

**CANMOOR**

**PLOTS B, WINDRUSH INDUSTRIAL ESTATE**

**ARBORICULTURAL IMPACT ASSESSMENT  
TO BS 5837:2012**



**our ref:** 2343 / EH / AIA001A  
**date:** 6<sup>th</sup> March 2024  
**prepared by:** E.C.H  
**checked by:** T.G-W

**address:** 132A The Westlands, Compton Road, Wolverhampton, WV3 9QB  
**tel:** 01902 424 950 / 01902 425 001  
**email:** [info@bealandscape.co.uk](mailto:info@bealandscape.co.uk)  
**web:** [www.bealandscape.co.uk](http://www.bealandscape.co.uk)

<u>Rev:</u>	<u>Date:</u>	<u>Description:</u>	<u>By:</u>
A	06/03/2024	Layout updated.	E.H

# arboricultural impact assessment



## 1.0 INTRODUCTION:

- 1.1 This Arboricultural Impact Assessment has been prepared by Bea Landscape Design Limited on behalf of Canmoor for the proposed development at Plot B, Windrush Industrial Estate, Witney in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'
- 1.2 The assessment has been prepared to accompany a detailed planning application based on the layout prepared by the project architects Hale Architecture.

## 2.0 SUMMARY OF TREE SURVEY:

### 2.1 Tree Survey:

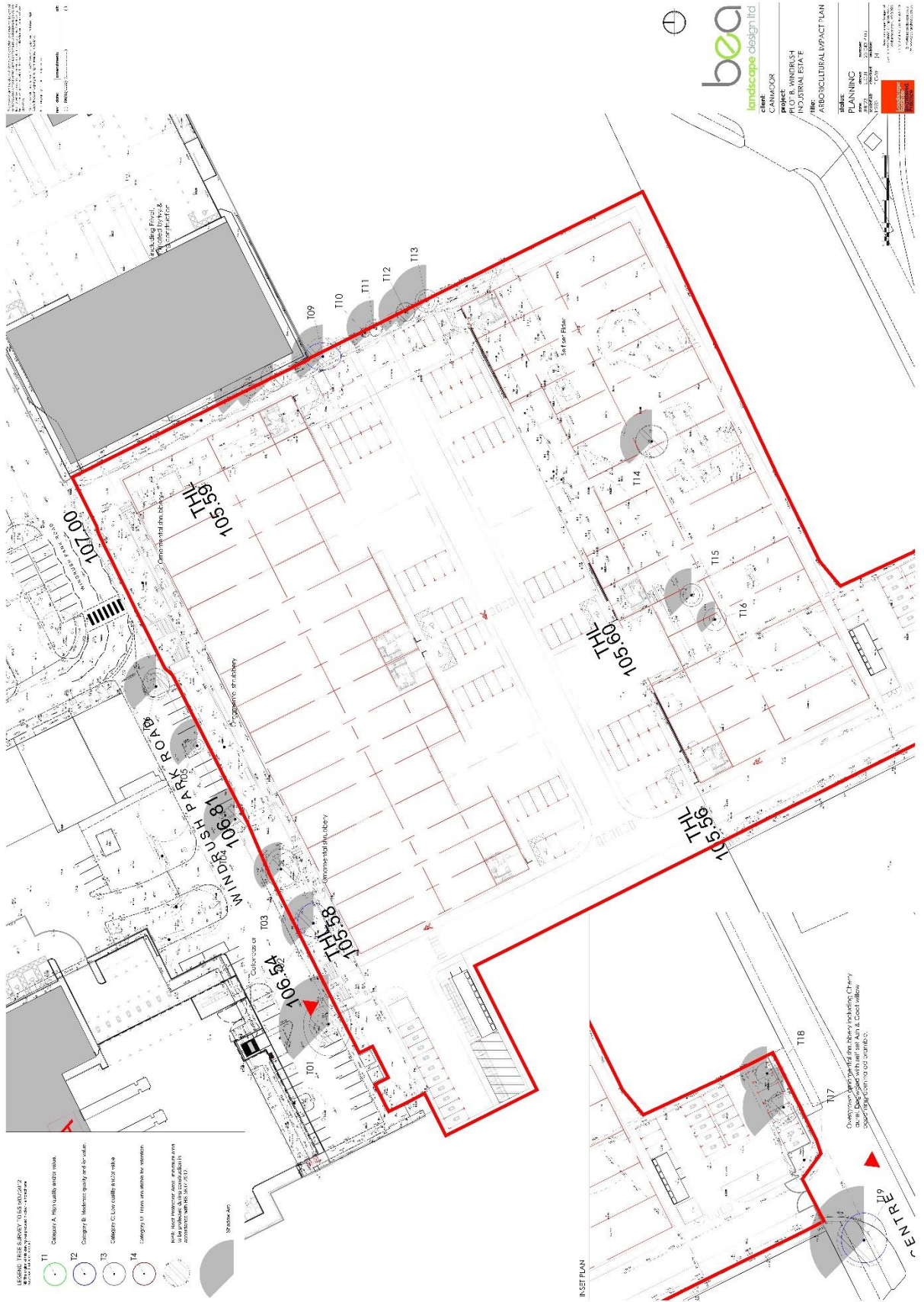
- 2.1.0 The tree survey for the above site was carried out by Bea Landscape Design (refer to Appendix A) on behalf of Canmoor on the 2<sup>nd</sup> May 2023 in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'.
- 2.1.1 The following trees are scheduled to be felled, or removed due to their poor condition, being dead or structurally dangerous and unsuitable for retention T07 & T10.

### 2.2 Tree Constraints:

- 2.2.0 As part of the survey a Tree Constraints Plan 23-043-P-02 has been prepared to inform future development proposals identifying the root protection areas and shadow patterns in accordance with BS 5837:2012 for those A to C Category trees.
- 2.2.1 The tree survey also identifies the constraints provided by tree species with particular characteristics that may affect any proposed development and schedules the ultimate predicted tree height and canopy spread.

### 2.3 Regulatory Protection

- 2.3.0 It is our understanding that none of the surveyed trees are protected by a Tree Preservation Order and the site is not within a Conservation Area.



23-043-P-03 Arboricultural Impact Plan

### 3.0 IMPACTS OF THE PROPOSED DEVELOPMENT

#### 3.1 Site Layout

3.1.0 A site layout has been prepared for the development area including for 7 Warehouse Units and ancillary structures including services yards, car parking and landscaping. In order to assess the impact of the development of the site and the existing trees the proposed site layout was superimposed into the Tree Constraints Plan to provide an Arboricultural Impact Plan 23-043-P-03 as illustrated above.

#### 3.2 Tree removal

3.2.0 The assessment highlighted a number of trees that would need to be removed as a result of the development of the site as listed within Table 1 below and as identified within the Tree Retention & Removal Plan 23-043-P-04.

