

## Arboricultural Implications Assessment & Arboricultural Method Statement

In accordance with  
 BS: 5837:2012

At  
**Caerleon Former University Campus**

On the instructions of  
 Redrow Homes

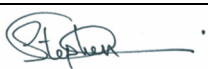
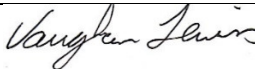
Dated: January 2021 (Revision 3)



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 Of

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|                        |                                                                                     |                         |                                                                                       |
|------------------------|-------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|
| Signed<br>Steve Ambler |  | Signed<br>Vaughan Lewis |  |
| Date                   | 27 <sup>th</sup> January 2021                                                       | Date                    | 27th Jan 2021                                                                         |

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## INTRODUCTION, SCOPE AND BACKGROUND

This assessment is undertaken by our senior Consultant Vaughan Lewis who has worked within the arboricultural and forestry sectors for 25 years, most recently as a principal arboricultural and woodlands officer for a local authority. Vaughan holds the following arboricultural qualifications:

- a) Professional Technician in Arboriculture (Arboricultural Association)
- b) Professional Member of the Arboricultural Association
- c) Landscape Science, Higher National Diploma -Distinction. (Pencoed College (University of Glamorgan)
- d) Woodland Management, National Diploma - Distinction (Hereford College of Agriculture)
- e) Rural Studies, Btec First Diploma – Distinction (Pencoed College)
- f) Lantra Award, "Bats and Arboriculture – A Guide for Practitioners" developed by The Bat Conservation Trust.
- g) Professional Tree Condition Certificate (Lantra Awards)

This assessment is approved by Stephen Ambler, the Company founder, a professional arboriculturalist and a Fellow of the Arboricultural Association. Having over 40 years' experience in the arboricultural industry, serving 19 of those years in local government as a principal arboricultural and woodlands officer. His Consultancy Practice was established in 1999 and later expanded in 2006 with the launch of a specialist 'Tree Contracting Unit' under the revised name - Steve Ambler & Sons Tree Specialists Ltd. Stephen holds the relevant qualifications: -

- a) Certificate in Arboriculture (Royal Forestry Society)
- b) Professional Technician in Arboriculture (Arboricultural Association)
- c) Professional Diploma in Arboriculture (Royal Forestry Society)
- d) Fellow Member of the Arboricultural Association.

This Arboricultural Implications Assessment (AIA) and Arboricultural Method Statement (AMS) is a study to identify, evaluate and mitigate the extent of direct and indirect impacts on existing trees because of the current development proposal. It follows on to an earlier Tree Survey, Tree Categorisation, and Tree Constraints Plan<sup>1</sup> in which the trees were scored and assessed for their suitability for retention within the proposed development. The trees are clearly marked on the Tree Protection Plan with Tree Removal & Retention, within the Appendices.

The Arboricultural Method Statement element of this Report sets out to consider the physical and structural requirements of retained trees to maintain their good health and stability in relation to the pending construction works through identifying and reducing any conflict between them.

This revision (v3 January 2021) of the AIA / AMS has been produced following feedback from the Local Planning Authority, discussions with the design team and updated engineering sectional drawings which includes the swales. Revised sections from version 2 are highlighted in blue to help aid the reader to identify them.

This assessment is carried out using information provided on drawings –

- 18137(05) 1101N Proposed Site Plan
- 200922 - 19399 Engineering Layouts
- Levels Plan. 19399\_C-300 - Draft - WIP - Engineering Layout-C-300-5
- Existing Utilities (Drawing Numbers : MU-001, 2 & 3; B-001, 2 & 3; E-001, 2 & 3; G-001, 2 & 3; S-001; W-001, 2 & 3; MU-002; B-002; )

<sup>1</sup> S. Ambler - Tree Survey, Tree Categorisation, and Tree Constraints Plan at Former Caerleon Campus. Feb\_April 2019.

- Access Ducts (Drawing No 3367/WCAB/A/S01
- edp5601\_d016-E-Proposed Landscape Strategy
- edp5601\_d025-B-Detailed Soft Landscape Plan
- edp5601\_d025-D-Detailed Soft Landscape Plan
- edp5601\_d031-A-Detailed Soft Landscape Design with Plot Planting
- Electrical Cable Routes (Drawing no. 33567/WCAB/E/S02
- Western Power Distribution – Existing Apparatus
- Gas Services – Existing. Drawing No. 33567/WCAB/G/S01
- Water Services – Existing. Drawing No. 33567/WCAB/W/S01
- CAE-HYD\_XX\_XX\_DR\_C\_0600
- 18137(05)1600A - Tree Report - Sections T1 to T4
- 18137(05)1601A - Tree Report - Sections T5 to T9
- 18137(05)1602A - Tree Report - Sections T10 to T13
- 18137(05)1603 - Tree Report - Sections T12 to T13

The boundary surrounding the proposed development site and identified by plan attached hereto, in which the trees are contained and form the contents of this Report, is hereafter referred to as 'the site' .

The provision and acceptance of this Report are subject to the general terms and conditions of Steve Ambler & Sons Tree Specialists Ltd.

## PLANNING CONDITIONS

At the time of writing this report, draft planning conditions have been supplied by the client and the key, tree related conditions are given below :-

### *Pre – commencement/construction conditions*

*03 No construction shall commence in phase 4 (as defined by the Phasing Plan Document) until full plan details of an emergency access route to serve as a shared footpath and cycleway adjacent to plots 120 and 123 (to include swept path analysis for a fire tender and appropriate measures to prevent general vehicular access), have been submitted to and approved in writing by the local planning authority. The details shall include a programme for implementation of these works as part of the phase along with an Arboricultural method statement to address any works that extend closer to the root protection areas of existing trees compared to the approved layout plan (revision 0).*

*Reason: In the interest of public safety and in accordance with policy GP4 of the adopted Local Development Plan.*

*05 Prior to the commencement of any development on site or ground preparation/clearance works, the preparatory setting out and requirements associated with the installation of tree protection and replanting measures shall be inspected by a suitably qualified officer of the Council (i.e. the Tree Officer) along with the site Arboricultural Consultant and site manager.*

*Reason: To protect important landscape features within the site and in accordance with policy GP5 of the adopted Local Development Plan.*

*06 No development, to include demolition, shall commence until an updated Tree Protection Plan (in accordance with BS 5837:2012) has been implemented in accordance with the Arboricultural Implications Assessment & Arboricultural Method Statement (to be Revision 3) required by condition 07 of this permission.*

*The development shall be carried out in accordance with the approved Tree Protection Plan and the fencing shall be retained for the full duration of the development, and shall not be removed or repositioned without the prior written approval of the Local Planning Authority.*

*Reason: To protect important landscape features within the site and in accordance with policy GP2 and GP5 of the adopted Local Development Plan.*

07 *Notwithstanding the details submitted, no operations of any description, (this includes all forms of development, tree felling, tree pruning, temporary access construction, soil moving, temporary access construction and operations involving the use of motorised vehicles or construction machinery), shall commence on site in connection within the development until a detailed Arboricultural Method Statement (i.e. revision 3) has been submitted to and approved in writing by the Local Planning Authority.*

*The development shall be carried out in full compliance with the revised and approved Arboricultural Method Statement.*

*Reason: To protect important landscape features within the site and in accordance with policy GP6 and GP5 of the adopted Local Development Plan.*

08 *Prior to the commencement of works to the swales affected by the plots identified below, full details of specific construction methods of the swale to deal with and set appropriate measures for any overhanging tree branches and preventing any drainage and/or oxygen change to existing tree roots. The cross-sectional details shall demonstrate the levels set out of the engineering layout (19399\_C-300-7 Rev 3) with sections through the nearest tree, the swale and through to the nearest property at plots 15, 17, 18, 24, 35, 39, 75 and 76 and also section from nearest tree and relationship with plots 82, 104, 120, 139, 141 and 155.*

*Reason: To ensure that the retained trees are not adversely impacted from the development and in accordance with policy GP6 and GP5 of the adopted Local Development Plan.*

09 *No development, to include demolition, shall commence until an Arboriculturalist has been appointed, as first agreed in writing by the Local Planning Authority, to oversee the project (to perform a Watching Brief) for the duration of the development and who shall be responsible for -*

- (a) Supervision and monitoring of the approved Tree Protection Plan;*
- (b) Once the barrier fencing is erected, the approved Arboricultural Consultant must inspect and "sign off" in writing and submit a copy of this to the Local Planning Authority stating that the protective fencing is in the correct location and is fit for purpose.*
- (c) Ensuring that all tree work is carried out in accordance with the approved Arboricultural Implications Assessment & Arboricultural Method Statement (to be Revision 3) required by condition 07 of this permission.*
- (d) Supervision and monitoring of the approved tree felling and pruning works;*
- (e) Supervision of the alteration or temporary removal of any Barrier Fencing;*
- (f) Oversee working within any Root Protection Area;*
- (g) Reporting to the Local Planning Authority;*
- (h) The Arboricultural Consultant will provide site progress reports to the Council's Tree Officer at intervals to be agreed by the Council's Tree Officer.*

*Reason: To protect important landscape features within the site and in accordance with policy GP5 of the adopted Local Development Plan.*

10 *Prior to their extraction from ground, full details of the methodology for pruning, lifting, guying and replanting of the Japanese Maples and Magnolia Grandiflora and their proposed location and future maintenance of each tree(s) to be translocated (as shown on the approved Tree Protection Plan – Steve Ambler and Sons) shall be submitted to and approved in writing by the*

*Local Planning Authority. Such details shall accord with the Arboricultural Method Statement required by condition 07 of this permission. The trees shall be translocated and thereafter maintained in accordance with the details agreed.*

*Reason: To ensure valuable tree features on site are retained in more suitable positions in the interest of amenity and quality of layout and in accordance with policy GP5 and GP6 of the adopted Local Development Plan.*

#### **Pre –occupation conditions**

*12 Prior to occupation of any dwelling in phase 4 the trim trail located within the arboretum shall be completed and available for use in accordance with details that shall first have been submitted to and agreed in writing by the Local Planning Authority. These details shall include an Arboricultural Method Statement to demonstrate how such works will be completed without harm to existing tree features in the area and to safeguard such features in the long term.*

*Reason: To deliver agreed improvements to recreational, open space and permeability related aspects of the development and safeguard valuable tree features on site and in accordance with policy GP4 and GP6 of the adopted Local Development Plan.*

#### **General conditions**

*33 All works affecting protected trees shall be undertaken under the supervision of the project Arborist. Notwithstanding the details provided, no works or landscaping/seeding of any description shall take place within the root protection areas.*

*Reason: To protect valuable tree features on site and in accordance with policy GP5 of the adopted Local Development Plan.*

*35 Except where otherwise agreed in writing by the Local Planning Authority, no existing trees shall be felled, topped or lopped, and no existing hedges shall be removed.*

*Reason: To protect existing landscape features on the site and in accordance with policy GP5 of the adopted Local Development Plan.*

*36 No excavation for services, storage of materials or machinery, parking of vehicles, deposits or excavation of soil or rubble, lighting of fires or disposal of liquids shall take place within the Root Protection Area.*

*Reason: To protect important landscape features within the site and in accordance with policy GP5 of the adopted Local Development Plan.*

*37 Notwithstanding the layout plan hereby approved the single parking space serving the building known as Ty Hywell and located entirely underneath the canopy spread of the protected Cedar tree, shall be omitted and no hardsurfacing or parking facility provided in this area. The area shall thereafter be kept clear of parking facilities.*

#### **SITE DESCRIPTION**

The site is located centrally in the South Wales historic town of Caerleon, which sits above the Afon Llwyd to the east and Afon Wsyg to the south. Ponthir Road and Lodge Road form the immediate south and east boundaries, with housing adjoining elsewhere. A Public Right of Way intersects the site and adjoins housing to the north to north-east.

Post Code: NP18 3NU

Ordnance Survey National Grid Reference: ST335911

The site lies at an altitude of approximately 20-40-m above sea level and primarily slopes eastwards. Whilst soil tests have not been undertaken, the area is thought to have free draining and slightly acid loamy soil over primarily sandstone.

The site comprises of a hugely diverse age range and species mix of trees, groups, woodland/parkland, an orchard and hedges (both formal and informal).

### ARBORICULTURAL IMPLICATIONS ASSESSMENT

The following matters are considered under this Arboricultural Implications Assessment with remedial measures offered within the Arboricultural Method Statement element -

- A) Site Designation - Tree Preservation Order and Conservation Area protection
- B) The above and below ground constraints
- C) The construction of the proposed development
- D) Whether design can be modified to accommodate tree retention
- E) Infrastructure requirements, easements for above or below ground services; highway safety and visibility splays and other infrastructure provisions such as lighting, CCTV and signage.
- F) The end use of the space
- G) Whether tree losses from the development proposal can be mitigated
- H) A realistic assessment of the probable impact of the proposed development on the trees and vice versa with due allowances for their future growth and maintenance requirements.
- I) The relationship of windows to trees which may obstruct light taken into account
- J) Large trees can sometimes cause apprehension to occupiers of nearby buildings especially during windy weather
- K) Leaves of some species may cause problems, particularly in autumn by blocking gullies and gutters. Fruit can cause slippery patches and the accumulation of honeydew may be damaging to surfaces and vehicles.
- L) The effects that development proposals may have on the amenity value of the trees both on and near the site

### TREE PRESERVATION ORDER AND CONSERVATION AREA PROTECTION

A **Tree Preservation Order** provides legal protection for certain trees and groups on site and these are held in high regard by the Local Planning Authority, primarily in terms of their amenity value and in some instances their rarity as a species found in Newport. E.g. 2 No Foxglove Tree (*Paulownia tomentosa*) a Fern-leaved beech (*Fagus sylvatica* "Aspleniifolia") and a Common walnut (*Juglans regia*).

**TPO 5 of 2016 was made on the 18th January 2017** and was confirmed with no objections 27<sup>th</sup> February 2017 - TPO 5/2016 protects 37 individual trees, a group of 23 trees and a woodland.

**NOTE** - Where trees have been recorded individually within the Tree Survey there is on occasion some uncertainty as to whether or not they may be included within a protected (TPO) group or woodland. The client is advised to consult with the Local Planning Authority for confirmation when considering trees protected under the Tree Preservation Order. Any felling or remedial works on trees subject to a Tree Preservation Order must have written approval from the Local Planning Authority either through the TPO Works Application process or Full Planning Permission that accepts the recommendations of this report. The exception are those trees considered to be in a dangerous condition that are deemed exempt under the 'dead, dying or dangerous' clause, whereupon 5 days written notice should be given prior to works commencing.

It must be recognised that during the construction phase, should injury or damage occur to any protected tree then an offence would have been committed which could result in prosecution. All parts of the tree are protected including the roots. If any person is found guilty upon prosecution of an offence, then fines of up to £20,000 can be implied and in some circumstances, sums in excess of this.

The Tree Protection Plan and Tree Survey<sup>1</sup> attempts to identify the trees and groups subject to a Tree Preservation Order and are labelled accordingly.

### TREES - THE ABOVE AND BELOW GROUND CONSTRAINTS

The below ground constraints of trees are equal to the Root Protection Area (RPA) of all retained trees and the distance for each tree or group is provided within the Tables in both the Tree Constraints Plan and Report<sup>1</sup>. It is reproduced in Table 2, within the following section, in the column highlighted in yellow and this distance given is a radial distance which should be measured from the centre of the tree's stem.

The above ground constraints are provided by the crown spread primarily.

The Construction Exclusion Zone (CEZ) is defined by the protected area which incorporates the Root Protection Area and crown spread, whichever the greater.

In the attached Tree Protection Plan with Tree Retention / Removal (Appendices), the RPA's are shown as solid orange lines whilst the canopy spreads of the trees are shown as solid green, blue or grey lines (subject to their category rating).

### Tree Removal, Retention & Protection Plan.

A Tree Protection Plan with Tree Retention / Removal is provided in the Appendices, is an essential tool providing information for protecting retained trees from injury and damage during construction works – it provides...

