job reference: BG19.331.1
Project Title: Whitestone, Hereford
Drawing Title: Root Protection Area (No Group Data)
Drawn by: LE
Date: 09/12/2019
Legend:
Root Protection Area (RPA)
Category A Tree Canopy Spread
Category B Tree Canopy Spread
Category C Tree Canopy Spread
Category U Tree Canopy Spread
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Job reference: BG19.331.1

Project Title: Whitestone, Hereford

Drawing Title: Root Protection Area

Drawn by: LE

Date: REV2 – 08/12/2021

Legend:

- Root Protection Area (RPA)
- Category A Tree Canopy Spread
- Category B Tree Canopy Spread
- Category C Tree Canopy Spread
- Category U Tree Canopy Spread

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Job reference: BG19.331.1

Project Title: Whitestone, Hereford

Drawing Title: Tree Protection Plan

Drawn by: LE

Date: REV2 – 04/01/2022

Legend:

Suggested Location of Exclusion Fencing

Trees Suitable for Removal

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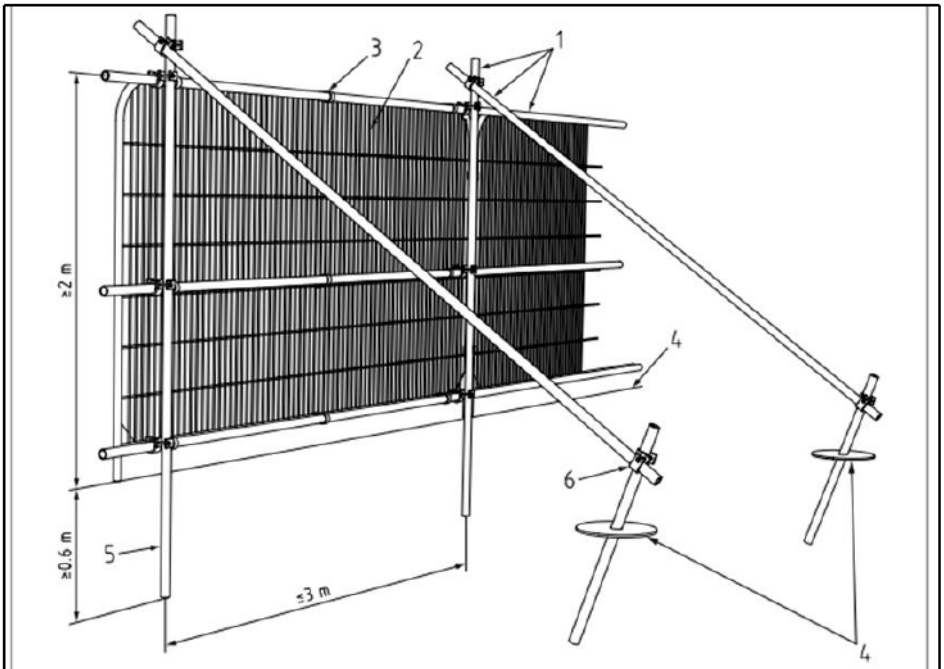
Appendix 3: Tree Retention General Guidance

1. **Below Ground Constraints** to achieve any development, various construction activities are required and great care and consideration needs to be given as to how such activity can proceed whilst avoiding damage to retained trees.

1.1. In order to avoid damage to their roots, trees should be protected using protective barriers as are detailed in British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' and as illustrated in Figures 1 and 3. Such barriers should be erected around the RPA prior to the commencement of the demolition/construction activity; it must remain in situ and intact until completion. The area within these barriers should, with some exceptions be considered sacrosanct, and no work should be permitted within them. In an effort to ensure any tree protective barriers remain during construction, it is further advised that they carry signage as per Figure 2 and that the Site Agent is briefed accordingly.

1.2. Tree Protective Barriers should also be erected, prior to the commencement of construction, around those areas identified for soft landscaping/tree planting so as to protect the soil from compaction and denaturing. Correct setting out of the barriers and ground protection should be confirmed on site by the project arboriculturalist prior to the commencement of any other operations on site.

1.3. Where space is required within the RPA to facilitate the erection of scaffold this may be satisfactorily achieved incorporating ground protection within the scaffold structure as illustrated in Figure 3 above.