<b>Table 1: Trees to be removed:</b>			
No.	Common Name	Cat.	Reasons for Removal
T01	False acacia	C1	To facilitate the proposed development.
T02	Apple	B2	To facilitate the proposed development.
T03	Apple	C2	To facilitate the proposed development.
T04	Purple maple	C1	To facilitate the proposed development.
T05	Oak	C1	To facilitate the proposed development.
T07	Whitebeam	U	To facilitate the proposed development.
T09	Whitebeam	B2	To facilitate the proposed development.
T10	Apple	U	Unsuitable for retention.
T14	Hawthorn	C2	To facilitate the proposed development.
T15	Apple	C1	To facilitate the proposed development.
T16	Alder buckthorn	C1	To facilitate the proposed development.
T17	Ash	C1	To facilitate the proposed development.
T18	Ash	C1	To facilitate the proposed development.

3.2.1 In summary the proposed development will mean the removal of 13 trees with 9 of those trees considered to be low quality and value and 2 of moderate quality and value. The location of these trees within the site limits the effect of their removal on the surrounding landscape and the proposed development includes for a significant tree planting within the site which will mitigate for their loss. The removal of these trees is therefore not considered to be a constraint to the proposed development of the site.

3.2.2 It should be noted that trees T07 & T10 were deemed unsuitable for long term retention in the tree survey. The removal of these trees would be required due to their poor condition and their loss should not be considered as a material consideration in the planning process.

#### 3.3 Tree retention & pruning:

3.3.0 The assessment also identified a number of trees that are to be retained as part of the development proposals as identified within Table 2. below and as identified within the Tree Retention & Removal Plan 23 -043-P-04. The trees identified for retention are primarily located to the periphery of the site and are of low to moderate quality and value.



bea  
landscape design ltd

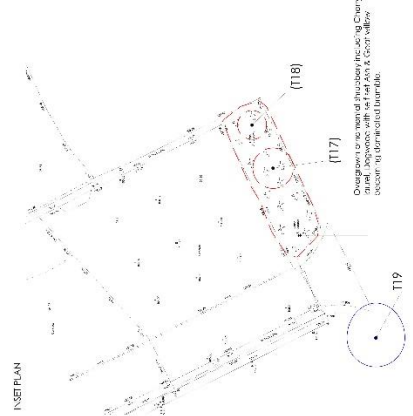
client: CANMOOR  
PROJECT: POLO & ANNEQUEST  
INDUSTRIAL SITE  
site: WEEBINGTON & WILSON LANE

DATE: 11/04/2023	SCALE: 1:500
DRAWN: J. SMITH	CHECKED: J. SMITH
PROJECT NO: 23-043-P-04	PROJECT NAME: POLO & ANNEQUEST INDUSTRIAL SITE
CLIENT: CANMOOR	LOCATION: WEEBINGTON & WILSON LANE

THIS PLAN IS THE PROPERTY OF BEA LANDSCAPE DESIGN LTD AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF BEA LANDSCAPE DESIGN LTD.



- LEGEND - TREE RETENTION & REMOVAL**
- T1 Category 1: High priority retention trees to be retained and protected in 2023/24.
  - T2 Category 2: Moderate priority retention trees to be retained and protected in 2024/25.
  - T3 Category 3: Low priority retention trees to be removed and protected in 2025/26.
  - T4 Category 4: Trees to be removed in 2026/27.
  - (S) Trees to be removed in 2027/28 or later.



23-043-P-04 Tree Retention & Removal Plan

<b>Table 2: Trees to be retained:</b>			
No.	Common Name	Cat.	Pruning Works Required
T06	Purple maple	C1	No works required.
T08	Whitebeam	C1	No works required.
T11	Rowan	C1	No works required.
T12	Hawthorn	C1	No works required.
T13	Whitebeam	C1	No works required.
T19	Ash	B2	No works required.

#### **4.0 IMPACTS OF CONSTRUCTION - DEMOLITION OPERATIONS**

4.0.1 The proposed development requires the demolition of part of the existing warehouse and the removal of the existing retaining walls and hard surfacing.

##### **4.1 Demolition of Buildings**

4.1.0 The proposed development requires the demolition of a building and retaining wall in proximity to the root protection (RPA) of the retained trees T06, T08, T11, T12 & T13. Provided that tree protection and appropriate working practices are adopted the demolition works should not have a significant impact on the long term health of the retained trees.

##### **4.2 Removal of Hard Surfaces**

4.2.0 Similarly the proposed development also requires the removal of the existing concrete and tarmac hard surfacing in close proximity to or within the root protection (RPA) of the retained trees T08, T11, T12 & T13. Assuming that tree protection and appropriate working practices are adopted the works should not have a significant impact on the long term health of the retained trees.

#### **5.0 IMPACTS OF CONSTRUCTION – DIRECT**

5.0.1 The construction of the proposed development directly impacts a number of retained trees including works within the root protection area and under the canopy as identified in Table 3 below.

##### **5.1 Root Protection Area**

5.1.0 The proposed development has been designed to avoid the need for major works within the root protection area (RPA) of the trees to be retained. However as listed below there are a small number of trees affected by some elements of the proposed development which require work to be undertaken within or at the edge of their root protection areas.

**Table 3: Work within the Root Protection Area:**

No.	Common Name	Cat.	Works Required
T08	Whitebeam	C1	Removal of existing hard surfacing and kerb at edge of RPA. Installation of new paving and soft landscaping.
T11	Rowan	C1	Removal of existing kerb at edge of RPA. Installation of Cycle shelter and soft landscaping.
T12	Hawthorn	C1	Removal of existing kerb at edge of RPA. Installation of new kerb and soft landscaping.
T13	Whitebeam	C1	Removal of existing kerb at edge of RPA. Installation of new kerb and soft landscaping.

*Hard surfacing.*

- 5.1.1 Trees T08, T11, T12 & T13 have new hard surfacing proposed at the edge of their root protection areas (RPA). The affected area of the RPA is minimal and will not significantly affect the retained trees, provided care is taken during the removal of the existing kerbs and their replacement.

*Soft Landscaping:*

- 5.1.2 Areas of soft landscaping are proposed within the RPA of trees T08, T11, T12 & T13. Provided appropriate mitigation and working practices are adopted the soft landscape will not significantly affect the retained trees.

## **6.0 IMPACTS OF CONSTRUCTION – INDIRECT**

### **6.1 Site Construction Access**

- 6.1.0 Access to the site for all visitors and construction traffic is to be from Range Road, Glenmore Business Centre to the South of the proposed development. Haul roads into the site for materials and construction access are to be created along the line of the proposed roads within the development, with the road kerbs, subbase and base course being installed at the start of construction.

### **6.2 Site Compound**

- 6.2.0 The site compound, including porta cabins and portable toilet facilities is to be located at the construction traffic Southern site entrance in the corner of the site and outside of the Construction Exclusion Zones and will not affect the retained trees.

### **6.3 Delivery & Storage of materials**

- 6.3.0 The delivery and storage of materials will be undertaken using the haul roads as described above with materials being delivered locally to the buildings under construction. All materials are to be stored outside of the Construction Exclusion Zones and will not affect the retained trees.



## **6.4 Contractors Parking**

6.4.0 A contractors and visitors parking area is to be located adjacent to the site compound in the corner of the site, outside of the Construction Exclusion Zones and will not affect the retained trees.

## **7.0 IMPACTS POST DEVELOPMENT**

### **7.1 Shading of buildings / open space**

7.1.0 The majority of the retained trees are to the North or North-eastern boundary and as such do not impact on the proposed development.

