

Anglia Square, Norwich
Arboricultural Impact Assessment

Dated March 2022

Weston
Homes



**ARBORICULTURAL
IMPACT
ASSESSMENT**

Anglia Square, Norwich

March 2022



Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	Anglia Square, Norwich	
Project Reference:	4469	
Site Address:	Anglia Square, Upper Green Lane, New Catton, Norwich	
Nearest Postcode:	NR3 1DZ	
Central Grid reference:	TG 2307 0937	
Local Planning Authority:	Norwich City Council	
Relevant Planning Policies:	Adopted Norwich Local Plan (November 2014): Policy DM7 Trees and development	
Statutory Controls: (Refer to Section 6)	Tree Preservation Order	Conservation Area
	None	Yes - the entire site is located within the 'Norwich City Conservation Area'
Soil Type: (Source: BGS online soils map © NERC 2022)	Superficial/Drift	Bedrock
	Alluvium - Clay, silt, sand and gravel.	Lewes Nodular Chalk, Seaford Chalk, Newhaven Chalk, Culver Chalk and Portsdown Chalk Formations - Chalk.
Topographical Survey:	Yes - SJ Geomatics - SJG2136 - Rev A	
Proposed Site Layout:	Landscape Masterplan - ANG-PLA-XX-XX_DR-L-1001 - P02	
Notes:	N/a	
Report author:	Richard Hyett <i>MSc, BSc (Hons), MICFor, MArborA</i>	
Date of issue:	31st March 2022	

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1. INTRODUCTION

- 1.1. This Arboricultural Impact Assessment has been prepared by Barton Hyett Associates on behalf of Weston Homes (the Applicant) in support of a hybrid (part detailed/part outline) planning application submitted to Norwich City Council (NCC) for the comprehensive redevelopment of Anglia Square and various parcels of mostly open surrounding land (the Site) as shown within a red line on drawing 'ZZ-00-DR-A-01-0200'.
- 1.2. The Site is located in a highly accessible position within the northern part of Norwich City Centre and comprises a significant element of the Anglia Square/Magdalen Street/St Augustines Large District Centre, (the LDC). It is thus of strategic importance to the City, and accordingly has been identified for redevelopment for many years within various local planning policy documents, including the Northern City Centre Area Action Plan 2010, (NCCAAP), (now expired), the Joint Core Strategy for Broadland, Norwich and South Norfolk 2014, (JCS), and NCC's Anglia Square and Surrounding Area Policy Guidance Note 2017, (PGN). The Site forms the principal part of an allocation (GNLP 0506) in the emerging Greater Norwich Local Plan (GNLP).
- 1.3. This application follows a previous application on a somewhat smaller development parcel, (NCC Ref. 18/00330/F) made jointly by Weston Homes Plc as development partner and Columbia Threadneedle Investments, (CTI), the Site's owner, for a residential-led mixed use scheme consisting of up to 1,250 dwellings with decked parking, and 11,000 sqm GEA flexible ground floor retail/commercial/non-residential institution floorspace, hotel, cinema, multi-storey public car park, place of worship, and associated public realm and highway works. This was subject to a Call-in by the Secretary of State (PINS Ref. APP/G2625/V/19/3225505) who refused planning permission on 12th November 2020, (the 'Call in Scheme').
- 1.4. In April 2021, following new negotiations with Site owner CTI, Weston Homes decided to explore the potential for securing planning permission for an alternative scheme via an extensive programme of public and stakeholder engagement, from the earliest concepts to a fully worked up application. The negotiations with CTI have secured a "Subject to Planning" contract to purchase the Site, (enlarged to include the southeastern part of Anglia Square fronting Magdalen Street and St Crispins Road), which has enabled a completely fresh approach to establishing a redevelopment scheme for Anglia Square. This has resulted in a different development brief for the scheme, being to create a replacement part of the larger LDC suited to the flexible needs of a wide range of retail, service, business and community uses, reflective of trends in town centre character, integrated with the introduction of homes across the Site, within a highly permeable layout, well connected to its surroundings.
- 1.5. The new development proposal seeks to comprehensively redevelop the Site to provide up to 1,100 dwellings and up to 8,000sqm (NIA) flexible retail, commercial and other non-residential floorspace including

Community Hub, up to 450 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), car club spaces and associated works to the highway and public realm areas (the Proposed Development). These figures are maxima in view of the hybrid nature of the application. This proposes part of the scheme designed in full, to accommodate 367 dwellings, 5,757 sqm non-residential floorspace, and 146 car parking spaces (at least 95% spaces for residential use, and up to 5% for non-residential use), with the remaining large part of the Site for later detailed design as a "Reserved Matters" application, up to those maxima figure

- 1.6. This Arboricultural Impact Assessment] provides Norwich City Council with a survey and impact assessment in accordance with the recommendations of British Standard 5837:2012 '*Trees in relation to design, demolition and construction - recommendations*'.