- The Root Protection Area (RPA) shown as a solid orange line. The radial distance provided is taken from the centre of the tree's main tree.
- The crown spread measured at four cardinal points and coloured in relation to their retention category rating.
  - φ U - Dark red dashed line,
  - φ A - Light green
  - φ B - Mid blue
  - φ C - Grey
- The correct positioning for installing suitably robust barrier fencing.
- A suitable and robust barrier fencing detail as recommended in the British Standard<sup>1</sup>.
- Trees proposed for removal
- Trees proposed for retention

Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, the RPA will be drawn as a polygon. Such modifications to the shape of the RPA will reflect a soundly based arboricultural assessment of likely root distribution

### THE PROPOSED DEVELOPMENT FOOTPRINT AND TREE LOSSES

The proposed development would result in the majority of tree losses being central to the site often seeing the younger or semi-mature trees planted within the hard landscaping removed. The majority of mature trees to the periphery of the site are retained where safe to do so. There are some exceptions, and the key are discussed below:-

A summary of trees retained and lost can be found on table 1, below which indicates all A category trees are to be retained with just over two-thirds of the B rated trees also retained. Approximately half of the C rated trees are due to be lost and the remainder are U category and deemed unsafe for retention.

**Table 1. Summary of Trees Lost and Retained by Retention Category.**

**NOTES.** A group is recorded as a single entity.

| Retention Category | Key in table | Key in Tree Protection Plan | Numbers Lost to Development | Numbers Retained |
|--------------------|--------------|-----------------------------|-----------------------------|------------------|
| A category         |              | Green crown outline & stem  | 0                           | 9                |
| B category         |              | Blue crown outline & stem   | 19                          | 40               |
| C category         |              | Grey crown outline & stem   | 39                          | 34               |
| U category         |              | 36                          |                             |                  |

**Table 2. Findings Table.**

**NOTES.**

- Trees lost to development are highlighted in red text.

| Tree Number | Tree Tag | Species                                              | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                     | Preliminary Management Recommendations                                                                           | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|------------------------------------------------------|------------|-------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 1           | NA       | Common lime                                          | 19         | 500                     | M          | Street tree of reasonable form, adjoining the site.                                                                                                                                                                                                                                                                      | None                                                                                                             | 40+                    | B 2                | 113                       | 6.00                       |
| G1          | NA       | Cherry laurel, Japanese spotted laurel, Pittosporum. | 5          | 150                     | M          | Dense group on entrance opposite security gate.                                                                                                                                                                                                                                                                          | None                                                                                                             | 20-40                  | C 2                | 10                        | 1.80                       |
| 2           | 5042     | Common lime                                          | 20         | 725                     | M          | <b>Protected by Tree Preservation Order.</b><br><br>Tree of reasonable form but with crown dieback by some 10%.<br><i>Kretzschmaria deusta</i> present. <i>K. deusta</i> leads to brittle fractures of the base and roots.                                                                                               | Fell to ground level, with replacement planting. Species and location to be agreed with Local Planning Authority | <10                    | U                  | 0                         | 0.00                       |
| 3           | 5043     | Common lime                                          | 21         | 575                     | M          | <b>Protected by Tree Preservation Order.</b><br><br>Tree of reasonable form, with a bifurcated stem at 6-m AGL.<br>Fork union occluded by ivy.<br>Early crown dieback by some 5%. <i>Kretzschmaria deusta</i> present. <i>K. deusta</i> is a soft rot decay fungi that leads to brittle fractures of the base and roots. | Fell to ground level, with replacement planting. Species and location to be agreed with Local Planning Authority | <10                    | U                  | 0                         | 0.00                       |
| 4           | 5044     | Common lime                                          | 19         | 525                     | M          | <b>Protected by Tree Preservation Order.</b><br><br>Tree of reasonable form but with crown dieback by some 5%.                                                                                                                                                                                                           | Fell to ground level, with replacement planting. Species and location to be agreed with Local Planning Authority | <10                    | U                  | 0                         | 0.00                       |

| Tree Number | Tree Tag | Species         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Preliminary Management Recommendations                                                                                                                                                                           | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-----------------|------------|-------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                 |            |                         |            | <i>Kretzschmaria deusta</i> present. <i>K. deusta</i> is a soft rot decay fungi that leads to brittle fractures of the base and roots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                  |                        |                    |                           |                            |
| 5           | 5045     | Common lime     | 19         | 550                     | M          | <b>Protected by Tree Preservation Order.</b><br><br>Tree of good form near frontage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Remove basal epicormics and inspect base and lower stem.<br><br>Arrange for a qualified arborist to re-inspect paying particular attention for signs of <i>K. deusta</i>                                         | 10-20                  | B 1                | 137                       | 6.60                       |
| 6           | 463      | Pedunculate oak | 16         | 850                     | M          | <b>Protected by Tree Preservation Order.</b><br><br>Tree of reasonable form and somewhat squat in appearance.<br>There is decay present within the south and east buttresses with notable reaction wood with the broadening of the stem base and affected buttresses. The type of decay in the two buttresses and sapwood to the west may be indicative of Honey fungus ( <i>Armillaria mellea</i> ) but this is not confirmed. The structural faults are within acceptable levels and as such remedial works are not required. However, the condition of this tree near a well-used road merits a regular condition inspection. | Access facilitation pruning may be required.<br><br>Place into a cyclical tree inspection regime every 18 months. The next inspection should be undertaken whilst in full leaf to assess for any crown symptoms. | 40+                    | B 2,3              | 327                       | 10.20                      |

| Tree Number | Tree Tag    | Species                                                                  | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                               | Preliminary Management Recommendations                                                                                                                                                                                                                           | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|-------------|--------------------------------------------------------------------------|------------|-------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 7           | 462         | Common lime                                                              | 12         | 175                     | Y/EM       | Tree of reasonable form with potential to develop into a key tree.                                                                                                                                                                                 | Tip back lower branches to create 2.5-m ground clearance                                                                                                                                                                                                         | 40+                    | B 2                | 14                        | 2.10                       |
| 8           | 464         | Akin to Japanese cornelian cherry 'Kintoki'                              | 10         | 200                     | EM/ M      | Small tree/shrub of unremarkable form. Fractured crossing central stem.                                                                                                                                                                            | Remove crossing and fractured stem and limb. Sever 1m ivy band.                                                                                                                                                                                                  | 20-40                  | C 1                | 18                        | 2.40                       |
| G2          | NA          | Holly                                                                    | 7          | 125                     | EM         | Unremarkable group located under canopy of oak.                                                                                                                                                                                                    | None                                                                                                                                                                                                                                                             | 40+                    | C 2,3              | 7                         | 1.50                       |
| G3          | NA          | Oval-leaved privet, hornbeam                                             | 2          | 75                      | EM         | Formal roadside hedge to frontage.                                                                                                                                                                                                                 | Maintain shape through box pruning.                                                                                                                                                                                                                              | 20-40                  | B 2                | 3                         | 0.90                       |
| G4          | 5046 - 5051 | Ornamental flowering cherry                                              | 9          | 175                     | Y/EM       | Trees of fair to reasonable form, in a row, slightly offset from hedge G3.<br>Bacterial canker of cherry present but not extensive.<br>Occasional compression forks developing.                                                                    | Monitor health and structure every 3 years.                                                                                                                                                                                                                      | 20-40                  | C 2                | 14                        | 2.10                       |
| G5          | NA          | Irish yew, rhododendron, sweet bay, holly, variegated holly, apple, plum | 10         | 175                     | EM         | <b>Jointly with Group 6, 7 - 23 No trees protected under Tree Preservation Order.</b><br><br>Dense unkempt group and possibly part of the remnant orchard (Group 7), offering screening to adjoining garden.<br><br>Fruit trees tagged 5052- 5055. | Individual dominant shrubs and small trees could be selected for retention in order to improve the amenity value of the group.<br><br>If retained undertake renovation pruning on fruit trees.<br><br>Fell to ground level. the following:-<br><b>T128 (371)</b> | 10-20                  | C 2                | 14                        | 2.10                       |

| Tree Number | Tree Tag | Species        | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                 | Preliminary Management Recommendations | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|----------------|------------|-------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                |            |                         |            | <p>T128 (371) Elder (<i>Sambucus nigra</i>) -Multi-stemmed specimen with crown dieback by 30%.</p> <p>129 (5055) Apple - Root-plate failure with tree resting on boundary fence and overhanging Isca Court.</p> <p>130 (5053) Apple- <i>Ganoderma applanatum</i> fungal bracket noted which causes a white rot with associated basal decay and a fractured and failed main stem.</p> | <p>T129 (5055)</p> <p>T130 (5053)</p>  |                        |                    |                           |                            |
| 9           | 466      | Silver birch   | 18         | 350                     | M          | Twin-stemmed tree of fair form, subordinate to tree 10.                                                                                                                                                                                                                                                                                                                              | None                                   | 20-40                  | B 2,3              | 55                        | 4.20                       |
| 10          | 467      | Silver birch   | 18         | 650                     | M          | Dominant tree of the two (9) and of good form.                                                                                                                                                                                                                                                                                                                                       | None                                   | 20-40                  | B 2,3              | 191                       | 7.80                       |
| 11          | 5056     | Cotoneaster sp | 7          | 175                     | EM/<br>M   | Insignificant small tree/shrub                                                                                                                                                                                                                                                                                                                                                       | None                                   | 10-20                  | C 2                | 14                        | 2.10                       |
| 12          | 5057     | Goat willow    | 11         | 125                     | M          | <p><b>Protected by Tree Preservation Order.</b></p> <p>Mature stool with early mature growth.<br/>Multi-stemmed specimen from base.</p> <p>Inherently weak structurally and not deemed suitable for retention near high target occupancy housing.</p>                                                                                                                                | Fell to ground level                   | 10-20                  | U                  | 0                         | 0.00                       |

| Tree Number | Tree Tag | Species                                                    | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                            | Preliminary Management Recommendations                                                 | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|------------------------------------------------------------|------------|-------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                                                            |            |                         |            |                                                                                                                                                                                                 |                                                                                        |                        |                    |                           |                            |
| 13          | 5058     | Holly                                                      | 6          | 175                     | Y/EM       | <b>Protected by Tree Preservation Order.</b><br><br>Insignificant small tree/shrub                                                                                                              | None                                                                                   | 40+                    | C 2,3              | 14                        | 2.10                       |
| G6          | NA       | Leyland cypress, Mexican orange blossom, apple, smoke bush | 10         | 125                     | Y/EM       | <b>Jointly with Group 5, 7 - 23 No trees protected under Tree Preservation Order.</b><br><br>Sporadic trees located in adjoining gardens.                                                       | None                                                                                   | 20-40                  | C 2                | 7                         | 1.50                       |
| 14          | 5059     | Judas tree                                                 | 5          | 100                     | EM         | <b>Protected by Tree Preservation Order.</b><br><br>Tree of poor form with a 30% dieback                                                                                                        | Fell to ground level                                                                   | <10                    | U                  | 5                         | 1.20                       |
| 15          | NA       | Leyland cypress                                            | 15         | 400                     | Y/EM       | <b>Protected by Tree Preservation Order.</b><br><br>Located in adjoining garden on boundary and offers some screening                                                                           | None                                                                                   | 20-40                  | B 2                | 72                        | 4.80                       |
| G7          | NA       | Orchard consisting of mixed fruit trees                    | 10         | 300                     | M          | <b>Jointly with Group 5, Tree' s 6 – 23 are protected under Tree Preservation Order.</b><br><br>Orchard comprising of well-spaced trees, some with a multitude of condition issues ranging from | Sever ivy and other climbers.<br><br>Undertake renovation pruning on all fruit trees . | 10-20                  | B 2,3              | 41                        | 3.60                       |

| Tree Number | Tree Tag | Species                     | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Preliminary Management Recommendations                                                                                                                                                                                                                                  | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M’) |
|-------------|----------|-----------------------------|------------|-------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|-----------------------------|
|             |          |                             |            |                         |            | fractured limbs/primary branches, crossing branches, congested crowns & decay cavities.<br>T124 (367) Apple - Basal wound to north at 100 degrees of stem circumference. Congested crown with multiple crossing branches. Fractured and partially attached wind damaged branches at 6-m AGL to the south, that have been pruned and shortened to the boundary.<br>125 (368) Plum -Tree forks at 1.5-m AGL to become bifurcated. Three pruning stubs occur in this union effectively acting as wedges when they were live. Reaction wood to this previous force has widened the stem at the union. An elongated narrow decay cavity to the north between 1.8-m - 3-m AGL. Fractured and partially attached limb at 3-m AGL.<br><br>126 (369) Apple - Elongated narrow decay cavity between 0.3-m – 1.1-m AGL to a depth of 50-mm. Congested crown with multiple crossing branches.<br><br>127 (370) Apple - Small tree with crown dieback by 60%. Small but deep decay cavity at 300-mm AGL to south. | T124 (367) Target prune crossing, damaged branches.<br><br>125 (368) Remove fractured limb. Monitor linear cavity on east stem every 18 months.<br><br>126 (369) Target prune crossing branches. Monitor cavity every 18 months.<br><br>127 (370) Fell to ground level. |                        |                    |                           |                             |
| 16          | 5060     | Ornamental flowering cherry | 6          | 300                     | EM/ M      | Protected by Tree Preservation Order.<br><br>Tree of below average form                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Consider removal                                                                                                                                                                                                                                                        | <10                    | C 2                | 41                        | 3.60                        |

| Tree Number | Tree Tag | Species                                               | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                          | Preliminary Management Recommendations                                                                         | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-------------------------------------------------------|------------|-------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 17          | 1381     | Noble fir                                             | 11         | 350                     | EM         | <b>Protected by Tree Preservation Order.</b><br><br>Tree of below average form becoming bifurcated with a tensile union.<br>Offers some limited screening for adjoining house | Remove lower dead branches and sever ivy                                                                       | 40+                    | C 2                | 55                        | 4.20                       |
| G8          | NA       | Hazel, holly, myrobalan plum, Japanese spotted laurel | 10         | 125                     | EM         | Unkempt group, offering some screening to the sub-station                                                                                                                     | Remove suckers if retained                                                                                     | 20-40                  | C 2,3              | 7                         | 1.50                       |
| Stump       | NA       | Goat willow                                           | /          | /                       | M          | Recently felled tree with no re-growth from stump as yet.                                                                                                                     | Treat with glyphosate-based herbicide in accordance with manufacturers instruction, in order to cease regrowth | 10-20                  | U                  | 0                         | 0.00                       |
| G9          | NA       | Cherry laurel                                         | 6          | 100                     | EM/<br>M   | Isolated unremarkable group with two individual small shrubs just to the north-east                                                                                           | None                                                                                                           | 10-20                  | C 2                | 5                         | 1.20                       |
| 18          | 468      | Horse chestnut                                        | 10         | 550                     | EM         | Tree of reasonable form                                                                                                                                                       | May require access facilitation pruning                                                                        | 40+                    | B 2                | 137                       | 6.60                       |
| 19          | 1382     | Holly                                                 | /          | /                       | EM/<br>M   | Sparse foliage with crown dieback and young basal growth in response                                                                                                          | Fell to ground level                                                                                           | <10                    | U                  | 0                         | 0.00                       |
| 20          | 1383     | Downy birch                                           | 16         | 225                     | EM         | Remaining stem of two formed from ground level, of reasonable form                                                                                                            | None                                                                                                           | 20-40                  | C 2,3              | 23                        | 2.70                       |

| Tree Number | Tree Tag | Species                                                  | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                              | Preliminary Management Recommendations                                                           | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|----------------------------------------------------------|------------|-------------------------|------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 21          | 1385     | Beech                                                    | 13         | 150                     | Y/EM       | Tree of reasonable form.                                                                                          | Consider removal of tree 20 to provide space for this tree's crown to develop                    | 40+                    | B 1,3              | 10                        | 1.80                       |
| G10         | NA       | Lawson cypress                                           | 16         | 300                     | EM/M       | Multi-stemmed specimen with butt sweep.                                                                           | Consider removal in light of issues in relation to High Hedges Act                               | 10-20                  | C 2                | 41                        | 3.60                       |
| 22          | 1386     | Holly                                                    | 12         | 275                     | EM/M       | Tree of reasonable form, with a bifurcated stem at 1-m AGL.                                                       | None                                                                                             | 40+                    | B 2,3              | 34                        | 3.30                       |
| G11         | NA       | Goat willow, cherry laurel, Himalayan honeysuckle, hazel | 12         | 150                     | Y/EM       | Unremarkable group, located near lodge entrance                                                                   | Consider removal                                                                                 | 10-20                  | C 2                | 10                        | 1.80                       |
| G12         | NA       | Yew                                                      | 2          | 75                      | Y          | Young hedge along roadside boundary. Has potential, but could also be easily replaced through mitigation planting | Prune leaders to promote dense lower growth.<br>Remove adjoining shrubs to improve light levels. | 40+                    | C 2,3              | 3                         | 0.90                       |
| 23          | 1387     | Pear                                                     | 7          | 250                     | EM/M       | Tree of poor form.<br>Scaffold limbs are 'dog legged' with acute changes of angle                                 | If retained, undertake renovation pruning and remove deadwood                                    | 10-20                  | C 2,3              | 28                        | 3.00                       |
| 24          | 471      | Pedunculate oak                                          | 15         | 475                     | Y/EM       | <b>Protected by Tree Preservation Order.</b><br><br>Long lived species of good form near frontage.                | Remove deadwood                                                                                  | 40+                    | A 2,3              | 102                       | 5.70                       |