### **7.2 Privacy & Screening**

7.2.0 The proposed development will mean the loss of the existing trees and ornamental planting to the Windrush Park Road. This is to be mitigated within the proposed landscape scheme with replacement tree and hedge planting.

### **7.3 Direct damage**

7.3.0 The proposed layout provides sufficient space for the retained tree canopies to grow to maturity without conflicting with the proposed buildings.

### **7.4 Future pressure for removal**

7.4.0 The proposed development will not unduly increase the pressure for the removal of the retained trees.

## **8.0 MITIGATION OF DEVELOPMENT:**

8.0.1 As detailed above the proposed development will entail the loss of a number of the existing trees with the retention of a number of trees to the site perimeter. The loss of the trees is to be mitigated with replacement tree planting with special construction techniques and tree protection measures to provide mitigation where the proposed development construction works are in close proximity to the retained trees.

### **8.1 Replacement Tree Planting**

8.1 Mitigation for trees required to be removed to facilitate the development are to be provided in the form of replacement tree planting both to the site perimeter and within the site where space allows. Tree species are to in keeping with the the surrounding landscape including native species such as Hornbeam, Whitebeam, Rowan, Cherry, Field maple and Crab apple.

### **8.2 Special construction techniques**

#### *Hard surfacing*

8.2.0 The creation of the proposed access roads, pavements and hard standing at the edge of the RPA retained trees is to be mitigated through the use pedestrian operated tools / hand digging to break out the existing kerbs and install the replacements.



23-043-P-05 Draft Tree Protection Plan

*Soft landscaping*

- 8.2.1 To minimise potential root damage during the implementation of soft landscaping no cultivation of topsoil is to be carried out within the RPA with the transplants / shrubs to be pit planted by hand.

**8.3 Tree Protection:**

- 8.3.0 The trees are to be protected from damage during the course of the works in accordance with the guidance of BS5837:2012.

- 8.3.1 The protection of those trees to be retained has been detailed within the Tree Protection Plan 23-043-P-05 as illustrated above which both identifies Construction Exclusion Zones and the locations of protective barriers as outlined in BS 5837:2012.

**8.4 ARBORICULTURAL METHOD STATEMENT:**

- 8.4.0 In order to inform the carrying out of the proposed works in proximity to the retained existing trees a detailed method statement is to be prepared to specify the working practices to be followed by the contractor to comply with BS5837:2012 and mitigate for the proposed works.

- 8.4.1 An Arboricultural Method Statement is therefore to be prepared that addresses the following;

- a) tree protection measures
- b) site construction access;
- c) space for site huts, temporary toilet facilities (including their drainage) and their temporary structures;
- d) space for storing (whether temporary or long-term) materials, spoil and fuel and the mixing of cement and concrete;
- e) the effects of slope on the movement of potentially harmful liquid spillages towards or into protected areas.
- f) contractors' car parking;
- g) working space for cranes, plant, scaffolding and access during works;
- h) demolition of existing buildings and surfacing
- i) installation of new permanent hard surfacing construction
- j) installation of cycle shelter
- k) the type and extent of landscape works which will be needed within the protected areas, and the effects these will have on the root system;
- l) arboricultural supervision

## **APPENDIX A**

### TREE SURVEY

**CANMOOR**

**PLOTS B, WINDRUSH INDUSTRIAL ESTATE**

**TREE SURVEY TO BS 5837:2012**



**our ref:** 2343 / EH / TR001  
**date:** 17<sup>th</sup> May 2023  
**prepared by:** E.C.H  
**checked by:** T.G-W

**address:** 132A The Westlands, Compton Road, Wolverhampton, WV3 9QB  
**tel:** 01902 424 950 / 01902 425 001  
**email:** [info@bealandscape.co.uk](mailto:info@bealandscape.co.uk)  
**web:** [www.bealandscape.co.uk](http://www.bealandscape.co.uk)

Rev:

Date:

Description:

By:

## **PLOT B, WINDRUSH INDUSTRIAL ESTATE**

### **1.0 Introduction:**

- 1.1 The tree survey for the site Plot B at the Windrush Industrial Estate was carried out by Bea Landscape Design on behalf of Canmoor on the 2<sup>nd</sup> May 2023 for submission to the local planning authority West Oxfordshire District Council.
- 1.2 The tree survey inspection was carried out from ground level only and no invasive diagnostic tools were used. This is a pre-development site inspection prepared in accordance with BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations' and the report is valid and relevant only as part of the planning process.
- 1.3 It should be noted that tree surveys carried out at specific times of year are subject to seasonal limitations. For example; in spring leaves are not present or are just emerging and fungi are generally not visible (depending on species) which limits the assessment of a trees physiological condition, in summer trees are in leaf which reduces the visibility of the crown and can limit the ability to assess the structural condition with fungi not generally visible (depending on species), in autumn there is a decline in leaf quality / cover affording an improved view of the crown and fungal fruiting bodies can be present, in winter the structure of the crown can be easily assessed however assessment of physiological condition is limited and fungi are generally not visible.
- 1.4 Trees are dynamic natural structures and require frequent monitoring if predictable failures are to be identified. As such the trees should be re-inspected within at least a two year period from the date of this report or when changes occur to the trees (such as appearance of fungal growths, splits in branches etc.) or changes in their immediate environment occur. Any recommendations for action should also be carried out within this period unless identified in the report as requiring immediate action.
- 1.5 Some tree failures are not predictable such as those occurring during 'freak weather' conditions and those without external symptoms, these types of failure are not covered by this report.
- 1.6 The tree survey schedules document 2343/EH/TS001 and survey drawing 23-043-P-01 are included within this report. The tree survey is based on the topographical survey carried out by Greenhatch Group in February 2021. It should also be noted that a small number trees surveyed T02, T07, T08, T17, T18 & T19 are on or just outside of the site boundary and as such were not identified on the original topographical survey. The location of these trees has been estimated using triangulation and their location should not be relied on for construction purposes.
- 1.7 In accordance with British Standard 5837: 2012 the survey records the tree common names (refer to Appendix A for a key to scientific names), height, stem diameter and branch spread and existing height above ground level of the canopy or first significant branch including life stage, general observations (such as structural, physiological condition and/or preliminary management recommendations) and the estimated remaining contribution in years.
- 1.8 Each tree is also awarded a category grading based on Table 1 'Cascade Chart for Tree Quality Assessment' of the British Standard as included within Appendix C.

The following are an explanation of the terms used to describe the life stage, physiological condition and sizes referred to within the tree survey schedule.