2. SITE DESCRIPTION

- 2.1. The site is located in the city of Norwich on the northern edge of the city centre.
 - Post code: NR3 1DZ
 - Central grid reference: TG 2307 0937
- 2.2. The site is currently the Anglia Square shopping centre, containing numerous shops, a cinema (now closed), office space and an unused multi-storey car park. There are also a number of car parks around the site.
- 2.3. The underlying topography of the site is broadly level. The underlying bedrock geology is chalk with overlying superficial deposits of alluvium formed by clay, silt, sand and gravel. However, the upper soil horizons relevant to arboricultural matters are anticipated to be made ground.
- 2.4. The presence of trees and other vegetation within the site is limited, with most of the notable trees situated around the periphery of the site.

3. TREE SURVEY FINDINGS

- 3.1. A total of 23 trees and one group of trees were surveyed on the 8th March 2022. These are summarised in terms of their quality in accordance with the recommendations of BS5837 below, and shown in more detail on the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule (**Section 4**).

	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	23	-	15	5	3
Groups	1	-	-	1	-
Hedgerows	-	-	-	-	-
Woodland	-	-	-	-	-
Total	24	-	15	6	3

Table 1: summary of arboricultural features of each BS5837 quality category

- 3.2. The above table demonstrates that the site contains a limited number of trees. Of the individual trees identified the majority are considered to be of moderate quality (Category B) with an anticipated useful life expectancy of at least 20 years, and potentially more. A smaller number of trees were considered to be low quality (Category C) with an anticipated useful life expectancy of in the region of 10 years. The anticipated life expectancy of Category C trees has been reduced on the basis of impaired physiological or structural condition.
- 3.3. No high quality (Category A) trees were identified as part of the survey.
- 3.4. A single very poor-quality tree (Category U) was identified. At the time the survey was undertaken this tree was deemed inappropriate for retention in the current site context.
- 3.5. A single group of trees was identified within the site boundary. This group is a low quality (Category C) tree group containing trees that have reduced anticipated life expectancy due to their physiological or structural condition. A further two tree groups, not included in the full survey, were identified adjacent to the site boundary but not within influencing distance of the site.

4. LOCAL PLANNING POLICY

- 4.1. There is an emerging development plan, the Greater Norwich Local Plan (GNLP) which is being prepared by Broadland DC, South Norfolk Council, NCC and Norfolk County Council, (the Partnership), that will supersede the Joint Core Strategy for Broadland, Norwich and South Norfolk (2014) (JCS) and Norwich Site Allocations and Site Specific Policies Local Plan (2014) (NSASSP) once adopted. The GNLP Reg 19 version was submitted to the Secretary of State for examination on 30th July 2021.
- 4.2. The examination process is underway, for which hearing sessions took place during February and March 2022. As a result of the hearings, many policies, including the emerging allocation for the Site were subject to debate, addressing their soundness and the consequential need for amendment, alongside requests for additional information by the Inspectors. It is therefore considered likely the Council will prepare and consult upon Modifications or at least minor changes to both policy text and supporting text, relevant to this application. This process, and the publication of the Inspectors' report may extend beyond the determination of this application, and so final GNLP policy wording may not be available at that stage.
- 4.3. Paragraph 48 of the National Planning Policy Framework 2021 (NPPF) requires decision makers to give weight to relevant policies of emerging Local Plans according to the stage of preparation, the extent of unresolved objections, and the degree of consistency between emerging policies and the NPPF. In this instance, there are currently unresolved objections, in respect of some of which the Inspectors have requested additional information, and accordingly there are likely to be Modifications to some policies relevant to this application before they can be considered sound. On this basis, it is considered that in respect of those policies, the emerging development plan currently holds limited weight in decision making. In this context, those policies are not considered in detail.
- 4.4. Local development management policy 'DM7 Trees and development' states '*Trees and significant hedge and shrub masses should be retained as an integral part of the design of development*' this policy goes on to state '*Where the loss of trees is accepted in these circumstances, developers will be required to provide at least equivalent replacement in terms of biomass*'.
- 4.5. Paragraph 180 of the NPPF applies to ancient/veteran trees and is not applicable to the development.
- 4.6. Paragraph 131 of the NPPF states: '*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.'