| Tree Number | Tree Tag | Species                                                                                         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                         | Preliminary Management Recommendations                                                                                                | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-------------------------------------------------------------------------------------------------|------------|-------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 25          | 472      | Lawson cypress                                                                                  | 17         | 500                     | M          | Tree of good form, near frontage with small conifers and shrubs adjoining                                                                                                                                                                                                    | Consider removal in favour of oak tree T24, to allow its crown to develop unhindered                                                  | 20-40                  | B 1,2              | 113                       | 6.00                       |
| G13         | NA       | Ash, Lawson cypress with juvenile foliage, variegated holly, Wilson's honeysuckle, hazel, holly | 11         | 150                     | Y/EM       | Unremarkable group located near frontage to road and lodge.<br><br>Ash Tag (1388) multi-stemmed with one stem having been felled and the other leaning out towards the road due to phototropic tendencies                                                                    | Ash (Tag 1388) - fell to ground level and treat stump with herbicide in accordance with manufacturers instruction, to cease regrowth. | 20-40                  | C 2,3              | 10                        | 1.80                       |
| 26          | 1389     | Pear                                                                                            |            |                         |            | Extensive basal decay with cavity. <i>Kretzschmaria deusta</i> present which is a soft rot decay fungi that leads to a sudden brittle fractures of the base and roots.                                                                                                       | Fell to ground level                                                                                                                  | /                      | U                  | 0                         | 0.00                       |
| 27          | 1390     | Holly                                                                                           | 10         | 175                     | EM         | Triple stemmed specimen of average form                                                                                                                                                                                                                                      | None                                                                                                                                  | 20-40                  | C 2,3              | 14                        | 2.10                       |
| G14         | NA       | Lawson cypress                                                                                  | 14         | 300                     | EM/<br>M   | Row of conifers close to south boundary. Consider issues in relation to High Hedges Regulations.<br>Condition issues include incipient stem failure, decaying pruning wounds & compression forks. These trees have been poorly reduced 'topped' , at some stage in the past. | Consider removal and replacement with better performing trees more suitable to a development.                                         | 20-40                  | C 2                | 41                        | 3.60                       |

| Tree Number | Tree Tag | Species         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                | Preliminary Management Recommendations               | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-----------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 28          | 1392     | Red oak         | 16         | 225                     | EM/<br>M   | Twin stemmed specimen leaning with an asymmetric crown, predisposed to the south and road.                                                                                                                                                          | Reduce crown by 3-m distally                         | 40+                    | C 2                | 23                        | 2.70                       |
| 29          | 1391     | Red oak         | 16         | 275                     | EM/<br>M   | Twin stemmed specimen of reasonable form.                                                                                                                                                                                                           | None                                                 | 40+                    | B 2                | 34                        | 3.30                       |
| G15         | 475      | Lawson cypress  | 18         | 525                     | M          | Multi-stemmed specimens of average form located on low mound.<br>Consider issues in relation to High Hedges Regulations.<br>Several compression forks present.                                                                                      | Monitor structural issues annually, if retained      | 20-40                  | B 2                | 125                       | 6.30                       |
| 30          | 473      | Pedunculate oak | 20         | 475                     | M          | <b>Protected by Tree Preservation Order.</b><br><br>Twin stemmed specimen subordinate to tree 31.<br>Tree of fair form with a dominant east stem                                                                                                    | Reduce crown by 2-m distally                         | 40+                    | B 2,3              | 102                       | 5.70                       |
| 31          | 474      | Common lime     | 20         | 550                     | M          | <b>Protected by Tree Preservation Order.</b><br><br>A single dominant stem remains with 3 x stems to the north, having been poorly removed to accommodate the nearby student block.<br>Decay developing in the three large diameter pruning wounds. | Monitor structural issues annually, if retained      | 40+                    | B 2                | 137                       | 6.60                       |
| 32          | 476      | Lawson cypress  | 18         | 600                     | M          | Tree of fair form soon forking to become multi-stemmed.                                                                                                                                                                                             | If retained, install a two-way cable bracing systems | 20-40                  | B 2                | 163                       | 7.20                       |

| Tree Number | Tree Tag | Species       | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                        | Preliminary Management Recommendations                   | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|---------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |               |            |                         |            | The main fork has enveloped the metal railing stanchion, whilst the forks at 2-m AGL are formed under compression.                                                          |                                                          |                        |                    |                           |                            |
| 33          | 1393     | Sessile oak   | 19         | 475                     | EM/<br>M   | <b>Protected by Tree Preservation Order.</b><br><br>Tree of reasonable form by metal gates on tarmac ramp.<br>Small grouping of early mature holly & hazel under the canopy | Remove deadwood                                          | 40+                    | B 2,3              | 102                       | 5.70                       |
| G16         | NA       | Irish yew     | 7          | 75                      | Y/EM       | Closely spaced group in small beds, with limited rooting potential                                                                                                          | None                                                     | 40+                    | C 2                | 3                         | 0.90                       |
| 34          | 1394     | Norway maple  | 8          | 200                     | Y/EM       | Tree of good form in quadrant                                                                                                                                               | None                                                     | 40+                    | B 2                | 18                        | 2.40                       |
| 35          | 1395     | Norway maple  | 8          | 200                     | Y/EM       | Tree of good form in quadrant                                                                                                                                               | None                                                     | 40+                    | B 2                | 18                        | 2.40                       |
| 36          | 1396     | White willow  | 10         | 325                     | EM         | Unremarkable tree which is inherently structurally weak.                                                                                                                    | Consider removal in high target occupancy housing areas. | 20-40                  | C 3                | 48                        | 3.90                       |
| 37          | 1397     | Holly         | 8          | 125                     | EM         | Unremarkable multi-stemmed specimen with 2 x central stems, reduced at 2-m AGL.                                                                                             | None                                                     | 40+                    | C 2,3              | 7                         | 1.50                       |
| 38          | 1398     | Common walnut | 14         | 200                     | EM         | Twin-stemmed tree of reasonable form, with a dominant east stem.<br>Google images in leaf suggests a somewhat thinning upper crown.                                         | Monitor health annually                                  | 40+                    | B 1,2              | 18                        | 2.40                       |

| Tree Number | Tree Tag                        | Species                     | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                    | Preliminary Management Recommendations                                                                                                                                                                                                                                                                                      | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|---------------------------------|-----------------------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| G17         | NA                              | Lime sp                     | 10         | 250                     | Y/EM       | Row of well-spaced and well-formed trees planted on top of bank within Cherry laurel shrub bed.<br>Most easterly tree has a developing compression fork.                                | Monitor compression fork on tree, to east end of row                                                                                                                                                                                                                                                                        | 40+                    | B 2                | 28                        | 3.00                       |
| 39          | 1399                            | Tulip tree                  | 14         | 275                     | EM         | <b>Protected by Tree Preservation Order.</b><br><br>Tree of good form in planting grill in paved seating area, adjoining the car park.                                                  | Built up area that would require very careful demolition and then the use of a large tree spade and guying system to support it. Likely to cause too much root disturbance. Fast growing species that could be replaced through planting several elsewhere in wider open spaces. Use at least extra heavy standards 14-16cm | 40+                    | B 1,2              | 34                        | 3.30                       |
| G18         | 1400,<br>2281,<br>2282,<br>2283 | Himalayan birch             | 10         | 200                     | Y/EM       | <b>Protected by Tree Preservation Order.</b><br><br>Group of 4 trees in the corner of a quadrant. Trees of reasonable form. Several crossing branches and developing compression forks. | May require access facilitation pruning                                                                                                                                                                                                                                                                                     | 20-40                  | B 2                | 18                        | 2.40                       |
| G19         | NA                              | Norway maple                | 5          | 100                     | Y          | Planted in narrow raised strips demarcating parking bays.<br>Located in grills and stone setts.<br>Can easily be replaced through mitigation planting.                                  | Investigate rooting pit and improve rooting space if required and retained.                                                                                                                                                                                                                                                 | 40+                    | C 2                | 5                         | 1.20                       |
| 40          | 2284                            | Ornamental flowering cherry | 5          | 125                     | Y/EM       | Unremarkable tree                                                                                                                                                                       | None                                                                                                                                                                                                                                                                                                                        | 20-40                  | C 2                | 7                         | 1.50                       |

| Tree Number | Tree Tag | Species         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                         | Preliminary Management Recommendations                                | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-----------------|------------|-------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 41          | 2288     | Himalayan birch | 13         | 175                     | Y/EM       | Tree of fair form, but subordinate to T42.                                                                                                   | May require access facilitation pruning                               | 40+                    | B 2                | 14                        | 2.10                       |
| 42          | 2287     | Himalayan birch | 14         | 250                     | Y/EM       | Tree of good form and the dominate one in a pair with T41                                                                                    | May require access facilitation pruning                               | 40+                    | B 2                | 28                        | 3.00                       |
| 43          | 2289     | Sessile oak     | 17         | 400                     | EM         | Protected by Tree Preservation Order.<br><br>Extensive crown dieback with notable young growth within the internal crown.                    | Fell to ground level                                                  | <10                    | U                  | 72                        | 4.80                       |
| 44          | 2290     | Sessile oak     | 18         | 500                     | EM         | Protected by Tree Preservation Order.<br><br>Tree of good form.                                                                              | Remove deadwood over target                                           | 40+                    | B 2,3              | 113                       | 6.00                       |
| 45          | 2291     | Sessile oak     | 18         | 600                     | M          | Protected by Tree Preservation Order.<br><br>Twin stemmed specimen from ground level, of reasonable form.                                    | May require access facilitation pruning. Remove deadwood over target. | 40+                    | B 2,3              | 163                       | 7.20                       |
| 46          | 2292     | Goat willow     | 10         | 250                     | EM         | Protected by Tree Preservation Order.<br><br>Inherently weak structurally and not suitable for retention near high target occupancy housing. | If retained, coppice.                                                 | 20-40                  | C 3                | 28                        | 3.00                       |
| 47          | 2293     | Sessile oak     | 18         | 550                     | EM         | Protected by Tree Preservation Order.<br><br>Tree of good form                                                                               | Remove deadwood over target                                           | 40+                    | B 2,3              | 137                       | 6.60                       |

| Tree Number | Tree Tag | Species     | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                              | Preliminary Management Recommendations                                                      | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-------------|------------|-------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 48          | 2294     | Sessile oak | 19         | 600                     | EM/<br>M   | <b>Protected by Tree Preservation Order.</b><br><br>Tree of good form.<br><br>Lateral limbs on site side likely to be subject to increased torsional loading that closer development will cause.                  | Remove deadwood and reduce lateral limb formed at 4-m AGL to the site side by 3-m distally. | 40+                    | B 2,3              | 163                       | 7.20                       |
| 49          | 2295     | Sessile oak | 16         | 600                     | EM/<br>M   | <b>Protected by Tree Preservation Order.</b><br><br>Forms a pair with T50.<br>Tree soon becomes lateral at 2.5-m AGL predisposed towards the site.<br>Notable fibre buckling under compression on stems and limbs | End weight reduction pruning to reduce loading, by 5-m distally                             | 40+                    | B 2,3              | 163                       | 7.20                       |
| 50          | 2296     | Sessile oak | 16         | 525                     | EM/<br>M   | <b>Protected by Tree Preservation Order.</b><br><br>Forms a pair with T49.<br>Tree soon becomes lateral at 6-7-m above ground level, predisposed towards the road.                                                | End weight reduction loading by 3-m distally                                                | 40+                    | B 2,3              | 125                       | 6.30                       |
| 51          | 2297     | Ash         | 18         | 350                     | EM         | <b>Protected by Tree Preservation Order.</b><br><br>Tree of good form located on edge of low stone retaining wall, with some signs of soil disturbance.                                                           | Monitor effect on wall every 2 years                                                        | 20-40                  | B 2,3              | 55                        | 4.20                       |

| Tree Number | Tree Tag | Species                         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                | Preliminary Management Recommendations                                                                                             | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|---------------------------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| G20         | NA       | Ash                             | 15         | 125                     | Y/EM       | Small group on edge of low stone retaining wall. Offers some screening but individually unremarkable.                                               | Thin to favour better formed specimens and remove those with symptoms of Ash dieback disease ( <i>Hymenoscyphus fraxineus</i> )    | 40+                    | C 2,3              | 7                         | 1.50                       |
| G21         | NA       | Cherry laurel                   | 6          | 125                     | EM/M       | Dense group on top of bank that offers some screening. Isolated stems of Japanese knotweed ( <i>Fallopia japonica</i> ) noted to west end of group. | Treat Japanese knotweed with glyphosate-based herbicide in accordance with industry best practice and Manufacturers' instructions. | 20-40                  | C 2                | 7                         | 1.50                       |
| 52          | 2298     | Cherry 'Kanzan'                 | 6          | /                       | EM         | Elongated compression fork from union at 1.2-m AGL to ground level.                                                                                 | Fell to ground level                                                                                                               | <10                    | U                  | 0                         | 0.00                       |
| G22         | NA       | Ornamental flowering cherry x 4 | 10         | 150                     | EM         | Unremarkable row of trees on bank to front of student accommodation block                                                                           | None                                                                                                                               | 10-20                  | C 2                | 10                        | 1.80                       |

| Tree Number | Tree Tag | Species                                                                                                                                                                                                             | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Preliminary Management Recommendations                                                                                                                                                                                    | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| G23         | NA       | Ash, oak, sycamore, holly, hawthorn, goat willow, Norway spruce, hazel, lime, mulberry, European larch, Lawson cypress, black pine, Douglas fir, beech, cedar, wellingtonia, birch, coastal redwood, weeping willow | 20         | 1000                    | M          | <b>Protected by Tree Preservation Order.</b><br>Mixed broadleaved woodland and parkland further north.<br>Comprising of predominantly native and naturalised species with the occasional planted exotics and some fine specimens.<br>Issues include but not exclusively - windblown trees, small and medium diameter deadwood, phytophthora, fractured & failed stems / limbs and primary branches.<br>Woodland canopy cover thins further northwards and conversely bramble increases, as light levels improve.<br>Individual trees and sub-groups in this wider group have been recorded where they occur within influencing distance of the PRow (trees 121-123, G39 & G40) | Woodland management plan required.<br>Identify and plot / tag specimen trees.<br>Undertake detailed tree condition inspection. Potential planting but not at the cost of overplanting around the specimen parkland trees. | 40+                    | A<br>1,2,3         | 452                       | 12.00                      |
| G24         | NA       | Chanticleer pear                                                                                                                                                                                                    | 11         | 225                     | EM         | Planted in paved area within tree grills.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Investigate rooting pit and improve rooting space if required and retained                                                                                                                                                | 20-40                  | B 2                | 23                        | 2.70                       |
| G25         | NA       | Hornbeam, ornamental flowering cherry, pear                                                                                                                                                                         | 4          | 150                     | Y          | Young trees within tree pits/trenches within paviour car park.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Investigate rooting pit and improve rooting space if required and retained                                                                                                                                                | 20-40                  | C 2                | 10                        | 1.80                       |