Life Stage

<i>Young</i>	A tree in the first third of its expected life span.
<i>Semi-mature</i>	A tree within the second third of its expected life span.
<i>Mature</i>	A tree within the final third of its expected life span.
<i>Over mature</i>	A tree in natural decline.
<i>Notable</i>	A mature tree that stands out in the local environment because it is large in comparison with other trees around it. The tree doesn't have any obvious veteran characteristics, but may be taller than ancients and fatter than some veterans. Notable trees are usually worthy of recognition and can be potential, next generation veteran trees.
<i>Transition veteran</i>	A mature tree that shows three veteran features i.e rot sites, holes & water pockets, deadwood, hollowing and fungal fruiting bodies. Transition veterans have some habitat characteristics and may become potentially important veteran trees for biodiversity in time.
<i>Veteran</i>	Non ancient trees of any diameter that show four or more veteran features i.e rot sites, holes & water pockets, deadwood, hollowing and fungal fruiting bodies. These trees show the habitat characteristics of veteran trees that are thought to be important in terms of biodiversity. A veteran tree is a survivor that has developed some of the features found on an ancient tree but not necessarily as a consequence of time, but of its life or environment.
<i>Ancient</i>	An over mature tree identified primarily by the girth. Likely to have abundant veteran tree features. An ancient tree has great aesthetic appeal and is defined by the following characteristics; a small canopy exhibiting stag headedness following crown retrenchment; with a very wide hollowing trunk relative to other trees of the same species and one or more openings to the outside exhibiting the fruiting bodies of heart rot fungi

Physiological condition

<i>Good</i>	The tree appears to have no obvious defects.
<i>Fair</i>	The trees condition is slightly compromised and considered to be remediable.
<i>Poor</i>	The trees condition is significantly compromised and considered non-remediable. Significant defects.



Sizes:

- Minor A diameter of less than 25 millimetres.
- Moderate A diameter of between 25 to 50 millimetres.
- Major A diameter of greater than 50 millimetres.

1.9 This report does not consider any potential influence that trees may have upon load bearing soils beneath existing or proposed structures through abstraction of water by their roots (i.e. soil shrinkage and expansion and subsequent building subsidence and heave). The advice of a structural engineer should be sought with regard to appropriate foundation depths for new buildings with reference to NHBC standards Chapter 4.2 (NHBC, 2011).

**2.0 Context:**

2.1 The site is located in the Windrush Industrial estate in the Witney area of the West Oxfordshire district as identified in Figure 01. Location Plan.

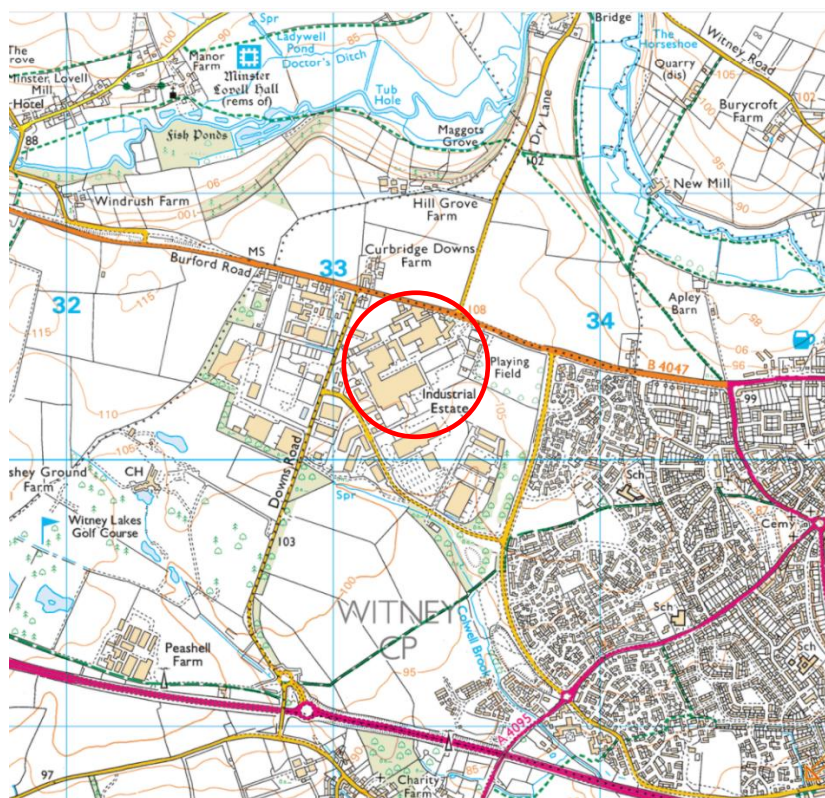


Figure 1. Location Plan

2.2 The area surveyed is currently occupied by industrial buildings with associated service yard, access road and car parking (refer to Figure 02. Aerial Photograph below).

2.3 The topography of the site is generally level with gradual fall from North to South with localised level changes around the building including retaining walls and slopes.



Figure 2. Aerial Photograph

2.4 In order to inform the design of any future development taking account retained, removed and proposed trees; it is recommended that a soil assessment or geotechnical survey is undertaken to determine the soils shrinkability. This can affect the extent of the root protection area, tree protection and ultimately foundation design.

### 3.0 Tree Survey Summary:

3.1 The majority of the trees surveyed can be associated with the development of the Windrush Industrial Estate from 1960's and are generally considered to be of low to moderate quality and value.

3.2 Trees T01 to T06 are a number of predominantly low quality and value Purple leaved maple, False acacia and Apple trees growing within the hard and soft landscaped areas to the front of the existing buildings (refer to Figure 3 below). Trees T01, T04 and T06 are growing within raised brick planters with the estimated root protection areas shown as a radius as the size of tree indicates a greater root spread than the size of the planters would indicate.



Figure 3. View Southwest towards T01-T05



Figure 4. View North towards T07-T13



Figure 5. View Northeast towards T17 & T18



Figure 6. View Northwest towards T19

3.3 To the East of the survey area is a slope down from the adjacent site planted with ornamental shrubs and a number of young trees including Whitebeam, Rowan, Apple and Hawthorn of varying value and condition (refer to Figure 4 above).

3.4 To the rear of the site are a number of young trees including Hawthorn, Alder buckthorn and Apple adjacent to the yard and Ash adjacent to the rear site access including T19 a mature offsite tree of moderate quality and value (refer to Figures 5 & 6 above).

#### **4.0 Tree Preservation Orders & Conservation Areas**

4.1 It is our understanding that trees there are currently no Tree Preservation Orders designated within the survey area, the site is not within a Conservation Area and no surveyed trees are considered to be Veteran or Ancient or listed on the Woodland Trust Ancient Tree Inventory. For the avoidance of doubt we would recommend that the local authority tree officer is contacted and confirmation obtained.

#### **5.0 Protected Species**

5.1 The Wildlife & Countryside Act 1981 forms the legislative basis for protecting Britain's flora and fauna, together with its 1985 and 1991 amendments, the subsequent variations to the schedule of orders, and strengthening amendments made within the Countryside & Rights of Way Act 2000.

5.2 Nesting birds are afforded statutory protection by the Wildlife & countryside Act 1981. The bird nesting season is officially from February until August with the busiest time for nesting birds from the 1<sup>st</sup> March until the 31<sup>st</sup> July according to species.

5.3 As such, consideration should be given to the presence of nesting birds when clipping hedges, pruning or removing trees or removing ivy or other climbing plants during the bird nesting season. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged. Hedges provide valuable nesting sites for a wide range of birds and clipping should therefore be avoided during the months of March to July.

5.4 In Britain all bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and under Schedule 2 of the Conservation (Natural Habitats) Regulations 1994 (as amended). In England, under current legislation, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
- Damage or destroy a bat roost (note – this is an 'absolute' offence whereby intent or recklessness does not have to be proved).
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat;
- Intentionally or recklessly disturb at bat roost; and
- Intentionally or recklessly obstruct access to a roost.