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 1 – Tree Protection Barrier
British Standard 5837, (2012),), *'Trees in Relation to Construction: Recommendations', Page 20*

Figure 2 - Barrier Notice

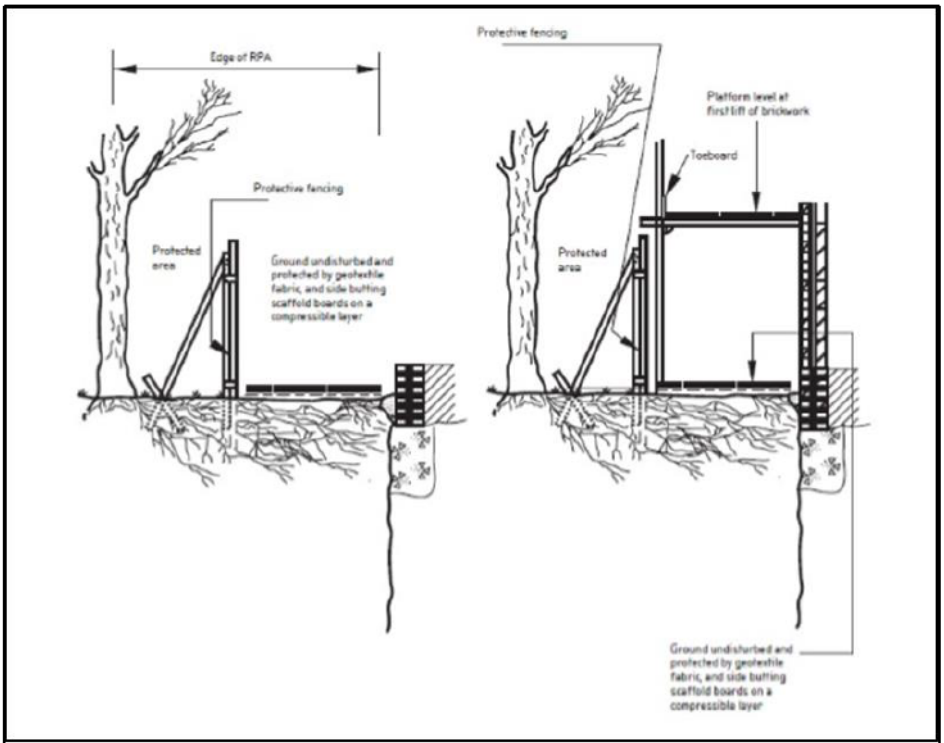


Figure 3 – Adapted Barrier Incorporating Temporary Ground Protection

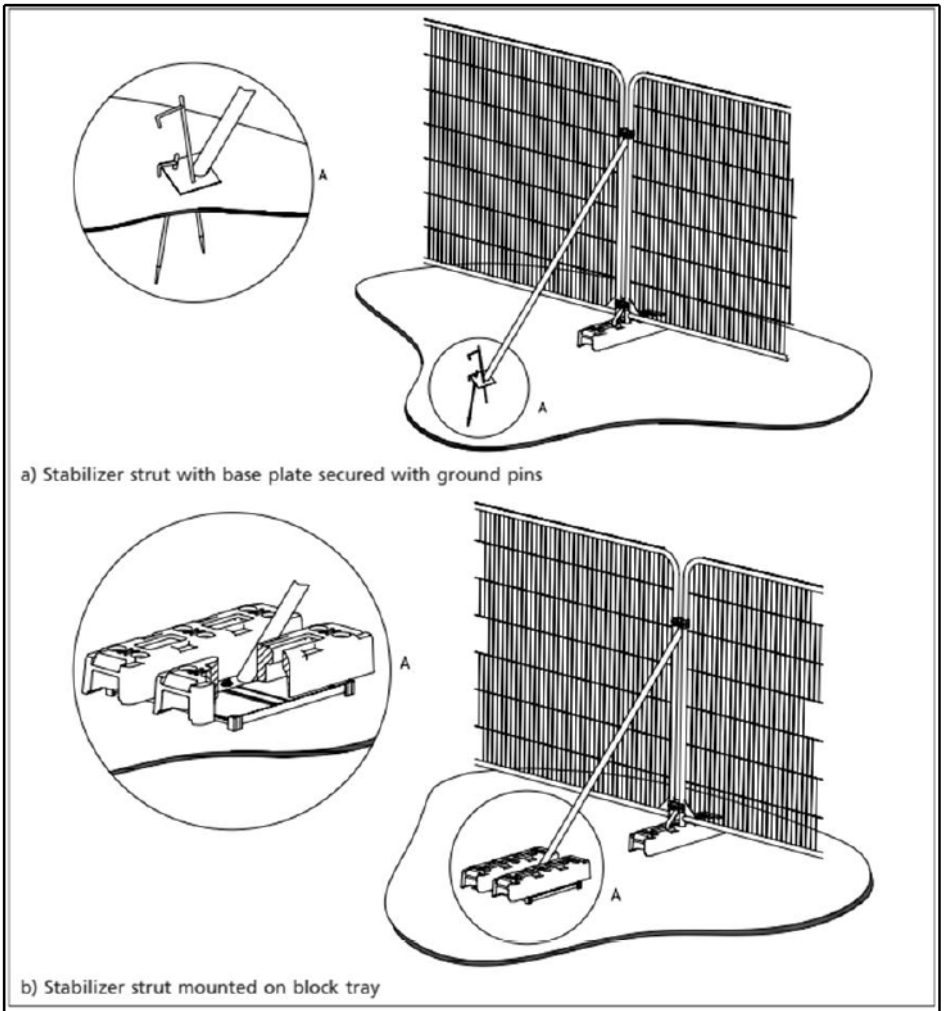


Figure 4 - Examples of above-ground stabilizing systems
British Standard 5837, (2012), *'Trees in Relation to Construction: Recommendations', Page 21*

2. **Above Ground Constraints**: Consideration must also be given to the aerial parts of the tree in relation to any construction; particularly residential buildings. Conflict frequently arises where dwellings are placed close to trees giving rise to concerns relating to shade, falling debris such as leaves and twigs and from apprehension arising from a perceived threat of tree failure. These concerns can often be overcome, in part at least, by carefully ensuring adequate useable garden space is provided and is not dominated by trees and that principal windows face away from trees; in some instances it may be appropriate to locate glazed panels into the roof structure. The LPA are likely to resist any proposal that results in built structures close to trees or that makes inadequate provision for their future growth. Usually, and particularly in the case of immature trees, the distances required to avoid conflict will be greater than

those expressed as the RPA. It is however, equally important to note that issues arising from shade are often overstated and that some shade is not only tolerable but may be beneficial. It is also important to bear in mind that different tree species cast different shade patterns depending upon juxtaposition, size, habit, canopy density, evergreen/deciduous. The following guidance is given by the Building Research Establishment (BRE): "Tree locations are … important; deciduous species are best because they are leafless when solar gains are most valuable, while providing some shade in summer." (BR380 Page 69) Deciduous trees give shade in summer but allow access to sunlight in winter." (BR 209 page 22). "The question of whether trees aforementioned should be included in the (solar gain*) calculation depends upon the type of shade they produce. Normally, trees and shrubs need not be included, partly because their shapes are impossible to predict, and partly because the dappled shade of a tree is more pleasant than the deep shadow of a building. This applies especially to deciduous trees." (BR209 page 13).