| Tree Number | Tree Tag | Species                                            | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                       | Preliminary Management Recommendations                                                                       | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|----------------------------------------------------|------------|-------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 53          | 2299     | Deodar cedar                                       | 19         | 700                     | M          | <b>Protected under Tree Preservation Order.</b><br><br>Specimen tree of good form. Several large flush pruning wounds. Large sweeping stems and lateral limbs gives it a similar form to Cedar of Lebanon. | Consider impact of changing wind dynamics and use of cable / propping bracing system once a layout is known. | 40+                    | A 1,2              | 222                       | 8.40                       |
| H1          | NA       | Yew with a section of Escallonia rubra 'Macrantha' | 2          | 100                     | EM         | Sections of mostly yew hedges with one section of Escallonia.<br>Formal box cut hedge to front of main historical buildings                                                                                | Maintain box cutting                                                                                         | 40+                    | B 1                | 5                         | 1.20                       |
| 54          | 2300     | Himalayan birch                                    | 10         | 150                     | Y/EM       | Multi-stemmed specimen of average form with multiple stems of Sawara cypress ( <i>Chamaecyparis pisifera</i> )                                                                                             | None                                                                                                         | 40+                    | B 2                | 10                        | 1.80                       |
| H2          | NA       | Box                                                | 1          | 75                      | EM         | Formal border hedge at entrance to main historic house.                                                                                                                                                    | Continue formal pruning                                                                                      | 40+                    | B 1                | 3                         | 0.90                       |
| 55a, 55b    | NA       | Box                                                | 2          | 100                     | EM         | Formally pruned to an umbrella shape. Located in raised planters on entrance to main historic house.                                                                                                       | Continue formal pruning                                                                                      | 40+                    | B 1                | 5                         | 1.20                       |
| 56          | 1641     | Variegated holly                                   | 7          | /                       | EM/ M      | Located in grounds of old stone house. Extensive crown dieback by some 80%                                                                                                                                 | Fell to ground level                                                                                         | <10                    | U                  | 0                         | 0.00                       |
| 57          | 1642     | Variegated holly                                   | 7          | /                       | EM/ M      | Located in grounds of old stone house. Extensive crown dieback by some 80%                                                                                                                                 | Fell to ground level                                                                                         | <10                    | U                  | 0                         | 0.00                       |
| 58          | 1643     | Variegated holly                                   | 9          | 350                     | EM/ M      | Located in grounds of old stone house. Early crown dieback of lower branches. Discoloured and potentially dysfunctional areas of bark / cambium.                                                           | Monitor crown health annually                                                                                | 10-20                  | B 2                | 55                        | 4.20                       |

| Tree Number | Tree Tag | Species                                     | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                           | Preliminary Management Recommendations  | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|---------------------------------------------|------------|-------------------------|------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                                             |            |                         |            |                                                                                                                |                                         |                        |                    |                           |                            |
| 59          |          | Lawson cypress var. (with juvenile foliage) | 5          | 100                     | Y/EM       | Unremarkable conifer in grounds of old stone house                                                             | None                                    | 20-40                  | C 2                | 5                         | 1.20                       |
| 60          | 429      | Common lime                                 | 20         | 800                     | M          | <b>Protected under Tree Preservation Order</b><br><br>Specimen tree of good form in grounds of historic house. | May require access facilitation pruning | 40+                    | A 2                | 290                       | 9.60                       |
| 61          | 430      | Silver birch                                | 14         | 325                     | EM/<br>M   | Tree of fair form located between buildings                                                                    | May require access facilitation pruning | 20-40                  | C 2,3              | 48                        | 3.90                       |
| 62          | 1644     | Silver birch                                | 15         | 425                     | EM/<br>M   | Tree of good form located between buildings                                                                    | None                                    | 20-40                  | B 2,3              | 82                        | 5.10                       |
| 63          | 432      | Silver birch                                | 12         | 225                     | EM         | Tree of below average form located between buildings                                                           | None                                    | 20-40                  | C 2,3              | 23                        | 2.70                       |
| 64          | 434      | Young' s weeping birch                      | 6          | 275                     | EM         | Tree of average form located between buildings                                                                 | None                                    | 20-40                  | C 2                | 34                        | 3.30                       |
| 65          | 1645     | Young' s weeping birch                      | 4          | 250                     | EM         | Tree of average form located between buildings                                                                 | None                                    | 20-40                  | C 2                | 28                        | 3.00                       |
| 66          | 428      | Lawson cypress var                          | 10         | 400                     | EM         | Thinning crown with possible root damage and broadening base and buttress roots to south and east.             | Consider removal if its near housing    | <10                    | C 2                | 72                        | 4.80                       |

| Tree Number | Tree Tag | Species                             | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                             | Preliminary Management Recommendations          | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-------------------------------------|------------|-------------------------|------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 67          | 1646     | Weeping birch                       | 3          | 325                     | EM         | Suppressed under crown of T66 and the stem soon becomes lateral to east at 3-m AGL.                              | Consider removal                                | 10-20                  | C 2                | 48                        | 3.90                       |
| 68          | 426      | Western catalpa                     | 11         | 325                     | EM         | Tree of good form in grounds surrounding the historic building                                                   | None                                            | 40+                    | B 1,2              | 48                        | 3.90                       |
| 69          | 1647     | Pedunculate oak                     | 10         | 250                     | Y          | Tree of good form but young for species and could be replaced with mitigation planting                           | None                                            | 40+                    | B 2,3              | 28                        | 3.00                       |
| 70          | 1648     | Pedunculate oak                     | 10         | 175                     | Y          | Tree of good form but young for species and could be replaced with mitigation planting                           | None                                            | 40+                    | B 2,3              | 14                        | 2.10                       |
| 71          | 1649     | Pedunculate oak                     | 8          | 150                     | Y          | Tree of good form but young for species and could be replaced with mitigation planting                           | None                                            | 40+                    | B 2,3              | 10                        | 1.80                       |
| 72          | 425      | Silver birch akin to var. 'Obelisk' | 18         | 325                     | EM/M       | Tree of reasonable form                                                                                          | None                                            | 20-40                  | B 2,3              | 48                        | 3.90                       |
| 73          | 1650     | Silver maple                        | 16         | 525                     | M          | Tree of average form, forking at 2-m AGL with west stem soon forking again.<br>Small basal decay cavity to west. | Monitor decay and crown structure every 3 years | 20-40                  | B 2                | 125                       | 6.30                       |
| 74          | 422      | Akin to Stone pine                  | 8          | 350                     | Y/EM       | Tree of average form with limited rooting potential in hard landscaping                                          | None                                            | 20-40                  | C 2                | 55                        | 4.20                       |
| 75          | 421      | Akin to Stone pine                  | 7          | 350                     | Y/EM       | Tree of average form with limited rooting potential in hard landscaping                                          | None                                            | 20-40                  | C 2                | 55                        | 4.20                       |

| Tree Number | Tree Tag | Species                                                | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                | Preliminary Management Recommendations                          | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|--------------------------------------------------------|------------|-------------------------|------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 76          | 1651     | Small-leaved lime                                      | 20         | 700                     | M          | <b>Protected under Tree Preservation Order</b><br><br>Tree of good form.                                            | May require access facilitation pruning                         | 40+                    | A 2                | 222                       | 8.40                       |
| G26         | NA       | Italian cypress var.                                   | 6          | 100                     | Y          | Located in shrub beds within courtyard                                                                              | None                                                            | 40+                    | C 2                | 5                         | 1.20                       |
| G27         | NA       | Ornamental flowering cherry, Himalayan birch, hornbeam | 4          | 75                      | Y          | Located in paved areas within car park. Several have had their leader snapped and/or pruned                         | None                                                            | 20-40                  | C 2                | 3                         | 0.90                       |
| 77a, 77b    | NA       | Weeping cherry                                         | 4          | 125                     | Y          | Trees of average form                                                                                               | Investigate rooting pit and improve rooting space if required   | 20-40                  | C 2                | 7                         | 1.50                       |
| G28         | NA       | Hornbeam                                               | 5          | 150                     | Y          | Located in paved areas within car park.                                                                             | Investigate rooting pit and improve rooting space if required   | 20-40                  | C 2                | 10                        | 1.80                       |
| 78a         | 451      | Hybrid black poplar                                    | /          | /                       | /          | Cankered with crown dieback by 15%. Inherent structural weakness and not deemed suitable for retention near housing | Fell to ground level and replace with better performing species | 10-20                  | U                  | 0                         | 0.00                       |
| 78b         | 450      | Hybrid black poplar                                    | /          | /                       | /          | Cankered with crown dieback by 10%. Inherent structural weakness and not deemed suitable for retention near housing | Fell to ground level and replace with better performing species | 10-20                  | U                  | 0                         | 0.00                       |
| 79          | 449      | Small-leaved lime                                      | 10         | 325                     | EM/M       | Tree of reasonable form with some lower stem epicormic growth                                                       | Remove lower stem epicormics.                                   | 40+                    | B 2                | 48                        | 3.90                       |

| Tree Number | Tree Tag | Species                                                                   | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                           | Preliminary Management Recommendations                                                                                                                                              | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|---------------------------------------------------------------------------|------------|-------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 80          | 448      | Horse chestnut ' <i>Flore Pleno</i> '                                     | /          | /                       | EM         | Bleeding canker of Horse chestnut ( <i>Pseudomonas syringae pv aesculi</i> ) causing coalescing cankers.<br><b>Memorial tree</b>                                                               | Fell and consider replacement and retention of memorial plaque.                                                                                                                     | <10                    | U                  | 0                         | 0.00                       |
| G29         | NA       | Chanticleer pear                                                          | 8          | 225                     | Y/EM       | Three trees planted in a row in narrow grass verge                                                                                                                                             | None                                                                                                                                                                                | 20-40                  | C 2                | 23                        | 2.70                       |
| 81          | 1652     | Himalayan birch                                                           | 8          | 150                     | Y          | Tree of good form with tight compressive forks at 2-m above ground level                                                                                                                       | Monitor fork structure every 3 years                                                                                                                                                | 40+                    | C 2                | 10                        | 1.80                       |
| G30 a, b    | NA       | Myrobalan plum, Himalayan birch, scarlet oak, Southern evergreen magnolia | 8          | 150                     | Y          | Generally, an insignificant group of fair-average form. Planted within shrub beds and amenity grass areas in close proximity to buildings.<br>The magnolia are an unusual species and variety. | G30A - PERSIAN IRONWOOD ( <i>PARROTIA PERSICA</i> ) Y/EM SHRUB. MANUAL TRANSPLANTING. KEEP PRUNING TO A MINIMUM & PLANT IN FULL SUN.<br>G30B - THE MAGNOLIA X 4 TO BE TRANSPLANTED. | 20-40                  | C 2                | 10                        | 1.80                       |
| H3          | NA       | Cherry laurel, dwarf conifer, yucca, firethorn, variegated holly          | 3          | 100                     | EM         | Initially dominated by Cherry laurel to the west providing a dense hedge offering screening but becoming less dense and mixed to the south of tree 104.                                        | Maintain shape through pruning. Plant into gaps using native shrub species.                                                                                                         | 20-40                  | C 2                | 5                         | 1.20                       |
| 82          | 418      | Horse chestnut                                                            |            | 475                     | EM         | Tree of average form with Bleeding canker of Horse chestnut ( <i>Pseudomonas syringae pv aesculi</i> ) and tarry black lesions                                                                 | Monitor health annually                                                                                                                                                             | 40+                    | B 2                | 102                       | 5.70                       |

| Tree Number | Tree Tag              | Species                                                 | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                              | Preliminary Management Recommendations                                     | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|-----------------------|---------------------------------------------------------|------------|-------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| G31         | 417, 1653, 1654, 1657 | Horse chestnut, Norway maple, false acacia, cherry-crab | 10         | 150                     | Y          | Even aged group, planted in a row surrounding the grass verge of car park bays                                                                    | None                                                                       | 40+                    | C 2                | 10                        | 1.80                       |
| 83          | 416                   | False acacia                                            |            |                         | Y          | Extensive dysfunctional bark and cambium with low vitality.<br>Tree of poor form.                                                                 | Fell to ground level                                                       | <10                    | U                  | 0                         | 0.00                       |
| 84          | 415                   | Poplar sp                                               |            |                         | M          | Twin stemmed, having been poorly reduced 'topped' at 8-m AGL.<br>Inherently structurally weak and not deemed suitable for retention near housing. | Fell to ground level                                                       | 10-20                  | U                  | 0                         | 0.00                       |
| G32         | NA                    | Hornbeam, cherry                                        | 5          | 125                     | Y          | Located in paved areas within car park.                                                                                                           | Investigate rooting pit and improve rooting space if required and retained | 20-40                  | C 1                | 7                         | 1.50                       |
| 85          | 411                   | Apple                                                   | 10         | 350                     | M          | Tree of below average form with poorly pruned limb leaving a decaying peg.                                                                        | If retained undertake renovation pruning                                   | 10-20                  | C 2,3              | 55                        | 4.20                       |
| 86          | 414                   | Apple                                                   | 6          | 200                     | EM         | Tree of poor form with decaying pruning wound at 2-m AGL                                                                                          | Consider removal                                                           | 10-20                  | C 2,3              | 18                        | 2.40                       |
| 87          | 412                   | Apple                                                   | 10         | 250                     | EM/<br>M   | Tree of average form.                                                                                                                             | If retained undertake renovation pruning                                   | 10-20                  | C 1,3              | 28                        | 3.00                       |
| 88          | 413                   | Apple                                                   | 10         | 325                     | EM/<br>M   | Tree of below average form with fractured and partially failed limb at 2-m above ground level                                                     | Renovation pruning and target prune fractured limb                         | 10-20                  | C 2,3              | 48                        | 3.90                       |

| Tree Number | Tree Tag | Species           | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Preliminary Management Recommendations                                                                                                                                                                                                                                                                                                                                                                                                                                        | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-------------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 89          | 1658     | Fern-leaved beech | 18         | 575                     | M          | <b>Protected under a Tree Preservation Order.</b><br><br>Specimen tree of an unusual variety. Forks at 1-m AGL to become bifurcated. Multiple low limbs form a deep down-swept crown giving the tree a compact appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 40+                    | A 1,2              | 150                       | 6.90                       |
| 90          | 409      | Foxglove tree     | 16         | 1025                    | M          | <b>Protected under a Tree Preservation Order.</b><br>This is a large specimen tree and an unusual species within the UK.<br>This tree has an eccentric cavity to the east but with adequate sound wall thickness in the three other cardinal points. The buttresses are sound to at least 30-cm depth although it appears one of the main eastern structural roots may have been severed at 1.2 metres from the main stem, perhaps dating back to the construction of the surrounding student accommodation. This species has a relatively soft non-durable wood akin to poplar species, as can be seen from the low amplitude readings of sound wood in the test results. The wind loading and hollowing is having an effect as notable columns of reaction wood are forming as a result of stress and suspected fracture lines in a buttress and the stem itself. Given that this tree will be exposed following the demolition of adjoining buildings, its stem decay and lateral limbs, and its position to the eastern end of the group, if the tree is to be retained with a limited safe useful life expectancy, significant reduction work through crown modification and a close condition monitoring regime must be implemented. Close monitoring must involve an increased inspection regime annually with anticipated | Reduce the crown by 3-m distally and remove all deadwood<br>Reduce the south-western lateral limb by 4-5-m distally<br>Permanently fence out the tree from the proposed open space with high ornamental railings to deter access. Fencing to be set back at 10-m radially from the stem.<br>Place on an annual condition inspection regime paying particular attention to crown physiology.<br>Monitor crown size versus the structural integrity of stem and buttress roots. | 20-40                  | B 1, 2             | 0                         | 0.00                       |

| Tree Number | Tree Tag | Species        | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Preliminary Management Recommendations                                                                                                        | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|----------------|------------|-------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                |            |                         |            | further diagnostic investigation required. Cyclic surgery interventions will also be necessary to control crown size, depending on stem residual wall strength and thickness. Its retention category has been downgraded due to condition issues and reduced amenity value with the required remedial works.                                                                                                                                                                     | NCC FAVOUR FELLING DUE TO CONDITION ISSUES IN HIGH TARGET OCCUPANCY LOCATION.<br><br>Ecologist to inspect for bats prior to works commencing. |                        |                    |                           |                            |
| 91          | 405      | Black mulberry | 11         | 550                     | M          | The tree has a failing compression fork at 1.5-m AGL with a 1-m long split in the union.<br>A ratchet strap has been used to brace the failure and is under tremendous tension.<br><br>Refer to Photograph 15, in Appendices                                                                                                                                                                                                                                                     | Not deemed suitable for retention in a high target occupancy setting.<br><br>Fell to ground level                                             | <10                    | U                  | 137                       | 6.60                       |
| 92          | 404      | Common walnut  | 16         | 625                     | M          | <b>Protected under a Tree Preservation Order.</b><br><br>Specimen tree of good form.<br>Large diameter lateral limb to the south at 2-m distally.<br>Small cavity with notable reaction wood immediately around the opening at 2-m proximal to the parent stem on the west side. A climbing inspection finds the cavity to be structurally insignificant, being no wider than the narrow opening and only 100-mm deep. Use of a sounding hammer finds the decay to be localised. | Branches may need to be temporarily tied up or back for access of machinery.                                                                  | 40+                    | A 1,2              | 177                       | 7.50                       |