5.5 In this respect it should be noted that bats utilise tree cavities, cracks and dense ivy as roosts. It is also possible that unidentified bat habitat features may be located high up in the tree crowns and all personnel subsequently carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present. If any bats roosts are identified during tree works then it is essential that the works are halted immediately and an ecologist investigate them prior to works continuing.

## **6.0 Tree Surgery & Removal:**

6.1 The following trees are scheduled to be felled, or removed due to their poor condition, being dead or structurally dangerous and unsuitable for retention; T07 & T10.

6.2 The preliminary tree management works and tree removal are to be carried out by an Arboricultural Association accredited tree surgeon in accordance with BS 3998: 2010 'Tree Work - Recommendations' with particular care to be taken where trees are in confined spaces or adjacent to highways.

## **7.0 Root Protection Area**

7.1 In order to inform the future retention of existing trees the root protection area has been calculated for each tree in accordance with BS 5837:2012 Annex D, Table D.1 – Root Protection Area and using the two calculation methods as detailed within clause 4.6.1. The root protection areas are illustrated on the Tree Constraints Plan 21-21-02.

7.2 Where Veteran trees have been identified within the tree survey the root protection area has been based on a minimum of 15 times the diameter of the trunk in accordance with the standing advice from Natural England and the Forestry Commission.

7.3 Where pre-existing site conditions (i.e the presence of retaining walls) or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area had been illustrated

7.4 All trees that are being retained on site should be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. These 'Construction Exclusion Zones' are to be protected by barriers and ground protection in accordance with section 6.2 of BS 5837:2012 and as specified and indicated on an approved Tree Protection Plan to be prepared by the project arboriculturalist.

7.5 Of particular importance on sites where there are significant level changes it should be noted that existing ground levels are to be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ and any re-grading works or the location of retaining features should take this into account. The advice of an arborist should be sought where underground structures are present within the RPA are, or will become, redundant. In general it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.

7.6 Where construction operations are proposed and permitted within the Root Protection Area precautions should be taken and specified within an Arboricultural Method Statement prepared by the project arboriculturalist to maintain the condition and health of the root system in accordance with Section 7 'Demolition and construction in proximity to existing trees' of BS 5837:2012.

7.7 Where permanent hard surfacing within the RPA is considered unavoidable, site-specific and specialist arboricultural and construction design advice should be sought to determine whether it is achievable without significant adverse impact on trees to be retained. As a general guide new permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.

## **8.0 Above Ground Constraints**

8.1 In addition to the condition of the tree the probable impact on proposed buildings or development of trees considered for retention should be assessed to take into account the root protection areas, shadow patterns, species characteristics, maintenance requirements and allowances for space and future tree growth.

### *Shading:*

8.2 In order to assess any unreasonable obstruction of sunlight or daylight to any proposed development tree shadow patterns are also illustrated on the Tree Constraints Plan 23-043-P-02. The orientation of the site means that the shadows from a limited number of larger trees shade areas of the site.

8.3 The survey includes species that, have typically have dense canopies or large foliage such as Norway maples and further consideration should be given in respect of these shading characteristics. The ultimate height and spread of the tree (as noted below) will also affect the shading of the site in the future.

### *Species Characteristics:*

8.4 Trees are living organisms and exhibit structural and seasonal characteristics that may give rise to conflicts in proximity to buildings, footpaths and hard standing areas.

8.5 Apple are fruiting trees and as such can cause slippery surfaces and increased maintenance during the autumn.

8.6 Ash trees are a large spreading deciduous tree species with an upright branching habit, often exhibiting co-dominant stems with included bark. Heavy branches are susceptible to splits, cracks and branch failures. The lower shaded branches in the canopy have the propensity to die off and drop. This can result in increased maintenance requirements to surfaces and possible damage to structures located in the immediate vicinity.

8.7 False acacia or Black locust are a medium to large ornamental tree planted in street and parks. Native to North America the tree was introduced in 1630 and typically lives for 75-150 years. The tree is leguminous with brittle wood and can suffer from wind damage or mechanical breakage and basal suckers. It should also be noted that parts of the tree are toxic, particularly the bark with a risk of livestock poisoning.

8.8 Norway maple are larger leaved deciduous species that drop their leaves in the autumn. This can result in increased maintenance requirements to structures or surfaces located in the vicinity.

8.9 The following trees species are identified within the NHBC Standards Chapter 4.2 as of high water demand and therefore impacting significantly on foundation design on high shrinkability soils; Cypress, Elm, Eucalyptus Hawthorn, Oak, Poplar and Willow.

*Ultimate Height and Spread:*

8.10 Where surveyed trees are classified as young to semi mature their future growth in terms of predicted height and canopy spread at maturity (refer to Appendix B) should be considered to prevent direct potential damage to structures or buildings, minimise future pressure for removal and increase the effect of shading as described above.

## Appendix A: Scientific Names

<i>Common names:</i>	<i>Scientific Name</i>
Common alder	<i>Alnus glutinosa</i>
Crab apple	<i>Malus sylvestris</i>
Common ash	<i>Fraxinus excelsior</i>
False acacia	<i>Robinia pseudacacia</i>
Silver birch	<i>Betula pendula</i>
Downy birch	<i>Betula pubescens</i>
Common beech	<i>Fagus sylvatica</i>
Wild cherry	<i>Prunus avium</i>
Bird cherry	<i>Prunus padus</i>
Cherry plum	<i>Prunus cerasifera</i>
Horse chestnut	<i>Aesculus hippocastanum</i>
Sweet chestnut	<i>Castanea sativa</i>
Cypress	<i>Chamaecyparis cultivar</i>
Leyland cypress	<i>Cupressus x leylandii</i>
Lawson cypress	<i>Chamaecyparis lawsoniana</i>
Douglas fir	<i>Pseudotsuga menziesii</i>
Common hawthorn	<i>Crataegus monogyna</i>
Common hornbeam	<i>Carpinus betulus</i>
Holly	<i>Ilex aquifolium</i>
Laburnum	<i>Laburnum anagyroides</i>
Small leaved lime	<i>Tilia cordata</i>
Common lime	<i>Tilia x europaea</i>
Large leaved lime	<i>Tilia platyphyllos</i>
European larch	<i>Larix decidua</i>
Field maple	<i>Acer campestre</i>
Norway maple	<i>Acer platanoides</i>
Sycamore	<i>Acer pseudoplatanus</i>
Common oak	<i>Quercus robur</i>
Sessile oak	<i>Quercus petraea</i>
Holm oak	<i>Quercus ilex</i>
Pear	<i>Pyrus communis</i>
Scots pine	<i>Pinus sylvestris</i>
Aspen poplar	<i>Populus tremula</i>
Lombardy poplar	<i>Populus italica</i>
Hybrid black poplar	<i>Populus x canadensis</i>
London plane	<i>Platanus x hispanica</i>
Norway spruce	<i>Picea abies</i>
Rowan	<i>Sorbus aucuparia</i>
Whitebeam	<i>Sorbus aria</i>
Wild service tree	<i>Sorbus torminalis</i>
Crack willow	<i>Salix fragilis</i>
Goat willow	<i>Salix caprea</i>
White willow	<i>Salix alba</i>
Weeping willow	<i>Salix babylonica</i>
Yew	<i>Taxus baccata</i>