3. ARBORICULTURALLY ACCEPTABLE CONSTRUCTION METHODS WITHIN RPA

3.1. Foundations: in order to maximise a sites development potential, it may be possible to employ special foundation design such as mini/micro pile and suspended beam or a cantilevered foundation. These designs enable construction within the RPA as they limit excavation to a minimum. The location of any mini piles would need to be flexible so as to avoid damage to major roots and the necessary excavation for the piles may need to be carried out by hand; the piles should be sleeved so as to contain concrete which contains 'tree-toxic' chemicals. In these circumstances a suspended floor slab will need to be incorporated and the void beneath should be externally vented so as not to inhibit gaseous exchange, in some instances i.e. where more than 20% of the RPA is to be covered, there will need to be provision for the redistribution of rainwater beneath the slab. Where pile foundations are to be employed, consideration needs to be given to the selection of the type of piling rig so as to avoid conflict with low, overhanging tree branches.

3.2. **Hard Surfacing - New:** It is permissible to construct hard surfacing for drives and paths within the RPA; however, it can have implications for tree roots. These implications can often be overcome and/or minimised by employing a 'no-dig' construction (see Appendix 3) methods. These techniques result in structures which are load bearing and negate the need for deep excavation.

Any final surface must be porous so as to permit gaseous exchange and moisture percolation. Further advice of a structural engineer must be sought to design the final specification in accordance with these parameters, with the final design being agreed with a Chartered Arboriculturist.

3.3. **Hard Surfacing - Existing**: Where hard surfacing exists within the area defined as the RPA, it is acceptable to erect protective barriers at the extent of that hard surface, since the surface itself will afford protection to any tree roots beneath. However, where is proposed to remove/regrade existing hard surfacing care must be taken to avoid collision between overhanging tree branches and passing construction traffic. It is advised that to minimise root disturbance the existing surface is broken and gathered for disposal using hand operated tools, any backfilling must utilise top quality top soil laid at approximately 50mm deep with a composted bark mulch laid over that to a maximum depth of 75mm; in the long term this approach brings a positive arboricultural impact.