| Tree Number | Tree Tag | Species                                                                            | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                      | Preliminary Management Recommendations | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|------------------------------------------------------------------------------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                                                                                    |            |                         |            | Insignificant small decay cavity on south-east lateral limb at 2.5-m AGL, 4-m proximal to parent on the south side.<br>Small diameter deadwood throughout, regarded at a normal level in association with cladoptosis.                                    |                                        |                        |                    |                           |                            |
| 93          | 479      | Magnolia                                                                           | /          | /                       | EM         | Tree of poor form being multi-stemmed from base.<br>Dead north-west stem.<br>The remaining stems are mostly lateral with compressive fork unions.                                                                                                         | Fell to ground level                   | <10                    | U                  | 0                         | 0.00                       |
| G33         | NA       | Beech, Himalayan birch, sweet chestnut, Swamp cypress, fastigate ornamental cherry | 14         | 250                     | Y/EM       | Mixed group of trees, generally of good form.<br>If retained they could be left as a group, but also individual specimens could be selected at this young age.<br>If lost, mitigation planting with large stock is also an option due to their young age. | None                                   | 40+                    | B 2                | 28                        | 3.00                       |
| 94          | 4541     | Lawson cypress                                                                     | 18         | 625                     | M          | Tree of good form.<br>Broadening of base noted to west and south                                                                                                                                                                                          | Sever 1m ivy band.                     | 40+                    | B 2                | 177                       | 7.50                       |
| 95          | 436      | Silver birch                                                                       | 17         | 350                     | EM/<br>M   | Tree of good form, with several bark wounds and a thinning upper crown with small diameter deadwood                                                                                                                                                       | Consider removal                       | <10                    | C 2,3              | 55                        | 4.20                       |
| 96          | 4542     | Silver birch                                                                       | 14         | 350                     | EM/<br>M   | Crown dieback by some 20%                                                                                                                                                                                                                                 | Fell to ground level                   | <10                    | U                  | 55                        | 4.20                       |
| 97          | 438      | Apple                                                                              |            |                         | EM         | Tree of poor form poorly pruned with coalescing decay cavities and wounds on the lower stem.                                                                                                                                                              | Fell to ground level                   | <10                    | U                  | 0                         | 0.00                       |

| Tree Number | Tree Tag | Species         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Preliminary Management Recommendations                                                       | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-----------------|------------|-------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                 |            |                         |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                              |                        |                    |                           |                            |
| 98          | 439      | Apple           |            |                         | EM/<br>M   | Tree of poor form poorly pruned with coalescing decay cavities and wounds on the lower stem.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Fell to ground level                                                                         | <10                    | U                  | 0                         | 0.00                       |
| 99          | 4543     | Himalayan birch | 11         | 150                     | Y          | Tree of good form on edge of bank                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | None                                                                                         | 40+                    | C 2                | 10                        | 1.80                       |
| 100         | 4544     | Foxglove tree   | 16         | 850                     | M          | <p><b>Protected under a Tree Preservation Order.</b></p> <p>Specimen tree and infrequent within the UK. The retention category has been downgraded due to significant structural issues and deemed unsafe to retain.</p> <p>The stem does not have the required minimum sound wall thickness within the stem cylinder, and it fails by a reasonable margin in all directions. In addition, the two and only significant buttresses and structural roots have decay at 200-mm depth. Given the increased exposure that this tree will be subjected to when the three storey buildings are demolished and its location within a small open space within a proposed housing development, it is not deemed practical or safe to retain. A replacement tree will need to be planted, to be advised by the Local Planning Authority.</p> | <p>Fell to ground level.</p> <p>Ecologist to inspect for bats prior to works commencing.</p> | 20-40                  | U                  | 327                       | 10.20                      |

| Tree Number | Tree Tag | Species                            | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                  | Preliminary Management Recommendations                                                                                                                                                                                                         | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|------------------------------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 101         | 4545     | Copper beech                       | 18         | 600                     | EM/<br>M   | <b>Protected by Tree Preservation Order.</b><br><br>Tree of below average form forking at 1.4-m AGL to form, four stems.<br>The fork unions are slightly compressive. | If target occupancy increases, install 4-way cable brace to stabilise the members which should be fitted in full accordance with the recommendations of the British Standard Recommendations for Tree Work 3998: 2010 and reduce crown by 3-m. | 40+                    | B 2                | 163                       | 7.20                       |
| 102         | 403      | Cherry 'Kanzan'                    | 5          | 350                     | EM/<br>M   | Tree of poor form.<br>Typically, congested crown with crossing branches.                                                                                              | Consider removal otherwise<br><br>Remove deadwood, crossing branches and thin crown by 15%.<br>May require access facilitation pruning.                                                                                                        | 10-20                  | C 1                | 55                        | 4.20                       |
| 103         | 402      | Willow-leaved pear                 | 6          | 275                     | EM         | Tree of poor form, subordinate to T101. Ivy clad.                                                                                                                     | Fell to ground level.                                                                                                                                                                                                                          | 10-20                  | U                  | 34                        | 3.30                       |
| 104         | 407      | Common lime                        | 18         | 475                     | EM/<br>M   | Tree of good form on roadside boundary in close proximity to gas sub station                                                                                          | May require access facilitation pruning                                                                                                                                                                                                        | 40+                    | B 2                | 102                       | 5.70                       |
| 105         | 406      | Horse chestnut                     |            |                         | EM/<br>M   | Basal decay with a large coalescing decay cavity on the stem.<br>Decay wound up to 5-m AGL from base.                                                                 | Fell to ground level                                                                                                                                                                                                                           | <10                    | U                  | 0                         | 0.00                       |
| H4          | NA       | Cherry laurel, oval-leaved privet. | 3          | 75                      | Y/EM       | Formal hedge around former nursery, near entrance.                                                                                                                    | Offers some screening                                                                                                                                                                                                                          | 20-40                  | C 2                | 3                         | 0.90                       |
| 106         | NA       | Apple                              | 5          | 100                     | Y          | Insignificant tree in garden of former nursery                                                                                                                        | None                                                                                                                                                                                                                                           | 40+                    | C 2,3              | 5                         | 1.20                       |

| Tree Number | Tree Tag | Species        | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                       | Preliminary Management Recommendations | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|----------------|------------|-------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 107         | NA       | Lawson cypress | 10         | 200                     | EM         | Tree of reasonable form slightly subordinate to T108, in garden of former nursery                                                                                                                                                                                                                                                          | None                                   | 40+                    | C 2                | 18                        | 2.40                       |
| 108         | 4546     | Norway maple   | 15         | 300                     | EM         | Tree of good form in garden of former nursery                                                                                                                                                                                                                                                                                              | None                                   | 40+                    | B 2                | 41                        | 3.60                       |
| 109         | NA       | Rowan          | 6          | 125                     | Y          | Tree of reasonable form in garden of former nursery                                                                                                                                                                                                                                                                                        | None                                   | 40+                    | C 2,3              | 7                         | 1.50                       |
| 110         | 447      | Lawson cypress | 9          | 200                     | EM         | Tree of average form on boundary with road, in garden of former nursery.<br>Twin-stemmed forking from base under slight compression.                                                                                                                                                                                                       | Consider removal                       | 20-40                  | C 2                | 18                        | 2.40                       |
| 111         | NA       | Lawson cypress | 8          | 200                     | Y/EM       | Tree of average form on boundary with road, in former garden of nursery. Subordinate to T112.                                                                                                                                                                                                                                              | None                                   | 40+                    | C 2                | 18                        | 2.40                       |
| 112         | 4548     | Ash            | 16         | 400                     | EM/<br>M   | Tree of below average form on boundary with road, in garden of former nursery.<br>Forks under tension at 1.2-m AGL and several times again to form an open broad crown.<br>Likely to outgrow its position and damage the boundary wall in time as secondary stem thickening occurs and cell turgor pressure of its roots disturb the wall. | Consider removal                       | 20-40                  | C 2,3              | 72                        | 4.80                       |
| 113         | 4547     | Sycamore       |            |                         | EM         | Twin-stemmed specimen from base, forking under compression, at 4-m AGL.                                                                                                                                                                                                                                                                    | Fell to ground level                   | 40+                    | U                  | 0                         | 0.00                       |
| 114         | 4549     | Sycamore       | 15         | 325                     | EM         | Tree of below average form on boundary with road, in garden of former nursery.                                                                                                                                                                                                                                                             | Consider removal                       | 40+                    | C 2                | 48                        | 3.90                       |

| Tree Number | Tree Tag | Species         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                         | Preliminary Management Recommendations | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-----------------|------------|-------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
|             |          |                 |            |                         |            | Forks under compression at 3-m AGL. Crossing stems at 5-m AGL.                                                                                                                                                                                               |                                        |                        |                    |                           |                            |
| 115         | 4550     | Leyland cypress | 17         | 450                     | M          | Formally twin-stemmed with the south stem having been removed.<br>Significant butt sweep, leaning slightly eastwards with mounding of soil to the west and a notable gap formed between its roots and the wall.<br><br>Refer to Photograph 20, in Appendices | Fell to ground level                   | 10-20                  | U                  | 0                         | 0.00                       |
| G34 a       | NA       | Hazel, hawthorn | 10         | 150                     | EM/<br>M   | Primarily located in garden behind timber board fence                                                                                                                                                                                                        | None                                   | 20-40                  | C 2,3              | 10                        | 1.80                       |
| G34 b, c    | NA       | Holly, hawthorn | 11         | 275                     | EM/<br>M   | Small group bordering end of garden offering some screening value.                                                                                                                                                                                           | None                                   | 20-40                  | C 2,3              | 34                        | 3.30                       |
| H5          | NA       | Lawson cypress  | 3          | 200                     | Y/EM       | Small section of hedge, bordering end of garden offering screening.<br>Unkempt on the side of the Public Right of Way but has been reduced in height.                                                                                                        | None                                   | 40+                    | C 2                | 18                        | 2.40                       |
| 116         | NA       | Sessile oak     | 16         | 600                     | M          | Dominant tree located in garden beyond conifer hedge (H5).                                                                                                                                                                                                   | None                                   | 40+                    | A 2,3              | 163                       | 7.20                       |

| Tree Number    | Tree Tag | Species                                  | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                                                                                                                                                                                                                      | Preliminary Management Recommendations                                                                                                                                                                                     | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|----------------|----------|------------------------------------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| G35<br>a, b, c | NA       | Ash, hawthorn, field maple, elder, hazel | 10         | 250                     | EM/<br>M   | Remnant unkempt native banked hedge. Occasionally sporadic.<br>In the case of G35c an open narrow woodland abuts with a public open space further afield.<br>Larger individual trees have been recorded if their RPA exceeds that of the remnant hedge.<br>Open deep banked stream to west of hedge, which is culverted to the southern end.<br>Larger trees on far side of stream are not considered as their roots and crowns do not pose a constraint. | Subject to ownership, fell dead hawthorn to south of G35a.<br>Tip back overhanging branches to give 2.4-m clearance along path.<br><br>Note - Potential mitigation opportunity to plant up gaps with native hedge species. | 40+                    | B 2,3              | 28                        | 3.00                       |
| 117            | NA       | Sessile oak                              | 16         | 750                     | M          | Tree of good form in remnant banked hedge.                                                                                                                                                                                                                                                                                                                                                                                                                | Remove deadwood                                                                                                                                                                                                            | 40+                    | B 2,3              | 254                       | 9.00                       |
| 118            | NA       | Ash                                      | 11         | 150                     | Y          | Twin stemmed tree of poor form                                                                                                                                                                                                                                                                                                                                                                                                                            | None                                                                                                                                                                                                                       | 40+                    | C 2,3              | 10                        | 1.80                       |
| 119            | NA       | Sessile oak                              | 19         | 950                     | M          | Dominant tree located in scrub wood beyond G35c.<br>Small basal decay cavity to west.<br>Small and medium diameter deadwood.                                                                                                                                                                                                                                                                                                                              | Subject to ownership, remove deadwood over target only                                                                                                                                                                     | 40+                    | A 2,3              | 408                       | 11.40                      |
| G36            | NA       | Ash, field maple                         | 13         | 300                     | EM         | Four trees of fair form in close proximity to boundary fence.                                                                                                                                                                                                                                                                                                                                                                                             | None                                                                                                                                                                                                                       | 40+                    | C 2,3              | 41                        | 3.60                       |

| Tree Number | Tree Tag | Species                                                                                                                                            | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                           | Preliminary Management Recommendations                       | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| H6          | NA       | Leyland cypress with mixed broadleaves & a cherry laurel                                                                                           | 11         | 200                     | Y          | Located in garden of adjoining properties and overhanging the Public Right of Way. Unclear if they are rooting under the Public Right of Way.                                                                                  | Subject to ownership, Crown lift overhang to 2.4m clearance. | 40+                    | C 2                | 18                        | 2.40                       |
| G37 a, b    | NA       | Hawthorn, Lawson cypress, holly var, Norway spruce, rowan, cherry, Mexican orange blossom, flowering current, firethorn, & other ornamental shrubs | 10         | 150                     | Y/EM       | Located in gardens of adjoining properties and just overhang the Public Right of Way in certain places. Occasionally sporadic. Unlikely to be rooting under the Public Right of Way.                                           | None                                                         | 40+                    | C 2                | 10                        | 1.80                       |
| 120         | NA       | Pedunculate oak                                                                                                                                    | 12         | 450                     | EM         | Tree of fair form in garden of adjoining property, with its crown overhanging the Public Right of Way. Unclear if its rooting under the tarmac path. Slightly thinning crown with deadwood over path.                          | Subject to ownership, remove overhanging deadwood to path    | 40+                    | B 2,3              | 92                        | 5.40                       |
| G38         | NA       | Hawthorn, holly, ash, horse chestnut                                                                                                               | 10         | 200                     | Y/EM       | Unremarkable group of trees on small section of land adjoining the Public Right of Way, off Ponthir road. Crowns just overhang the path in a few locations, and they are unlikely to be rooting under the Public Right of Way. | None                                                         | 40+                    | C 2,3              | 18                        | 2.40                       |

| Tree Number | Tree Tag | Species         | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                                                                                                                      | Preliminary Management Recommendations                                                                                              | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-----------------|------------|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| 121         | NA       | Sycamore        | 10         | 175                     | Y/EM       | Multi-stemmed specimen in G23, derived from a stool abutting boundary fence and Public Right of Way.<br>Already in contact with fence and some signs of rooting under the Public Right of Way.                                                            | Consider felling and treat stump with herbicide to cease regrowth in accordance with manufacturer's instructions.                   | 40+                    | C 2                | 14                        | 2.10                       |
| 122         | NA       | Pedunculate oak | 14         | 450                     | EM/M       | Tree of good form in G23, within influencing distance of Public Right of Way, with an overhanging crown but is unlikely to be rooting under the tarmac path.                                                                                              | None                                                                                                                                | 40+                    | B 2,3              | 92                        | 5.40                       |
| G39         | NA       | Ash, hawthorn   | 10         | 150                     | Y/EM       | Two ash in group adjoin the boundary fence in G23, whereas the more mature hawthorn is set back.<br><br>The ash will be rooting under the Public Right of Way but it's unlikely the hawthorn will be.                                                     | Consider felling the two ash trees and treat stump with herbicide to cease regrowth in accordance with manufacturer's instructions. | 10-20                  | C 2,3              | 10                        | 1.80                       |
| 123         | NA       | Sycamore        | 16         | 500                     | EM/M       | Tree of reasonable form on boundary fence within G23.<br><br>Becomes bifurcated at 2.5-m AGL with the fork union formed under slight compression.<br><br>The crown overhangs Public Right of Way and roots seemingly occur underneath the tarmac surface. | Remove ivy on main fork and inspect.                                                                                                | 40+                    | B 2                | 113                       | 6.00                       |

| Tree Number | Tree Tag | Species           | Height (M) | Effectual Diameter (mm) | Life stage | General Observations                                                                                                                                              | Preliminary Management Recommendations | Remaining Contribution | Retention Category | Root Protection Area (M2) | Root Protection Radius (M) |
|-------------|----------|-------------------|------------|-------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------|--------------------|---------------------------|----------------------------|
| G40         | NA       | Sycamore with ash | 20         | 450                     | EM/<br>M   | Linear group of trees in G23 within 2-3-m of the boundary fence.<br>Crowns overhang the Public Right of Way and there are signs of rooting under the tarmac path. | Remove ivy on main forks and inspect.  | 20-40                  | B 2,3              | 92                        | 5.40                       |

### Tree Felling and Surgery

Under normal circumstances, the 'approved<sup>2</sup>' tree surgery and felling works should be completed in full prior to the erection of the Tree Protective Barrier Fencing and must come within the Watching Brief element.

Any additional access facilitation pruning to that already recommended and deemed necessary to prevent injurious contact between demolition plant and the tree(s) should be listed and presented to the LPA for approval. In some cases, working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturist.