## Appendix B: Predicted Tree Height & Canopy Spread

<i>Common name</i>	<i>Height (m)</i>	<i>Canopy Spread (m)</i>
Common alder	25	10
Crab apple	9	7
Common ash	30	20
False acacia	25	15
Silver birch	25	10
Downy birch	20	10
Common beech	25	15
Wild cherry	20	10
Bird cherry	15	10
Cherry plum	10	10
Horse chestnut	25	20
Sweet chestnut	30	15
Cypress	15-40	2-5
Leyland cypress	35	5
Lawson cypress	15-40	2-5
Douglas fir	25-50	6-10
Common hawthorn	10	8
Common hornbeam	25	20
Holly	25	8
Laburnum	8	8
Small leaved lime	25	15
Common lime	35	15
Large leaved lime	30	20
European larch	30	4-6
Field maple	10	8
Norway maple	25	15
Sycamore	30	25
Common oak	35	25
Sessile oak	30	25
Holm oak	25	20
Pear	15	10
Scots pine	15-30	6-9
Aspen poplar	20	10
Lombardy poplar	30	5
Hybrid black poplar	35	20
London plane	30	20
Norway spruce	20-40	6
Rowan	15	7
Whitebeam	10-25	10
Wild service tree	20	12
Crack willow	15	15
Goat willow	10	8
White willow	25	10
Weeping willow	12	12
Yew	10-20	8-10

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
<b>TREES UNSUITABLE FOR RETENTION</b>				
<p>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.</p>	<ul style="list-style-type: none"> <li>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 U category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li> <li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.</li> <li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality.</li> </ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve.</i></p>			DARK RED
<b>TREES TO BE CONSIDERED FOR RETENTION</b>				
	<b>1 Mainly arboricultural values</b>	<b>2 Mainly landscape values</b>	<b>3 Mainly cultural values, including conservation</b>	
<p><b>Category A</b> Trees of high quality with an estimated remaining life expectancy of at least 40 years.</p>	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)	LIGHT GREEN
<p><b>Category B</b> Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.</p>	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	MID BLUE
<p><b>Category C</b> Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.</p>	Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value, and/or trees offering low or only temporary / transient landscape benefits.	Trees with no material conservation or other cultural value	GREY

## Appendix D: Root Protection Area

Single stem diameter <i>mm</i>	Radius of nominal circle <i>m</i>	Root Protection Area (RPA) <i>m<sup>2</sup></i>
75	0.90	3
100	1.20	5
125	1.50	7
150	1.80	10
175	2.10	14
200	2.40	18
225	2.70	23
250	3.00	28
275	3.30	34
300	3.60	41
325	3.90	48
350	4.20	55
375	4.50	64
400	4.80	72
425	5.10	81
450	5.40	92
475	5.70	102
500	6.00	113
525	6.30	124
550	6.60	137
575	6.90	150
600	7.20	163
625	7.50	177
650	7.80	191
675	8.10	206
700	8.40	222
725	8.70	238
750	9.00	255
775	9.30	272
800	9.60	290
825	9.90	308
850	10.20	327
875	10.50	346
900	10.80	366
925	11.10	387
950	11.40	408
975	11.70	430
1000	12.00	452
1025	12.30	475
1050	12.60	499
1075	12.90	519
1100	13.20	547
1125	13.50	573
1150	13.80	598
1175	14.10	625
1200	14.40	652
1225	14.70	679
1250	15.00	707

## Appendix E: Technical Definitions

<b>Access Facilitation Pruning:</b>	One off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
<b>Arboricultural Impact Assessment</b>	An evaluation of the direct and indirect effects of the proposed design on the trees identified within the Tree Survey, where necessary recommending mitigation or amendments to the design.
<b>Arboricultural Method Statement</b>	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
<b>Construction Exclusion Zone</b>	An area based on the root protection area from which access is prohibited for the duration of a project
<b>Root Protection Area (RPA)</b>	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 is considered a priority
<b>Tree Protection Plan</b>	A scale drawing informed by descriptive text where necessary, based upon finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

**Disclaimer:**

This report is issued to the client for their sole use and for the intended purpose as stated in the agreement between the client and Bea Landscape Design Limited under which this work was completed, or else as set out within this report. This report may not be relied upon by any other party without the express written agreement of Bea Landscape Design Limited. The use of this report by unauthorised third parties is at their own risk and Bea Landscape Design accepts no duty of care to any such third party.

Bea Landscape Design has exercised due care in preparing this report. It has not, unless specifically stated, independently verified information provided by others. No other warranty, express or implied, is made in relation to the content of this report and Bea Landscape Design assumes no liability for any loss resulting from errors, omissions or misrepresentation made by others.

Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed at the time that Bea Landscape Design performed the work. The content of this report has been provided in accordance with the provisions of the BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

Nothing in this report constitutes legal opinion. If legal opinion is required the advice of a qualified legal professional should be secured. Observations relating to ecology and the condition of built structures have been made from an arboricultural point of view and, unless stated otherwise, do not constitute structural or ecological advice.

# Tree Survey in accordance with BS5837:2012

# Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m <sup>2</sup> )
				N	E	S	W								
T01	False acacia	11	350	5.5	6	5	7	3	Young	Fair	Restricted root environment, growing within brick planter. Random past pruning / surgery. Major deadwood. Rubbing / fused limbs. Epicormic growth at base.	Remove epicormic growth.	10+	C1	55
T02	Apple	7	320	3.5	4.5	3.5	3	1.5	Semi mature	Good	Restricted root environment with retaining wall to South, Road to North. Ivy.	Sever ivy and reinspect in 2 years.	20+	B2	46
T03	Apple	6	290	3.5	4.5	4	4	2	Semi mature	Fair	Restricted root environment with retaining wall to South, Road to North & East. Major deadwood. Ivy.	Sever ivy and reinspect in 2 years.	10+	C2	38
T04	Purple leaved Norway maple	7	260	3	3	3	3	2	Young	Fair	Restricted root environment, growing within brick planter. Major deadwood. Random past pruning. Dead central stem.	Remove dead stem.	10+	C1	31
T05	Oak	6	70	1.5	1.5	1.5	1.5	2	Young	Good		No action required.	40+	C1	2
T06	Purple leaved Norway maple	7	260	3	4	3	2.5	2	Young	Fair	Restricted root environment, growing within brick planter. Random past pruning / surgery. Major deadwood. Epicormoc growth.	No action required.	10+	C1	31

# Tree Survey in accordance with BS5837:2012

# Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m <sup>2</sup> )
				N	E	S	W								
T07	Whitebeam	7	150#	1	2	2	1	1.5	Young	Poor	Restricted root environment growing at edge of concrete hard standing. Unbalanced / suppressed crown. Tree cut back / damaged during construction of adjacent building. Split trunk / lean to West.	Remove to ground level.	<10	U	10
T08	Whitebeam	9	150, 150#	2.5	3	2.5	3	2	Young	Fair	Restricted root environment growing at edge of concrete hard standing. Twin stemmed tree.	Remove debris / stone from base of tree to East.	10+	C1	20
T09	Whitebeam	7	300	4	3	4	3	2	Semi mature	Fair	Growing at top of slope. Moderate deadwood. Random past pruning / surgery. Restricted root environment with concrete path to East, road to South.	No action required.	20+	B2	41
T10	Apple	6	100, 100	1	1	1	1	/	Young	Poor	Twin stemmed. Random past pruning / surgery. Restricted root environment with concrete path to East, road to South.	Remove to ground level.	<10	U	9
T11	Rowan	6	150	1	1	2	2	1.5	Young	Fair	Random past pruning / surgery. Restricted root environment with concrete path to East, road to South.	No action required.	10+	C1	10