5. PROPOSED DEVELOPMENT

5.1. The proposed development is described as:

"Hybrid (Part Full/ Part Outline) application for the comprehensive redevelopment of Anglia Square, and car parks fronting Pitt Street and Edward Street for: up to 1,100 dwellings and up to 8,000sqm (NIA) flexible retail, commercial and other non-residential floorspace including Community Hub, up to 450 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), car club spaces and associated works to the highway and public realm areas".

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 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. Three individual trees and one group of trees are proposed to be removed in order to allow the proposed development to be implemented. A further tree will be removed on the basis of its very poor condition and not as a direct result of the proposed development. The tree removals are summarised below and shown on the Tree Retention and Removal Plan in **Section 3**.

6.3. The number of individual trees on site is limited. Of the twenty three individual trees identified, only four will require removal in order for the development proposal to be implemented. These are T2 (common lime) , T3 (large leaved lime) and T14 & T15 (London plane). All of the trees to be removed are of moderate quality (Category B). Trees T2 and T3 are located within the centre of the site and their effective retention will not

be possible through the demolition process and in addition they are located within the footprint of a proposed building.

6.4. Trees T14 and T15 are London planes located on the southern edge of the site and adjacent to St Crispins Road. These trees are prominent within the streetscene but form part of the a wider cohesive group of nine other trees (London plan and lime) that will be retained. The removal of T14 and T15 is required in order to provide a safe and effective highway egress from the site. The design of the site access and egress points in this location have been designed to minimise the loss of trees as far as possible.

6.5. In addition to the individual trees, a low quality (Category C) tree group (G1) containing a small number of trees will be removed.

6.6. A single, Category U tree (T6; a small oak tree) will be removed on the basis of its poor condition and in line with good arboricultural management. This removal is required irrespective of the development proposal and should not be considered an impact that will occur as a result of the development. This tree will be replaced as part of the proposed development.

6.7. The submitted Soft Works Site Plan (ANG-PLA-XX-XX-DR-L-2000) details a significant number of new trees will be planted across the site. In particular attention has been paid to the St Crispins Road frontage where the removal of T14 and T15 is required. The new tree planting along this frontage will comprise of 16 new trees ranging from multistemmed trees at circa 4m in height, up to 6m tall semi-mature nursery stock. Where the recent removal of the underpass beneath St Crispins Road was undertaken (and a new above ground crossing constructed) two large feature trees will be planted to frame the primary southern access into the site.

6.8. Overall, the quantity of new tree planting will sufficiently mitigate the proposed tree loss required. The proposed arboricultural losses are considered to be acceptable, when viewed in the context of the extensive new tree planting proposed as part of the development. The proposed development is therefore compliant with development management policy DM7.

Impacts on retained trees

6.9. A summary of potential impacts that have been considered is provided below.

6.10. *Demolition and site clearance* - A significant amount of demolition and site clearance will be required on the site. These works have the potential to impact on retained trees. However, the trees are located far enough away from buildings to be demolished that a standard protection barrier will provide sufficient protection during these works. Dust suppression requirements for the demolition will assist in preventing the buildup of dust on the leaves of retained trees (should demolition work be undertaken during the growing season).