All approved tree works should only be undertaken by a competent arboricultural contractor who shall be made known to the LPA in writing 5 days prior to commencement for their approval.

Tree works shall be supervised by the Project Arborist through the Watching Brief element.

All trees approved for felling (shown on the 'approved' Tree Protection Plan with Tree Retention / Removal) should be clearly marked by the Project Arborist on-site beforehand.

Tree felling should be undertaken with caution to prevent damage to retained trees and particularly their roots underground. Crush injuries will occur to roots of retained trees if felled within their RPA. In such instances, crash-matts should be used. No vehicles are permitted within the RPA of any retained tree, without the use of load spreading material.

All contractors and site operatives should be made aware of planning conditions relating to trees within and adjacent to the site and of any Tree Preservation Order or other site designation which may be relevant, through the provision of 'toolbox talks'.

**NOTE** - Legal issues relating to tree felling should also be observed. Refer to Section 'Legal Constraints'.

ANY LANDOWNER OR LAND MANAGER SHOULD BE AWARE THAT - Trees must receive regular tree inspections by persons with adequate specialist arboricultural qualifications. A landowner has a duty of care imposed by statute and common law to do so and keep records of such (see legal constraints below). For further advice contact [www.trees.org.uk](http://www.trees.org.uk)

Tree felling and surgery works should only be undertaken by trained, competent and appropriately certificated personal with adequate experience and public, third party and employers liability insurance to £5,000,00. Always ask for proof from the contractors prior to engagement and seek references where necessary.

### Translocated Trees.

As identified within Planning Condition 10.0 and labelled on the Tree Protection Plan, the proposed translocation of the *Magnolia grandiflora* (x4), Japanese maple (*Acer palmatum*) glade and the singular Persian ironwood (*Parrotia persica*) must be undertaken prior to any demolition activities.

This requires a specification that should form part of the sites overall landscape plan to ensure their new planting positions, are best suited to their climactic and site requirements, and that their maintenance ensures they thrive.

<sup>2</sup> Approved by the Local Planning Authority

### Tree Protection Fencing

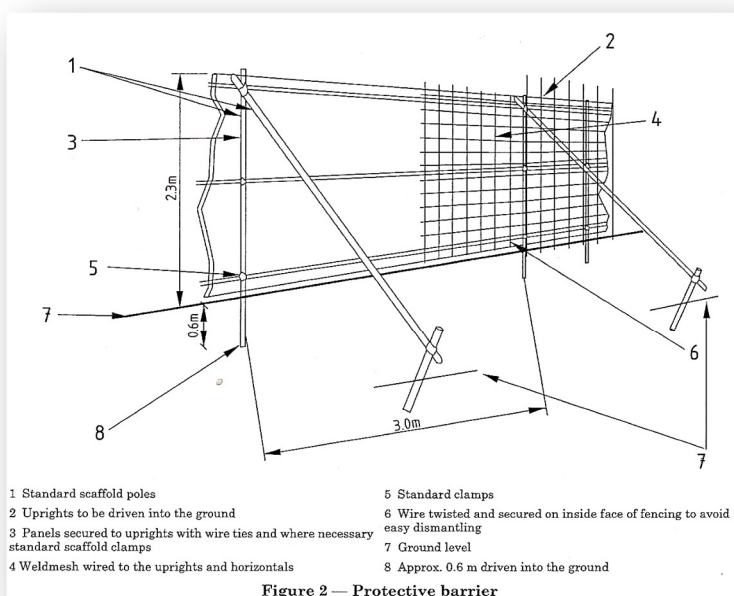
Before any materials or machinery are brought onto site, demolition, stripping of soil or development of any kind commences, all trees to be retained must be protected using robust physical barriers (Refer to Fig 2 & Fig 2 , below) and where necessary, ground protection plates positioned. The correct location for the Tree Protection Barriers is shown in the Tree Retention, Removal & Protection Plan in the Appendices. Prior to any construction activity and where due to site constraints construction activity cannot be fully or permanently excluded from all or part of a tree's RPA, appropriate ground, tree stem, and low crown protection must be installed under the guidance of the Project Arborist. Barriers should be monitored and maintained throughout the construction phase to ensure they remain rigid, complete and fit for purpose

### NOTES

- Any works occurring within any RPA **must** be covered by an 'Approved' <sup>3</sup> Arboricultural Method Statement and may only proceed under the supervision of the Project Arborist.
- Where required, pre-development tree work may be undertaken before the installation of tree protection measures under the guidance of the Project Arborist and with the agreement of the Local Planning Authority. However, no vehicles will be permitted within any unprotected RPA of retained trees and works must be carried out with due consideration and without causing injury to any retained tree.
- It should be confirmed by the Project Arborist that the barriers and any necessary ground protection are installed correctly prior to the commencement of any other operation and the LPA informed who may wish to attend site and view it first-hand.

### Individual Trees – Protected using Default Specification (Fig 2).

The default tree protection fencing specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts. The vertical tubes should be spaced at a maximum interval of 3 metres and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

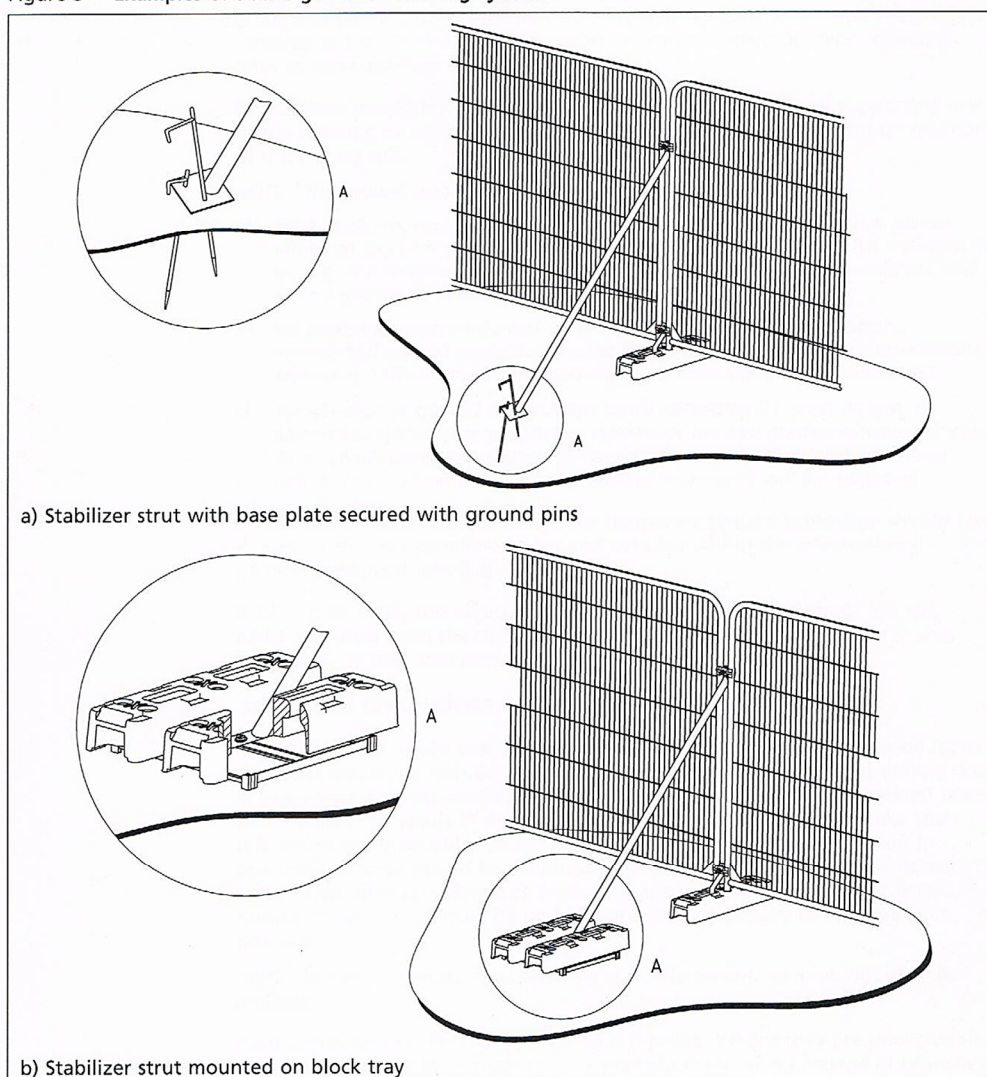


<sup>3</sup> Approved by the Local Planning Authority

### Groups & Hedges – Protected using the Alternate Specification

Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification can be applied. Erect 2-metre-tall, welded mesh panels on rubber or concrete feet might provide an adequate level of protection from cars, vans, pedestrians and manually operated plant. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1 metre and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins (Figure 3a). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

Figure 3 Examples of above-ground stabilizing systems



### NOTES

- It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.
- All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE - NO ACCESS".



#### REMOVAL OF EXISTING STRUCTURES AND HARD SURFACES

Demolition of the existing buildings is required, and this is a substantial undertaking on this site. Retained trees that are particularly close in proximity to existing structures includes G23 (south section), T30-51, T76, T88, T89, T90, T92, T102, T101 & T109.

#### NOTE.

Phase 1 demolition has been previously considered within <sup>4</sup>, the principals of which can be rolled out across all phases of demolition. Further general guidance is given below:-

#### Recommendations

1. Engage a Project Arborist for the duration of works to monitor and to provide arboricultural advice as necessary.
2. The erection of protective barrier fencing must be in place and approved by the Project Arborist prior to any demolition activities including the movement of plant, equipment and storage of materials. This can be phased in accordance with demolition activities if supervised by the Project Arborist and agreed by the Local Planning Authority.
3. Once the barrier fencing is erected, the Project Arborist must inspect and sign off as adequate and fit for purpose prior to any site movement or possession by contractors is made.
4. All plant, demolition & dust suppression equipment **must** operate outside of the Root Protection Area or crown spread whichever the greater. this includes the storage even temporarily of materials and any arisings. If this is not possible, tree

<sup>4</sup> Caerleon University Campus Arboricultural Method Statement\_TPP Phase 1 Demolition. July 2020. S. Ambler

protection fencing may only be offset to expose some of the RPA in consultation and under supervision of the Project Arborist providing :-

- It is covered by an approved <sup>3</sup> Arboricultural Method Statement.
  - Suitable ground protection is installed.
  - Stems are protected where necessary.
  - Low branches are tied back or pruned back if part of an approved schedule of works, prior to commencement of operations, all to the satisfaction of the Project Arborist / LPA.
5. The advice of an Arboriculturist should be sought where underground structures are present within the RPA (none known at this time) which are, or will become, redundant. In general, it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.
  6. When removing existing hard surfaces above RPA's – all plant and equipment should operate whilst positioned on the existing hard surface. Plant and equipment should not encounter any unprotected ground surface and where the existing hard surface being removed is not strong enough or of sufficient width to offer support, then load spreading ground plates shall be necessary. Care should be taken not to disturb tree roots that might be present beneath it.
  7. Demolition and removal of hard surfaces must be undertaken in a way that does not cause soil compaction within an RPA or an area highlighted for planting or physically encounter and injure above ground parts of any retained tree.
  8. Great care should be taken not to damage the trunk or branch framework and additional protection may be necessary e.g. trunk protection and tying back branches.
  9. Hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that any plant or machinery is not moving over exposed ground.
  10. Where any tree stands adjacent to a structure scheduled for demolition, levels of dust are likely to build up on the trees. This can have a damaging effect on the health of a tree where it becomes particularly heavy during the summer months when trees are in full leaf and actively growing. Where this occurs, it should be monitored and removed through hosing down when deemed necessary by the Project Arborist.
  11. Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without encountering the RPA, trunks stems or branches of any retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any movement of plant or machinery in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times.

## INFRASTRUCTURE REQUIREMENTS AND SERVICE SUPPLIES

Tree roots can be damaged where services are installed within the RPA of any retained tree. Also, disruption to underground services may occur if they are placed within the root-plate zone as tree roots can cause damage to them. The RPA therefore should be taken as a minimum constraint to the development with regards the installation of underground services and greater distances should be allowed where possible.

The trees crown is also a constraint to the development and should be considered when seeking to install services or when operating plant and equipment. Sometimes the crown of a tree exceeds the RPA. Both matters will be considered in detail within the Arboricultural Method Statement.

### Services.

As would be expected on a site of this nature having supported a developing University Campus, the provision of existing services occurs throughout the proposed re-development area. A review of the current and proposed water; electricity; gas; BT; streetlighting; foul & surface water plans found several routes in areas of trees or in close proximity. Certain services (marked with 'X' s on the service plans) are proposed for disconnection near trees G1, G23 (TPO), T53 (TPO), T76 (TPO), T104 in favour of diversions that do not affect trees.

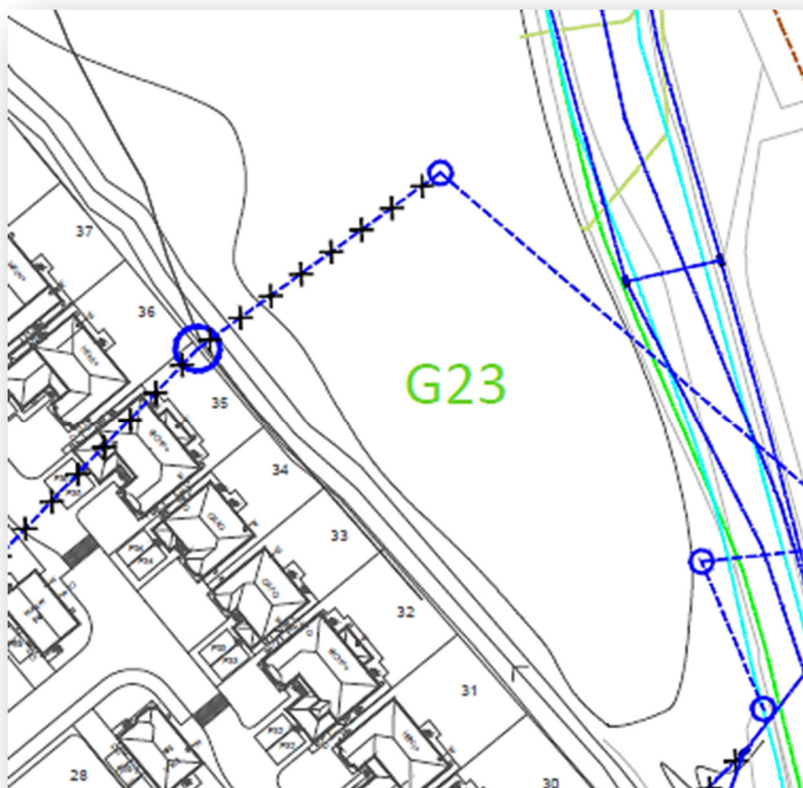
**The are no proposed services or diversions that will affect the Root Protection Area of trees . Those services being discontinued will be left in-situ within treed areas, so as to cause no disruption.**

**NOTE.** Plan extracts are taken from an annotated Tree Protection Plan or Proposed Utility-Disconnections & Diversions Plan MU-002 (SMS PLC 2019).

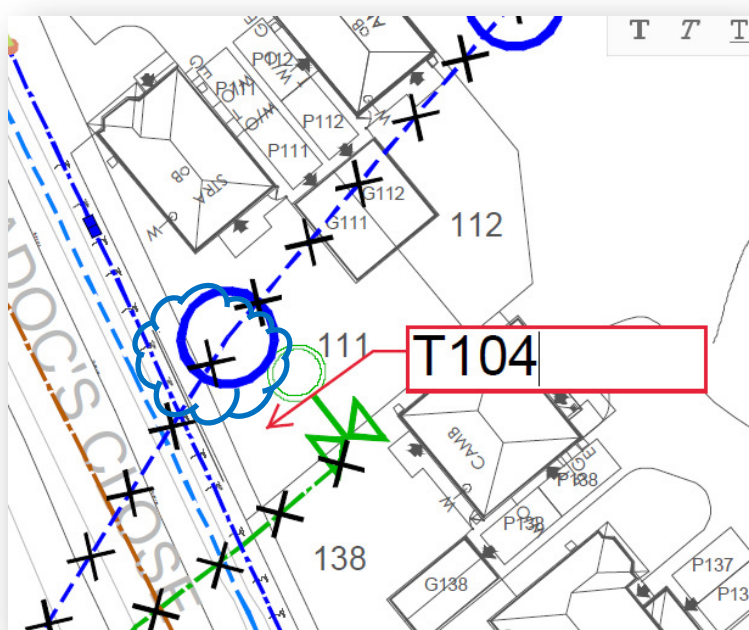
**Plan Extract 1.** Group 23, northern section (TPO) with existing underground water, electricity & sewer runs.