# Tree Survey in accordance with BS5837:2012

# Estimated dimensions (for offsite or otherwise inaccessible trees where accurate data cannot be recovered).

Tree / Group Number	Common Name	Height (m)	Stem(s) Diameter (mm)	Branch Spread (m)				Canopy Height (m) / First Significant Branch	Life Stage	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Remaining Contribution (years)	Category Grading	Root Protection Area (m <sup>2</sup> )
				N	E	S	W								
T12	Hawthorn	6	75, 75, 75, 75, 75, 75,	2	2	2	2	/	Young	Fair	Random past pruning / surgery. Restricted root environment with concrete path to East, road to South.	No action required.	20+	C1	15
T13	Whitebeam	8	150	2.5	2.5	2.5	2.5	2	Young	Fair	Twin stemmed. Restricted root environment with concrete path to East, road to South.	No action required.	10+	C1	10
T14	Hawthorn	7	150, 150, 200	3.5	3.5	3.5	3.5	/	Young	Fair	Corrected trunk lean, suspected past partial windthrow. Growing from rubble.	No action required.	20+	C2	38
T15	Apple	6	85, 85, 85	2.5	2.5	2.5	2.5	/	Young	Fair	Growing in rubble.	No action required.	20+	C1	9
T16	Alder buckthorn	4	50, 50, 75	2.5	2.5	2.5	2.5	/	Young	Good	Random past pruning. Storm damage. Growing in rubble.	No action required.	20+	C1	5
T17	Ash	9	180, 180#	3.5	3.5	3.5	3.5	2	Young	Fair	Twin stemmed. Unable to access.	No action required.	20+	C1	29
T18	Ash	6	100#	2.5	2.5	2.5	2.5	/	Young	Good		No action required.	20+	C1	5
T19	Ash	12	400	5#	6	5	5	2	Semi mature	Fair	Restricted root environment with road to South and building to North. Extended limb to East.	Reduce extended limb to trunk.	20+	B2	72
															0



**LEGEND: TREE SURVEY TO BS 5837:2012**

NB: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

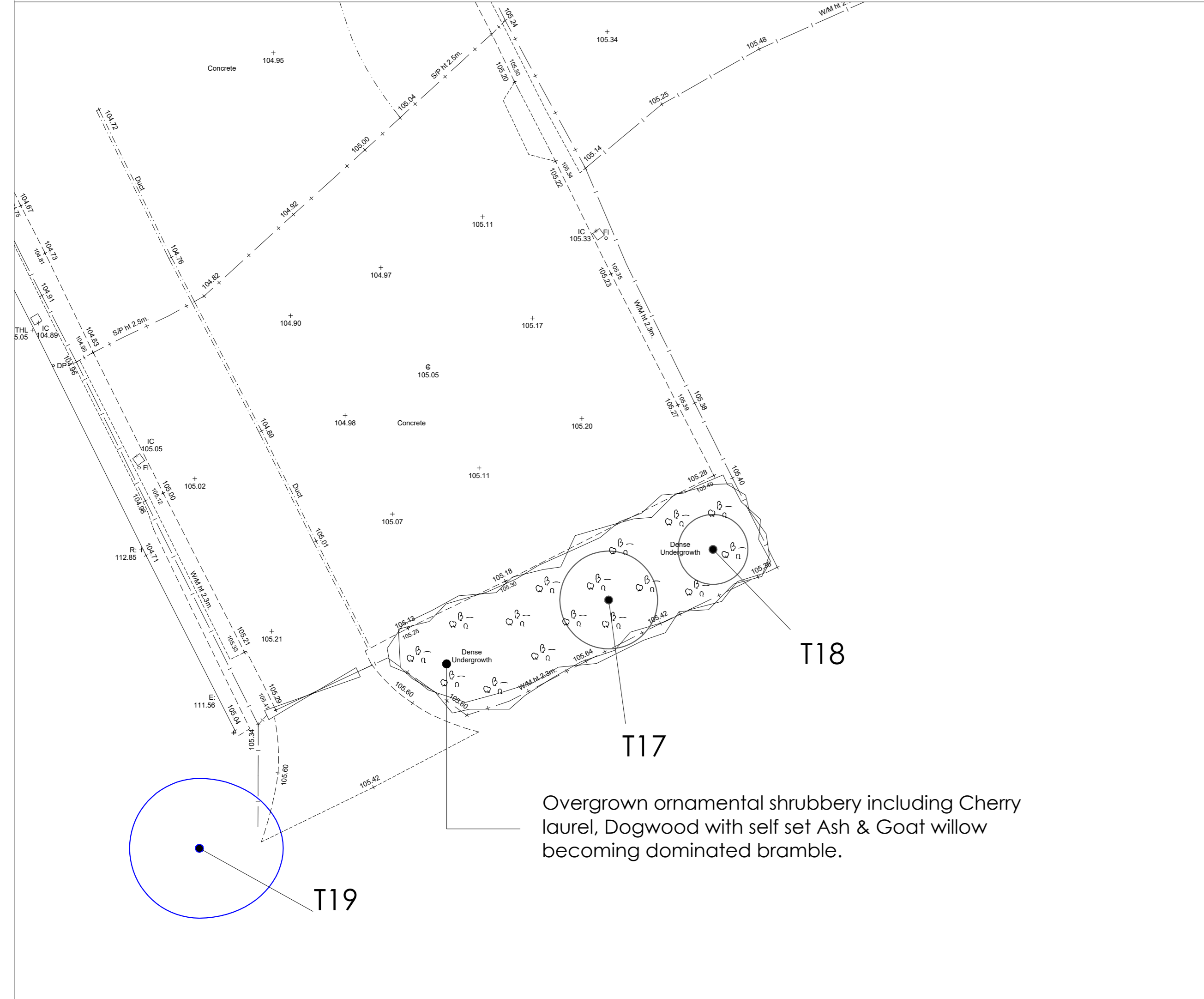
- T1 Category A: High quality and/or value.
- T2 Category B: Moderate quality and /or value.
- T3 Category C: Low quality and/or value
- T4 Category U: Trees unsuitable for retention.



Overgrown ornamental shrubbery including Privet, Pyracantha, Berberis becoming dominated by ivy & bramble. Cut back / damaged during construction of building to East.

Overgrown ornamental shrubbery including Cherry laurel, Dogwood with self set Ash & Goat willow becoming dominated bramble.

**INSET PLAN**



This drawing and the design it depicts are copyright and may not be copied or reproduced without written permission from Beo Landscape Design Ltd. No liability will be accepted for amendments made by others. This drawing is to be read in conjunction with the tender specification and other relevant drawings.