- 6.11. *Facilitation pruning* - No facilitation pruning is required to retained trees.
- 6.12. *Service installation* - No new services are proposed within the RPAs of retained trees.
- 6.13. *Ground level changes hard surfacing* - There are no anticipated ground level changes within the RPAs of retained trees.
- 6.14. *Hard surfacing* - For retained trees within existing hard surfaced areas (e.g. T7, T8, T12 and T13) a slight increase or decrease in finished surface levels may be required to accommodate the proposed public realm landscaping (hard and soft) but this should not pose a problem as long as the formation level for any new hard-surfacing remains the same as existing (i.e. no significant excavation into underlying soil/made ground). Further assessment of this will be required at detailed design stage and works to replace the hard surfacing must be undertaken in accordance with an approved Arboricultural Method Statement (AMS).
- 6.15. To the north of the group of London planes and lime trees along St Crispins Road it is proposed that a new access road is created within the site. Primarily this new access is located within areas of existing hard surfacing, however, new hard surfacing will be required to be installed within the RPAs of T9, T10 and T22. Through the detailed design process it is proposed that localised increases in finished surface level will be incorporated so that any excavation into the underlying soil/made ground (where roots may be present) will be avoided/limited. Trial hole excavations will need to be undertaken to inform the approach to these works. The proposed surfacing will be permeable in nature. It is feasible to install such surfacing (especially given the species of the relevant trees) without impacting upon their long-term health and condition. This matter will need to be the subject of further detailed design and the works undertaken in accordance with an approved AMS.
- 6.16. *Foundations* - No new foundations are required within the RPAs of retained trees.
- 6.17. *Soft landscaping* - No significant soft landscaping is required within the RPAs of retained trees. The only area where some minor soft landscaping works are required is within the northern part of the RPA associated to London planes (T16 to T22). In this location some areas of existing hard surfacing shall be removed and replaced with grass. The establishment of the new grass will require the import of new topsoil and then either seed sown or turf laid. These works can occur without any impacts on retained trees if undertaken appropriately. Existing grass areas shall not be prepared for new grass by means of mechanical rotovation. All soft landscaping work within RPAs of retained trees must be undertaken in accordance with an approved AMS.

Conclusion

- 6.18. The proposal is feasible from an arboricultural perspective, and if carefully implemented according to an approved arboricultural method statement there would be no or only a very low potential for negative impacts to occur to retained trees.

7. TREE PROTECTION MEASURES

- 7.1. The proposed tree protection measures are shown on the plan included in **Section 3** of this report.
- 7.2. Where practical the protection measures have been prepared to ensure the square metre area of the RPAs for individual trees has been maintained and also that the RPAs cover the likely rooting area of individual trees. In some places this may have resulted in polygonal, square or possibly offset RPAs. Any hard surfacing and structures within the RPAs of trees to be retained are also shown on the plan. In addition, the plan shows locations of protective barriers (forming Construction Exclusion Zones in relation to RPAs of retained trees).
- 7.3. The preparation of the TPP has considered the following factors where relevant:-
- Site construction access;
 - intensity and nature of construction activity;
 - phasing of construction works;
 - availability of special construction techniques;
 - spatial requirements for:
 - Temporary and permanent apparatus and service runs;
 - Foundation excavations and construction works;
 - Cranes, plant scaffolding and access during works;
 - Site huts, toilets (including drainage) and other temporary structures;
 - Storage (either temporary or long-term) of materials, spoil, fuel and mixing of concrete.
 - All changes in ground levels including location of retaining walls, steps and adequate allowance for foundations of such walls and backfillings;
- 7.4. Due to the nature of the re-development there will need to be different protection barrier locations for the demolition and construction phase. It is anticipated that at detailed design stage separate demolition and construction protection plans will be produced.
- 7.5. The tree protection measures shown on the plan in **Section 3**, demonstrate the feasibility of the proposed development in relation to retained trees. However, they must be implemented with specific reference to a

finalised tree protection plan and an arboricultural method statement that is relevant to approved development.

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 on from 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 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 Arboricultural Method Statement 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 Arboricultural Method Statement 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 and facilitation pruning - 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 ground works - no access for any machinery within the fenced tree protection areas.
 - 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. SUMMARY AND CONCLUSION