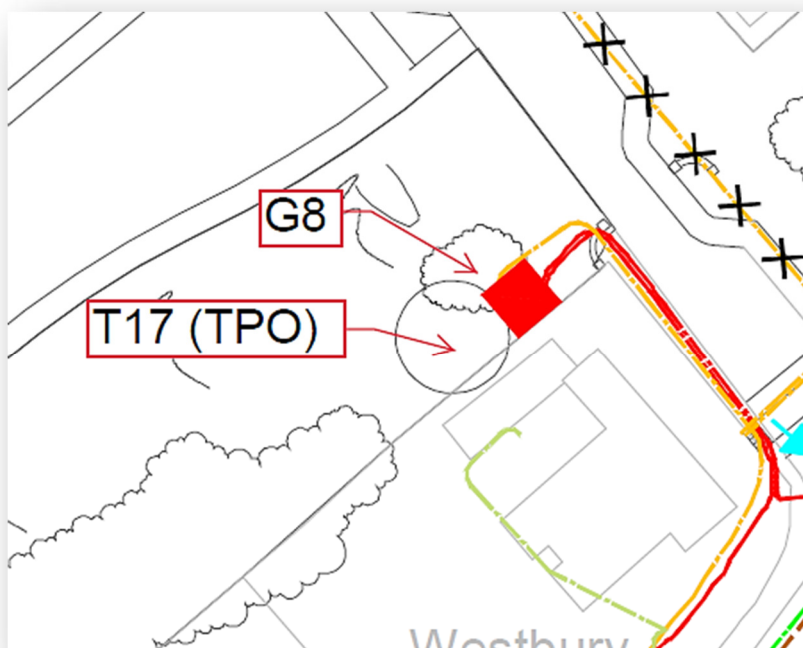
Plan Extract 2. Group 23 (southern section) Intermittent blue line are overhead BT Cables.



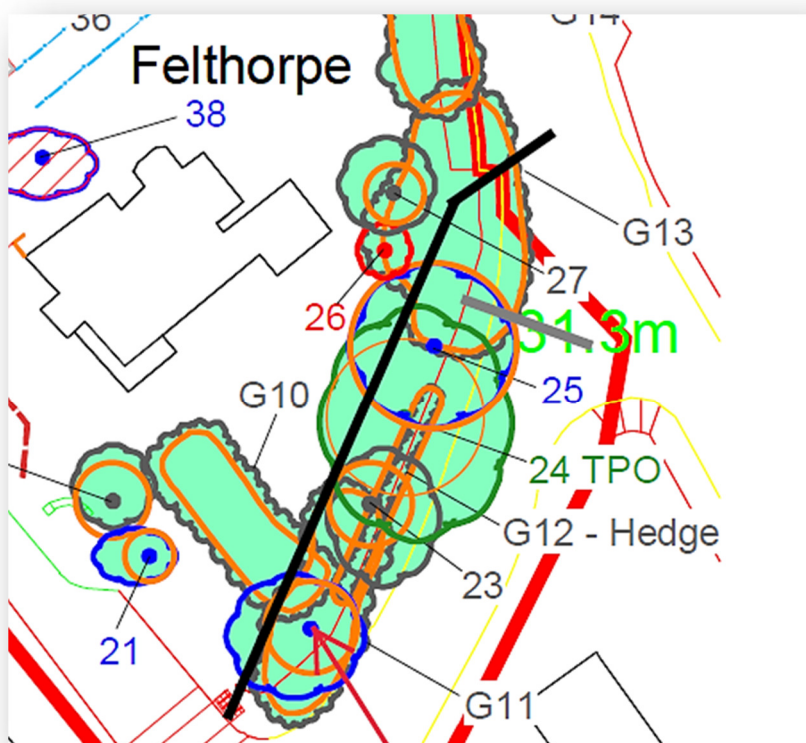
Plan Extract 3. Tree 104 with gas mains and apparatus (green lines)



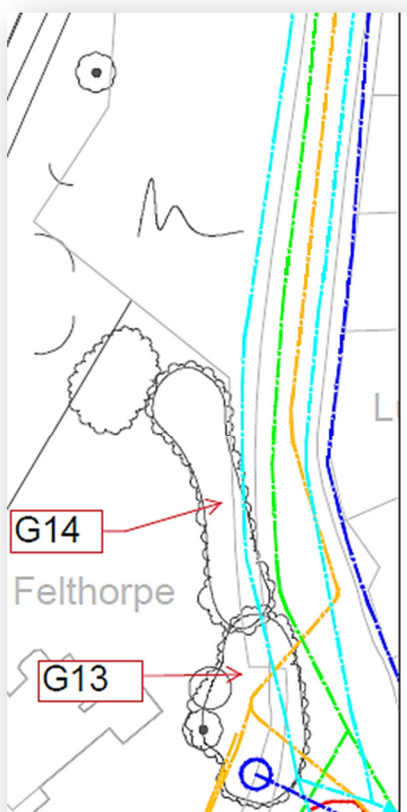
Plan Extract 4. Group 8 & T107 (TPO) underground electricity cable and sub-station (red line)



Plan Extract 5. Black line indicates approximate route of underground electricity cable with grey line showing overhead cable.



**Plan Extract 6.** Water mains at toe of bank, north of Lodge entrance (pale blue line)



#### Generic Arboricultural Method Statement – Services.

##### **NOTE.**

The National Joint Utilities Guidance 4 (NJUG), which is a guide for utility companies when installing services, is not relevant under Planning Conditions and the more stringent protection measures under Section 7.7. of BS5837 Trees in relation to design, demolition and construction – Recommendations (2012), apply. Utility companies must be instructed accordingly and follow the aforementioned British Standard.

Services to be disconnected in the vicinity of trees (G1, G23 (TPO), T53 (TPO), T76 (TPO), T104) will not involve the removal of any apparatus as this has the potential to disrupt and damage tree roots or crowns. A number of the trees affected are afforded protection under a Tree Preservation Order. Should this change and any apparatus needs to be removed within the Root Protection Area or crown spread of retained trees then a method must be agreed in consultation with the Project Arborist and under their supervision.

Although no services are currently shown to conflict with an RPA, it is recognised that occasionally further connections or diversions may be required or when pegging-out, service runs may be altered slightly due to drawing to ground discrepancies or to suit local conditions. Where this is the case, detailed plans showing the proposed re-routing and conflict should be drawn up in conjunction with the Project Arboriculturist for approval and will require their supervision.

Mechanical trenching for the installation of underground apparatus and drainage severs any tree roots present and can change the local soil hydrology in a way that adversely affects the health of the tree/s. In such cases, trenchless insertion methods should be used (See Table 3, below), with entry and retrieval pits being sited outside the RPA. If roots can be retained and protected in accordance with item 7.2.2 of the relevant British Standard, excavation using hand-held tools might be acceptable for shallow service runs. Such works must be under the supervision of the Project Arborist.

**Table 3 Trenchless solutions for differing utility apparatus installation requirements**

| Method                                | Accuracy          | Bore dia. <sup>A)</sup> | Max. sub. <sup>B)</sup> length | Applications                                                            | Not suitable for                                                       |
|---------------------------------------|-------------------|-------------------------|--------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------|
|                                       | mm                | mm                      | m                              |                                                                         |                                                                        |
| Microtunnelling                       | <20               | 100 to 300              | 40                             | Gravity-fall pipes, deep apparatus, watercourse/ roadway undercrossings | Low-cost projects due to relative expense                              |
| Surface-launched directional drilling | ≈100              | 25 to 1 200             | 150                            | Pressure pipes, cables including fibre optic                            | Gravity-fall pipes, e.g. drains and sewers <sup>C)</sup>               |
| Pipe ramming                          | ≈150              | 150 to 2 000            | 70                             | Any large-bore pipes and ducts                                          | Rocky and other heavily obstructed soils                               |
| Impact moling <sup>D)</sup>           | ≈50 <sup>E)</sup> | 30 to 180 <sup>F)</sup> | 40                             | Gas, water and cable connections, e.g. from street to property          | Any application that requires accuracy over distances in excess of 5 m |

<sup>A)</sup> Dependent on strata encountered.

<sup>B)</sup> Maximum subterranean length.

<sup>C)</sup> Pit-launched directional drilling can be used for gravity fall pipes up to 20 m subterranean length.

<sup>D)</sup> Impact moling (also known as thrust-bore) generally requires soft, cohesive soils.

<sup>E)</sup> Substantial inverse relationship between accuracy and distance.

<sup>F)</sup> Figures given relate to single pass: up to 300 mm bore achievable with multiple passes.

## Infrastructure & Retaining Structures

### Level Changes.

There are notable level changes required on this site most notably to the eastern section of the development, hence the loss of several trees in this area, most notably T39 & G18. However, on production of the detailed levels plan albeit in draft form (Drawing Numbers: 19399\_C-300\_1-5. QuadConsult), there are no additional losses from those discussed during the early site meetings between NCC's Tree Officer, Redrow and the Project Arborist.

### Retaining Structures.

Due to the sloping ground, there may be areas where retaining structures are required, however based on current plans there are no requirements for such structures within the Root Protection Area of retained trees and the following is a generic approach should retaining structures be required.

### Generic Arboricultural Method Statement – Retaining Structures

Installing retaining structures within any Root Protection Area to facilitate changes in ground level would need to follow the same principles shown in Specialists Foundations below, to negate the adverse effect strip foundations have on tree roots. In addition, where levels are being raised above existing RPA's or where future tree root growth may be affected by the raising in ground levels then allowance should be made for the respiration of tree roots which require an exchange of gaseous between the soil and atmosphere. This can be achieved using bespoke design of a venting system to suit the particular situation and should be agreed with the Project Arborist and other relevant academics where necessary. The basic elements of this design are likely to include a clean stone envelope and venting pipes between the existing and new levels.

Extreme care will be required when designing and constructing any retaining structures within a Root Protection Area. There will be a need for consultation between the Engineers and Project Arborist at the design stage and supervision of such construction. When assessing any work within a Root Protection Area the Tree Survey & Tree Constraints Plan for a site will need to be used as an

overlay during the design and consultation process in order to accurately assess the potentially significant constraints posed by trees in such a location.

As the ground level / engineering plans are in draft format, any changes to the ground level plans and proposed retaining structures should they occur in close proximity to trees, will require consultation with the Project Arborist beforehand, and may require written approval via the Local Planning Authority, if they infringe upon any Root Protection Areas.

#### **Generic Specialist Engineering for Foundations within the Root Protection Area.**

**There are no strip foundations proposed within the Root Protection Area of trees, and the following would only apply if this changed:-**

The use of traditional strip footings can result in extensive root loss and should be avoided. The insertion of specially engineered structures within RPAs may be justified if this enables the retention of a good quality tree that would otherwise be lost (usually categories A or B).

Designs for footings that would minimize adverse impact on trees should include particular attention to existing levels, proposed finished levels and cross-sectional details. In order to arrive at a suitable solution, site-specific and specialist advice regarding design should be sought from an engineer and assessed by the project arboriculturist in relation to tree health. In shrinkable soils, the foundation design should take account of the risk of indirect damage.

Light structures can be disrupted by tree roots through cell turgor pressure and through the secondary thickening process of tree stems. This requires consideration when placing such structures near trees. Refer to Table A1, found later in this report in Section Impact Assessment of Development on Trees. The use of root barrier proprietary products such as ReRoot (Green Blue Urban Products) may be required.

Root damage can be minimized by using:

- Piles, with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600 mm;
- Beams/lintels, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.

Whilst alternative solutions should be found wherever possible, it is in principle plausible to build above the RPA of a retained tree providing it can be achieved with no digging. This is often possible using a raft concrete slab or the use of stone gabions etc, positioned above the existing ground levels and can be implemented with no digging, scrapping, compacting or pollution of the soil. Such designs must include consultation with the Project Arborist. The availability of water for trees or where a structure retains or diverts water requires consideration in order to avoid issues in relation to soil erosion, waterlogging, reduced water availability or pollution.

The following Arboricultural Method Statement principals will apply and must be undertaken with the supervision of the Project Arborist. This may be amended to suit specific operations.

## GENERIC WORKING METHOD

- 1) Construction should ideally be undertaken when the ground is driest and least prone to compaction.
- 2) Kill ground vegetation using a translocated herbicide such as glyphosate<sup>5</sup>. After some time, gather up the dead organic material to prevent the build-up of anaerobic conditions beneath the construction, which might otherwise occur as vegetation begins to decompose.
- 3) Take care when constructing not to compact the soil or cause root damage. There must not be any vehicle or plant movement within the Root Protection Area. If work cannot be carried out from outside the RPA then the ground must be protected by 'load spreaders' along the construction length and breadth.
- 4) Remove major protrusions such as rocks and tree or shrub stumps (stumps should be ground out rather than excavated to minimise soil disturbance).
- 5) Fill major hollows with sharp lime/salt free sand. DO NOT GRADE-OFF HIGH SPOTS
- 6) Lay an impermeable membrane over the base area prior to pouring of concrete to prevent leachate.
- 7) Secure any shuttering using long pins driven into the ground through the membrane. Pegs should be long enough to give sufficient support for the construction. NOTE - before driving pegs or pins into the ground, check for underground services that could be damaged.

### Drainage Ditches & Swales.

The positioning of swales are on occasion close to Root Protection Areas, but do not infringe upon them. On Plan Extract 7f (cross section T6), there is an infringement shown into the theoretical Root Protection Area of Tree 32, a mature Lawson cypress (*Chamaecyparis lawsoniana*). However, the infringement does not exist as the west side of the Root Protection Area would be curtailed by the existing buildings and hardstanding, with an elevated ground level change.

The trees in close proximity to the swales are in maturity and unlikely to significantly increase in size and therefore their rooting area demand should not significantly increase. The design layout in this area reflects the previous footprint and therefore the developed area remains very similar. They all have a good unaffected rooting area with potential for expansion if required, to all other cardinal points away from the swales, and in the case of T116 (cross section T13) the main rooting area is located primarily within an existing garden of an adjoining house with its rooting potential limited to the east by the Public Right of Way and existing site infrastructure. The swales may well intercept excessive water run-off, however they are designed to allow this water to permeate through the soil in a controlled manner and the trees being downslope of them, should still benefit from unaffected water supplies. The trees in themselves are extremely adept at increasing soil permeability and of course utilise significant water volumes.

The remaining cross sections are in locations away from swales and indicate no obvious ground level changes in relation to trees and are not considered any further.