3.4. **Temporary Site Accommodation** – Note 2 Page 20 of BS 5837 (2012) advises that in some circumstances it is appropriate to use site cabins as components of the tree protective barriers where they can serve as an effective means of protecting the soil from many of the construction related activities. Further advice of a Chartered Arboriculturalist should be sought should this matter be of relevance or advantageous.

3.5. **Temporary Ground Protection** - In some instances it may be advantageous to work within the RPA e.g. access a site, either for pedestrians or machinery. BS5837 (2012) acknowledges this as a possibility and systems which dissipate any load applied, thus avoiding soil compaction and denaturing, are to be used, also new temporary ground protection could comprise one of the following:

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

B) For pedestrian operated plant up to a gross weight of 2t, proprietary, inter-linked ground protection boards could be placed on top of a compression resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile.

C) For wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. pre-cast reinforced concrete slabs) could be employed.

D) An engineer should be consulted regarding the design of a temporary access with the final specification being agreed with a Chartered Arboriculturalist.

4. OTHER CONSIDERATIONS

4.1. Trees Subject to Statutory Controls: No attempt has been made to establish the existence of any statutory controls; the following is given as guidance. Trees and hedgerows can be subject to statutory control and severe penalties can result from unauthorised works or damage. It is recommended that prior to commencement of any tree works the Local Planning Authority (LPA) are contacted. When proposing to do works to trees within a Conservation Area, with some exceptions, eg the implementation of works directly necessary to implement a full planning permission, six weeks written notice must be given to the LPA, this notice need not take any form other than a written specification of what is proposed and a plan illustrating the position of the tree(s). This notice is often referred to as a Section 211 Notice. Many LPA's prefer that their standard pro-forma is submitted to ensure the necessary detail is included in the notice; whilst such cannot be strictly required it can assist in a speedy outcome.

4.1.1. Having received the notice the LPA has essentially only one of two options at its disposal i.e.:

- Impose a TPO in respect of those trees/some of those trees subject to the notice. This prevents any works being carried out without the express, written consent of the LPA,

Or

- Do nothing. It is considered best practice for an LPA to acknowledge receipt of the notice but there is no obligation for it to do so. After six weeks of serving the notice the tree owner may proceed with the works detailed in the Section 211 Notice. The LPA cannot, in response to a Section 211 Notice, issue a conditional consent. TPO's are made in the interests of

preserving amenity, usually taken to mean public visual amenity. Trees largely removed from public view and which have little visual impact are not usually made the subject of a TPO. The written consent of the LPA must be obtained prior to undertaking works to trees subject to TPO unless, as with trees in Conservation Areas, certain exemptions apply. With regard to trees subject to TPO's it is a requirement that a standardized application form is used; this form is available from the LPA. Where trees are protected Brindle & Green Limited are happy to act as the client's agent, liaising as necessary with the LPA and producing the written submissions/notices/applications as required.

4.2. **Trees and Wildlife**: Trees play host to nesting birds many of which are protected by law. All British bat species are also protected and can be found in trees. Great care needs to be taken to avoid disturbance and consideration should be given to the timing of tree works in order to avoid disturbance. Where the presence of protected species is suspected, Natural England should be contacted for advice.

4.3. **Implementation of Tree Works**: Guidance on hiring an Arborist is available from Brindle & Green Ltd. Also, the Arboricultural Association's Register of Contractors is available free from Ullenwood Court, Ullenwood, Cheltenham, Gloucestershire, GL53 9QS (Telephone 01242 522152 , www.trees.org.uk). Any appointed contractor should carry out all tree works to BS 3998 (2010) 'Recommendations for Tree Work.'

4.4. **New Planting**: It is possible that any planning permission issued will carry a condition requiring new tree planting, particularly in instances where a proposal involves the removal of trees. Further advice is available upon request.

Appendix 4: Proposed Plans


zebra ARCHITECTS
PIPERHOMES
zeb1382
Whitestone
PL002
Proposed Site Plan
date October 2021
status planning
rev H
G1
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
G2
G3
Greendale House
proposed site plan

Appendix 5: Site Photographs

Figure 1: Photograph taken from the site entrance to the west, with G1 present in the foreground and along the boundary.

Figure 2: Photograph taken at the site entrance looking at G3.