- 9.1. Norwich City Council, have confirmed that none of the trees on site are currently protected by Tree Preservation Order (TPO). However, the entire site is located within the 'Norwich City Conservation Area'.
- 9.2. The site contains a limited number of trees. Of the individual trees identified the majority were considered to be of moderate quality. A smaller number of trees were considered to be low quality. No high-quality trees were identified as part of the survey.
- 9.3. This report accompanies a hybrid planning application for the redevelopment of the site. A comprehensive scheme of landscaping for the public realm areas of the site is proposed, including hard and soft landscaping with a significant amount of new tree planting.
- 9.4. Four individual trees of moderate quality will require removal in order to facilitate the development. In addition, a low-quality tree group containing a small number of trees will be removed.
- 9.5. Works that are potentially harmful to retained trees have been identified and mitigation put forward to eliminate impacts or reduce their significance. The mitigation includes protection barriers and the need to adopt appropriate working methodologies for some operations near retained trees.
- 9.6. Subject to the implementation of the advice contained within this report, and the delivery of the proposed new tree planting, the proposed development is acceptable from an arboricultural perspective. The loss of trees can be readily mitigated and the retained trees can be adequately protected during construction activities to sustain their health and longevity.
- 9.7. The feasibility and specification of the no-dig approach for the new access road within the southern part of the site will be the subject of further technical design.
- 9.8. An Arboricultural Method Statement and finalised Tree Protection Plan will need to be produced. Where the feasibility of a scheme has been agreed upon by the Local Planning Authority, this detail can be agreed and submitted later as part of a reserved matters application or pre-commencement planning condition (by agreement with the applicant).

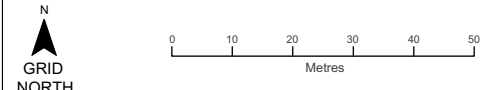
Richard Hyett
MSc, BSc (Hons), MICFor. MArborA.
Chartered Arboriculturist

Tree No	Species	RPA Radius M	RPA Area M2	Category
T1	Silver maple	0	0	U
T2	Common lime	5.4	92	B1
T3	Large leaved lime	4.2	55	B2
T4	Sycamore	5.3	88	C1
T5	Sycamore	4.2	55	B1
T6	Oak sp.	3.3	35	U
T7	Red oak	4.1	52	C1
T8	Large leaved lime	2.4	18	B1
T9	Common lime	7.7	185	B1
T10	Common lime	7.8	191	B1
T11	Silver birch	0	0	U
T12	Whitebeam	4.4	62	C2
T13	Whitebeam	3.7	43	C2
T14	London Plane	7.8	191	B2
T15	London Plane	7.8	191	B2
T16	London Plane	5.9	109	B2
T17	London Plane	4.8	72	B2
T18	London Plane	8.2	209	B2
T19	London Plane	7.3	168	B2
T20	London Plane	5	80	B2
T21	London Plane	5.4	92	B2
T22	London Plane	10.8	366	B2
T23	Rowan variety	2	12	C2
G1	Sycamore, laburnum, elder.	3.6	41	C2

- 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)



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				
Anglia Square, Norwich (W.1842)				
DRAWING TITLE				
Tree Survey & Constraints Plan				
SCALE		DRAWING NUMBER		
1:1250 @ A3		BHA_096_01		
DRAWN BY	APPROVED BY	REVISION	SHEET	DATE
AD	RH	A	-	15/03/2022
LAYOUT USED WITHIN DRAWING NA				
CLIENT Weston Homes				
COORDINATE SYSTEM / DATUM British National Grid / Newlyn Datum (AOD)				
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TS - 'Section 2'



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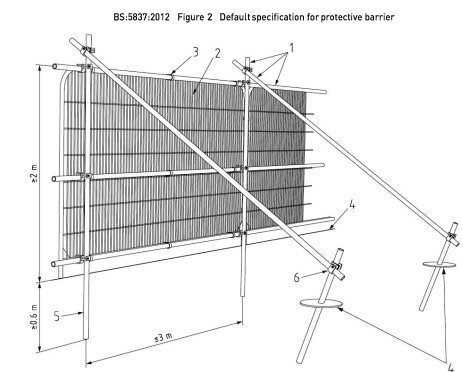
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T5	Sycamore	4.2	55	B1
T6	Oak sp.	3.3	35	U
T7	Red oak	4.1	52	C1
T8	Large leaved lime	2.4	18	B1
T9	Common lime	7.7	185	B1
T10	Common lime	7.8	191	B1
T11	Silver birch	0	0	U
T12	Whitebeam	4.4	62	C2
T13	Whitebeam	3.7	43	C2
T14	London Plane	7.8	191	B2
T15	London Plane	7.8	191	B2
T16	London Plane	5.9	109	B2
T17	London Plane	4.8	72	B2
T18	London Plane	8.2	209	B2
T19	London Plane	7.3	168	B2
T20	London Plane	5	80	B2
T21	London Plane	5.4	92	B2
T22	London Plane	10.8	366	B2
T23	Rowan variety	2	12	C2
G1	Sycamore, laburnum, elder	3.6	41	C2