Contains Ordnance Survey Data © Crown Copyright and Database Right 2000. © Crown Copyright. All rights reserved 100018736. Refer any query to office of originator.

rev	date	amendments	alt
(-)	(00/00/0000)	(.....)	(-)

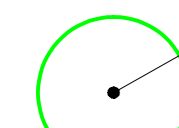
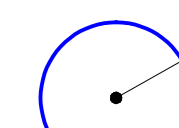
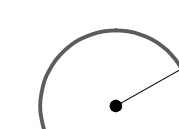
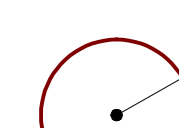
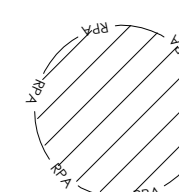



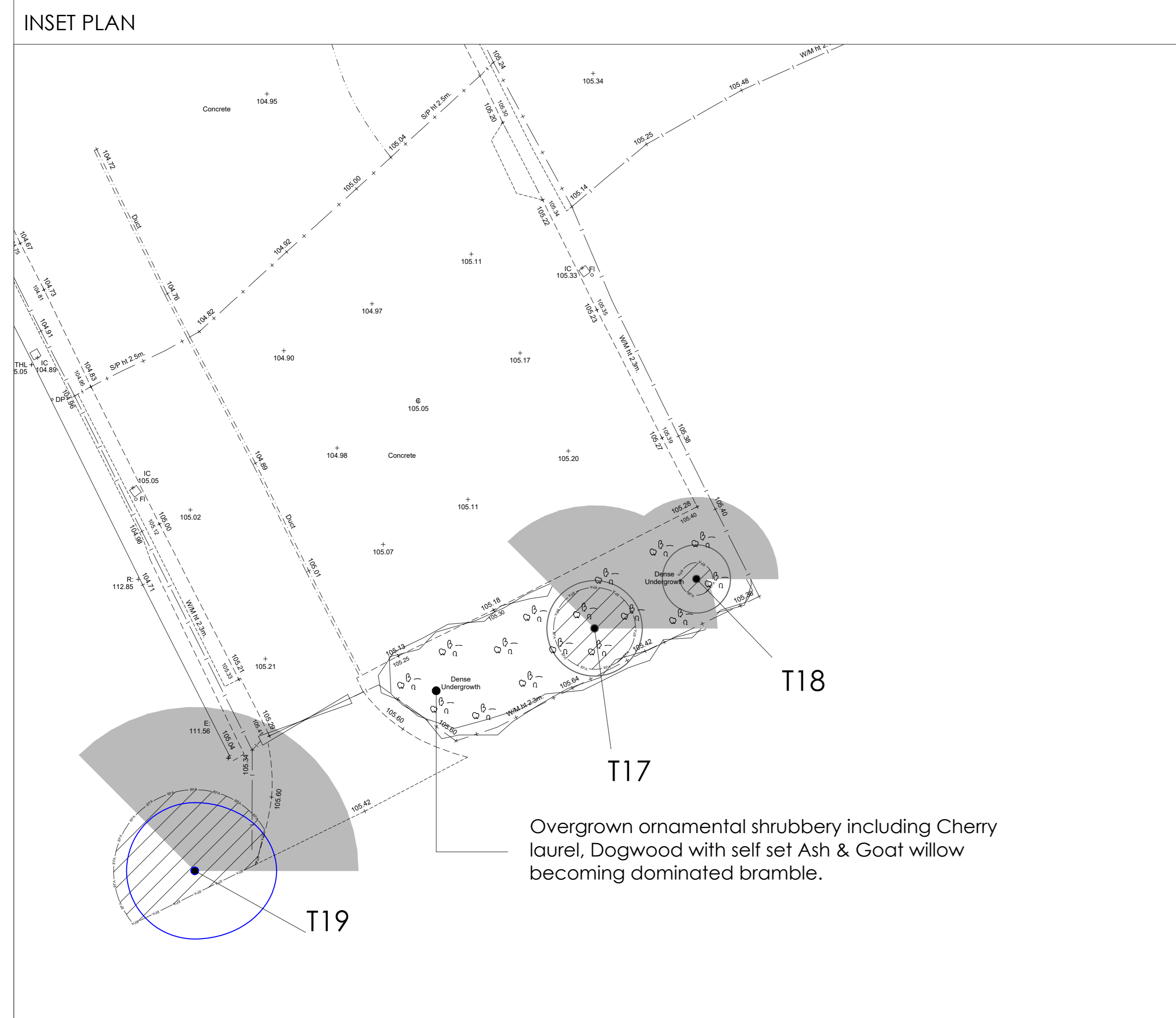
<b>client:</b> CANMOOR		
<b>project:</b> PLOT B, WINDRUSH INDUSTRIAL ESTATE		
<b>title:</b> TREE SURVEY		
<b>status:</b> PLANNING		
<b>date:</b> MAY 23	<b>drawn:</b> E.C.H	<b>number:</b> 23-043-P-01
<b>scale:</b> 1:250	<b>checked:</b> T.C-W	<b>revision:</b> (-)

**Beo Landscape Design Ltd**  
132A The Workians, Compton Road, Wotton Bassett, WY9 9GB  
E: info@beolandscapedesign.co.uk  
W: www.beolandscapedesign.co.uk

**LEGEND: TREE SURVEY TO BS 5837:2012**

NB: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

-  T1 Category A: High quality and/or value.
-  T2 Category B: Moderate quality and /or value.
-  T3 Category C: Low quality and/or value
-  T4 Category U: Trees unsuitable for retention.
-  RPA: Root Protection Area: minimum area to be protected during construction in accordance with BS 5837:2012.
-  Shadow Arc



This drawing and the design it depicts are copyright and may not be copied or reproduced without written permission from Beo Landscape Design Ltd. No liability will be accepted for amendments made by others. This drawing is to be read in conjunction with the landscape specification and other relevant drawings.

Contains Ordnance Survey Data © Crown Copyright and Database Right 2000. © Crown Copyright. All rights reserved 100018736. Refer any query to office of originator.

rev	date	amendments	alt
(-)	(00/00/0000)	(.....)	(-)



**client:**  
CANMOOR

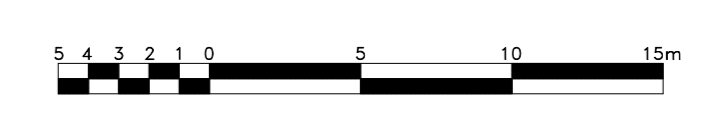
**project:**  
PLOT B, WINDRUSH INDUSTRIAL ESTATE

**title:**  
TREE CONSTRAINTS PLAN

**status:**  
PLANNING

date	drawn	number
MAY 23	E.C.H	23-043-P-02
scale	checked	revision
1:250	T.G-W	(-)

Beo Landscape Design Ltd  
132A The Westlands, Compton Road, Wotton Bassett, WY9 9GB  
T: 01902 424 950 / 01902 435 001  
E: info@beolandscapedesign.co.uk  
W: www.beolandscapedesign.co.uk



landscape architects - arboricultural consultants  
urban designers - environmental assessors



**address:**

132A The Westlands  
Compton Road  
Wolverhampton  
WV3 9QB

**tel:** 01902 424 950

**email:** [info@bealandscape.co.uk](mailto:info@bealandscape.co.uk)

**web:** [www.bealandscape.co.uk](http://www.bealandscape.co.uk)