KEY

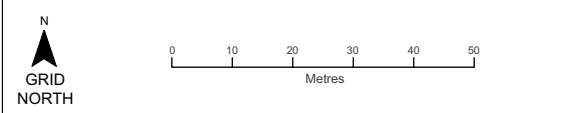
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- Shrub mass/offsite tree/out of scope (OOS)
- Tree / Hedgerow / Group to be removed

Protection Measures

- Tree Protection Barrier to standards set out in Figure 2 of BS5837:2012
- Secondary Tree Protection Barrier (or tree box) - location to allow works within CEZ (only in accordance with detailed AMS)



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
Anglia Square, Norwich (W.1842)

DRAWING TITLE
Tree Retention/Removal & Protection Plan

SCALE: **1:1250 @ A3** DRAWING NUMBER: **BHA_096_02**

DRAWN BY: **IM** APPROVED BY: **RH** REVISION: **A** SHEET: **-** DATE: **31/03/2022**

LAYOUT USED WITHIN DRAWING: **ANG-PLA-XX-XX-DR-L-1001 P02**

CLIENT: **Weston Homes**

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

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Address: Barn 2, Oxpens Farm, Yanworth, Cheltenham, Gloucestershire, GL54 3QE

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	Avg. Canopy Height (m)	1st branch ht (m) and dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
T1	Silver maple	On	2	1	-	0	1	1	1	1	0.0	-	SM	None	Cut to a 1m stump with vigorous basal sprouts.	Poor	Poor	<10	U	0	
T2	Common lime	On	14	1	#	450	7	6	4	6	2.0	1 - N	M	None	No full access to tree, behind site hoarding. Possible pollard at 6m. Overall condition of canopy appears typical for species and age.	Good	Fair	40+	B1	5	
T3	Large leaved lime	On	10	1	#	350	2	4	5	4	2.0	2.5 - S	SM	None	No full access to tree. Behind hoarding. Laterally suppressed due to adjacent tree. Unable to assess base.	Fair	Fair	20+	B2	4	
T4	Sycamore	On	11	2	-	440	5	5	5	5	2.0	2.5 - N	SM	None	Twin stemmed from base. Grown tight against walls on three sides. Canopy looks in fair form. Unsustainable location for long term retention.	Good	Fair	10+	C1	5	
T5	Sycamore	On	11	1	#	350	4	4	4	4	5.0	4 - W	SM	None	Off site, no access to stem. Crown lifted in past. Retained as part of adjacent development.	Good	Fair	20+	B1	4	
T6	Oak sp.	On	9	1	-	280	4	3	3	3	2.5	2.5 - S	EM	None	Dead tree.	Dead	Dead	<10	U	3	
T7	Red oak	On	9	1	-	340	5	5	5	5	2.0	2.5 - SE	SM	None	Street tree in steel grille. Upper crown dieback indicates severe stress.	Poor	Fair	10+	C1	4	
T8	Large leaved lime	On	6	1	-	200	3	3	3	3	1.5	2 - E	SM	None	Low crown obstructs footway. Redundant wooden frame around trunk. Management works required.	Good	Good	40+	B1	2	
T9	Common lime	On	18	1	-	640	7	5	6	7	2.0	2.5 - NW	SM	None	Typical for species and age. Trunk divides in to three at 2.5m. Exposed surface roots with mower damage. Several large girdling roots over buttresses.	Good	Fair	40+	B1	8	
T10	Common lime	On	17	4	-	650	6	7	6	4	2.0	1.5 - S	M	None	Multi stemmed from base. Crown lifted in past. Forms a cohesive canopy with adjacent tree.	Good	Fair	40+	B1	8	
T11	Silver birch	On	1	1	-	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Dead stump	Dead	Dead	<10	U	n/a	

Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m)		N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m) and dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	
T12	Whitebeam	On	10	1	-	370	4	4	5	4	2.5	2.5 - N	Semi-mature	None	No significant visible defects. Surface rooting has begun distorting adjacent pavement.	Fair	Fair	20+	C2	4
T13	Whitebeam	On	9	2	-	310	4	4	5	2	2.5	2.5 - N	Semi-mature	None	Triangular bark wound at base to south(approx. 250mm high and 100mm wide at base) with Phellinus sp. fruiting body present.	Fair	Fair	20+	C2	4
T14	London Plane	On	19	3	-	650	5	4.5	9	2	5	3 - W	Mature	None	No significant visible defects.	Good	Fair	40+	B2	7.8
T15	London Plane	On	19	4	-	650	9.5	3.5	9	3.5	3	3.5 - W	Mature	None	No significant visible defects.	Good	Fair	40+	B2	7.8
T16	London Plane	On	19	5	-	490	8	4	9	3	6	6 - N	Semi-mature	None	No significant visible defects.	Good	Fair	40+	B2	5.9
T17	London Plane	On	18	6	-	400	0.5	2	10	1.5	8	3 - N	Semi-mature	None	No significant visible defects.	Good	Fair	40+	B2	4.8
T18	London Plane	On	19	7	-	680	11.5	6.5	9.5	3.5	5	3.5 - N	Mature	None	No significant visible defects. Extensive surface rooting present with occasional mower damage to upper surfaces.	Good	Fair	40+	B2	8.2
T19	London Plane	On	18.5	8	-	610	5	6	13	2	6	3 - S	Mature	None	Normal amount of major deadwood present within canopy. No significant visible defects.	Good	Fair	40+	B2	7.3
T20	London Plane	On	18	9	-	420	9.5	3.5	0.5	1	2.5	6 - S	Mature	None	No significant visible defects.	Good	Fair	40+	B2	5.0
T21	London Plane	On	18	10	-	450	2	8	10	1.5	6	4 - S	Mature	None	No significant visible defects.	Good	Fair	41	B2	5.4
T22	London Plane	On	18	11	-	900	8	11.5	10	2.5	2	2.5 - S	Mature	None	No significant visible defects.	Good	Fair	40+	B2	10.8
T23	Rowan variety	On	6.5	12	-	160	1.5	2	2.5	1.5	2.5	2.5 - S	Semi-mature	None	Characteristic twig cankers throughout canopy. No significant visible defects.	Fair	Fair	20+	C2	2.0

GROUPS OF TREES

BS5837:2012 TREE SURVEY SCHEDULE

PROJECT NO: 4469

ANGLIA SQUARE, NORWICH

SURVEYOR: RH

CLIENT: WESTON HOMES

SURVEY DATE:08/03/22

Ref	Species	On / off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. Canopy Height (m)	Life Stage	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	Sycamore, laburnum, elder.	On	5-9	7	#	300	4	1.5	SM	Close grown to wall. Most badly pruned on west side in past.	Fair	Poor	10+	C2	4+

TREE SURVEY METHODOLOGY

- The tree survey was carried out with reference to the methodology set out in BS5837:2012 '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.
- The full tree survey findings are recorded in the following tree survey schedule.
- 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.

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 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. (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 are expressed both as existing height above ground level of 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, due to inaccessibility for example, 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 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 upon the local landscape and environment. Semi-Mature (still capable of being transplanted without preparation, up to 30cm 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 upon 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, it's 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 of epicormic shoot growth).

Poor: Significant stress or disease noted; larger areas of dieback than above.

Dead: (or Moribund).

STRUCTURAL CONDITION:

Defects affecting the structural stability of the tree including decay, significant dead wood, 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 defect(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

TREE SURVEY METHODOLOGY

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.

An 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 BS5837:2012; summary definitions as follows (see BS5837 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 numbers 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 15cm diameter.

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

- C1: Unremarkable trees of very limited merit or of 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 benefit.

CATEGORY U:

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 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 2021 (NPPF paragraph 180) 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 2021 of relevance to this report are:

DESIGN GUIDANCE AND GENERIC ADVICE

Paragraph 131: *'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 174: *'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 the relevant Statutory Nature Conservation Organisation (SNCO): Natural England, Scottish Natural Heritage or Natural Resources Wales.

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.

DESIGN GUIDANCE AND GENERIC ADVICE

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.

DESIGN GUIDANCE AND GENERIC ADVICE

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 Recommended 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.

PRINCIPLES FOR TREE PROTECTION ON DEVELOPMENT SITES

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