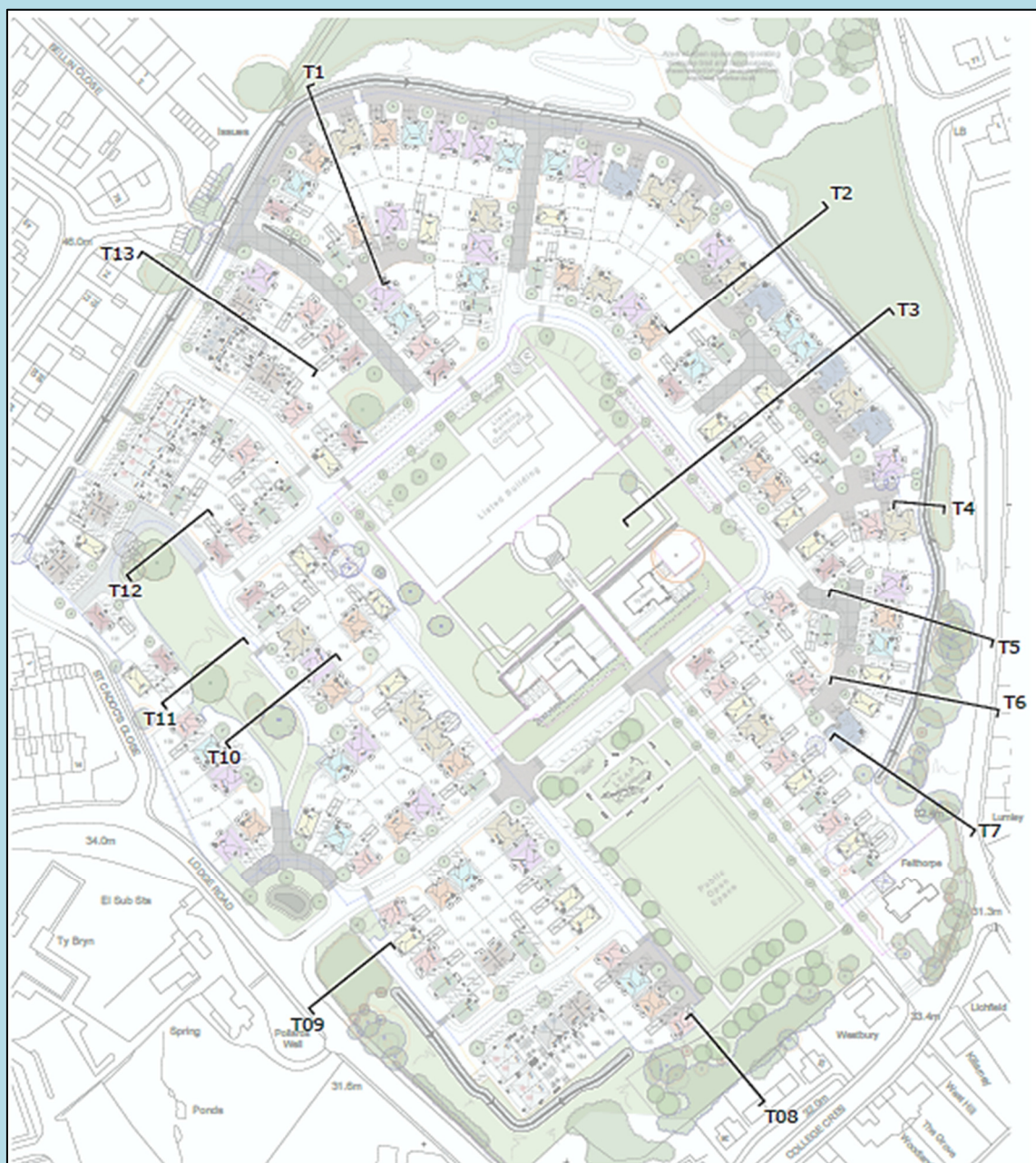
**NOTE.** The dimensions of the crown spread and Root Protection Area shown within cross-section drawings are taken from the Tree Survey<sup>1</sup>, whereas the tree and group graphics are indicative and can on occasion be misleading i.e. Cross section T3 shows the stems of Group 21 extending beyond its own Root Protection Area, towards the swale, which is not accurate.

On the coloured overview plan below, the relevant sections in relation to trees and swales are – Cross sections T1 – T4, T5, T6, T7 & T13 (please note the prefix T and numbers do not relate to individual tree numbers within the Tree Protection Plan).

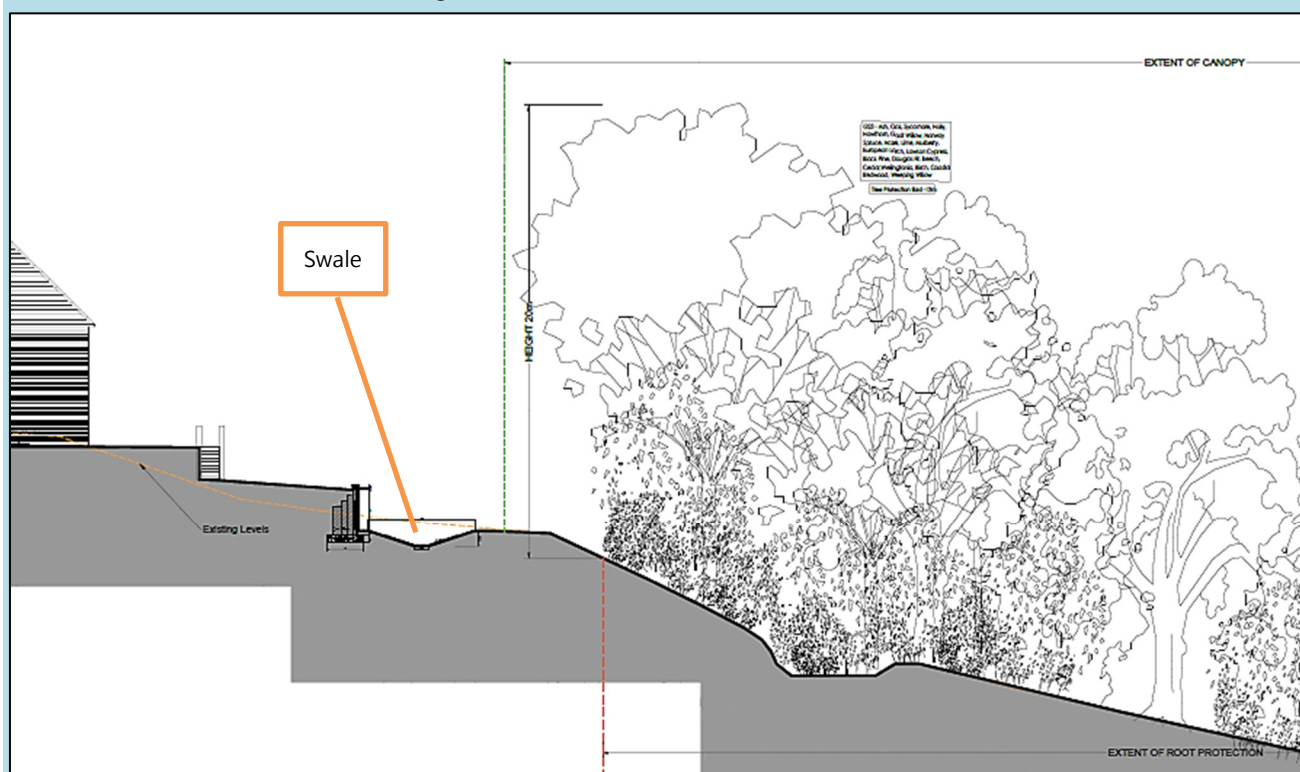
The relevant cross-sectional plans depicting swales near trees, are shown below.

<sup>5</sup> Pesticides can be dangerous...refer to manufactures instructions and follow the advice on the label carefully. Pesticides should only be used by competent personnel.

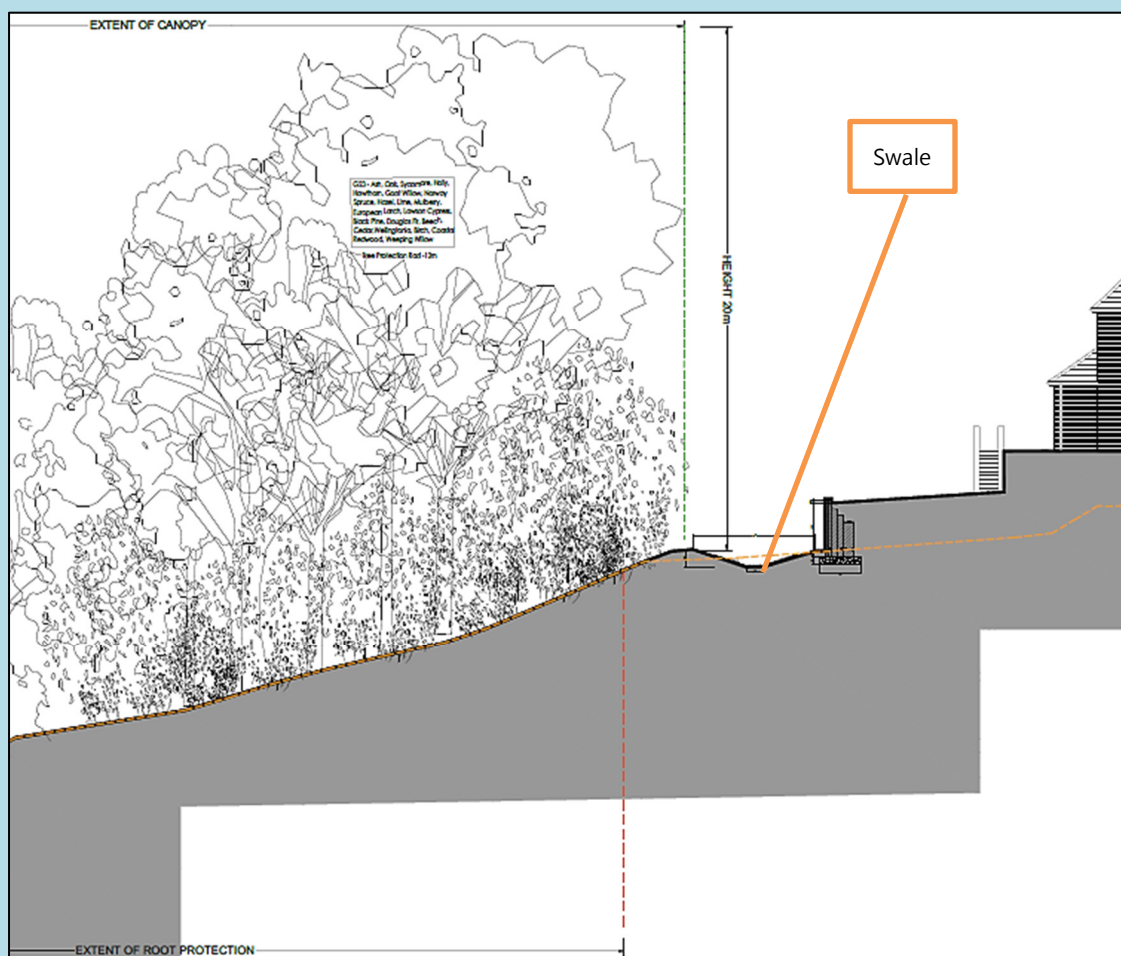
## Engineering Cross Sections Plan



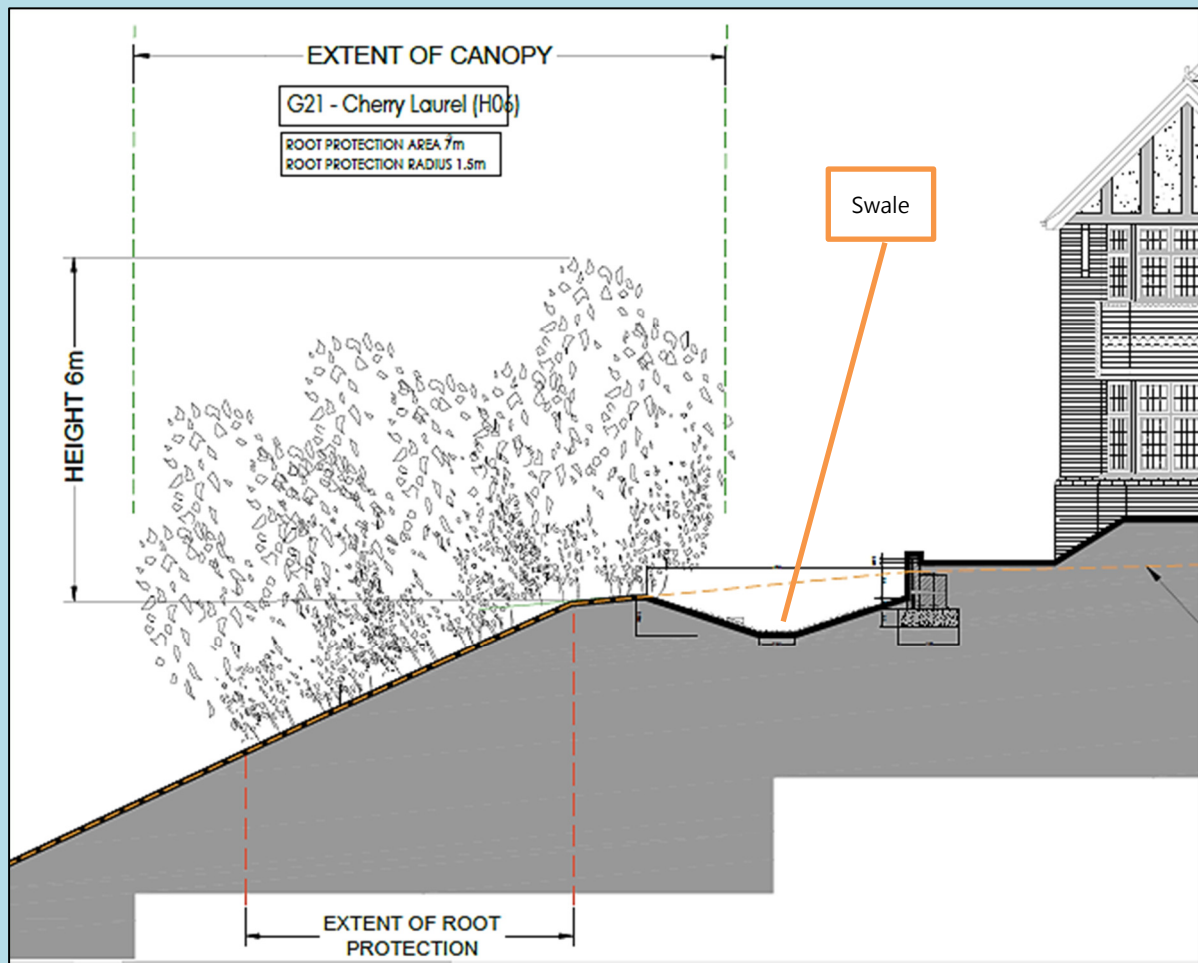
Plan Extract 7a. Section T1 - Swale abutting south-west of G23.



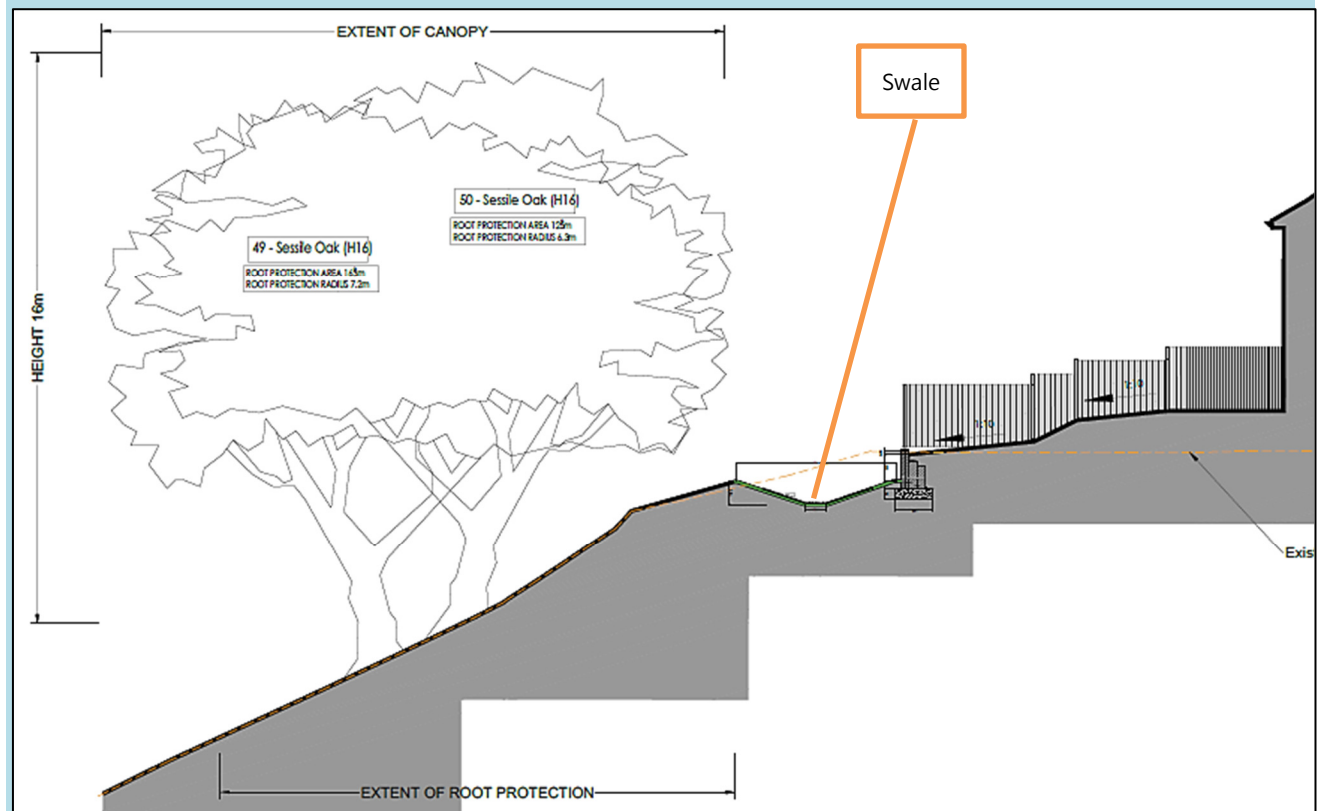
Plan Extract 7b. Section T2 - Section T2 - Swale abutting southern tip to west of G23.



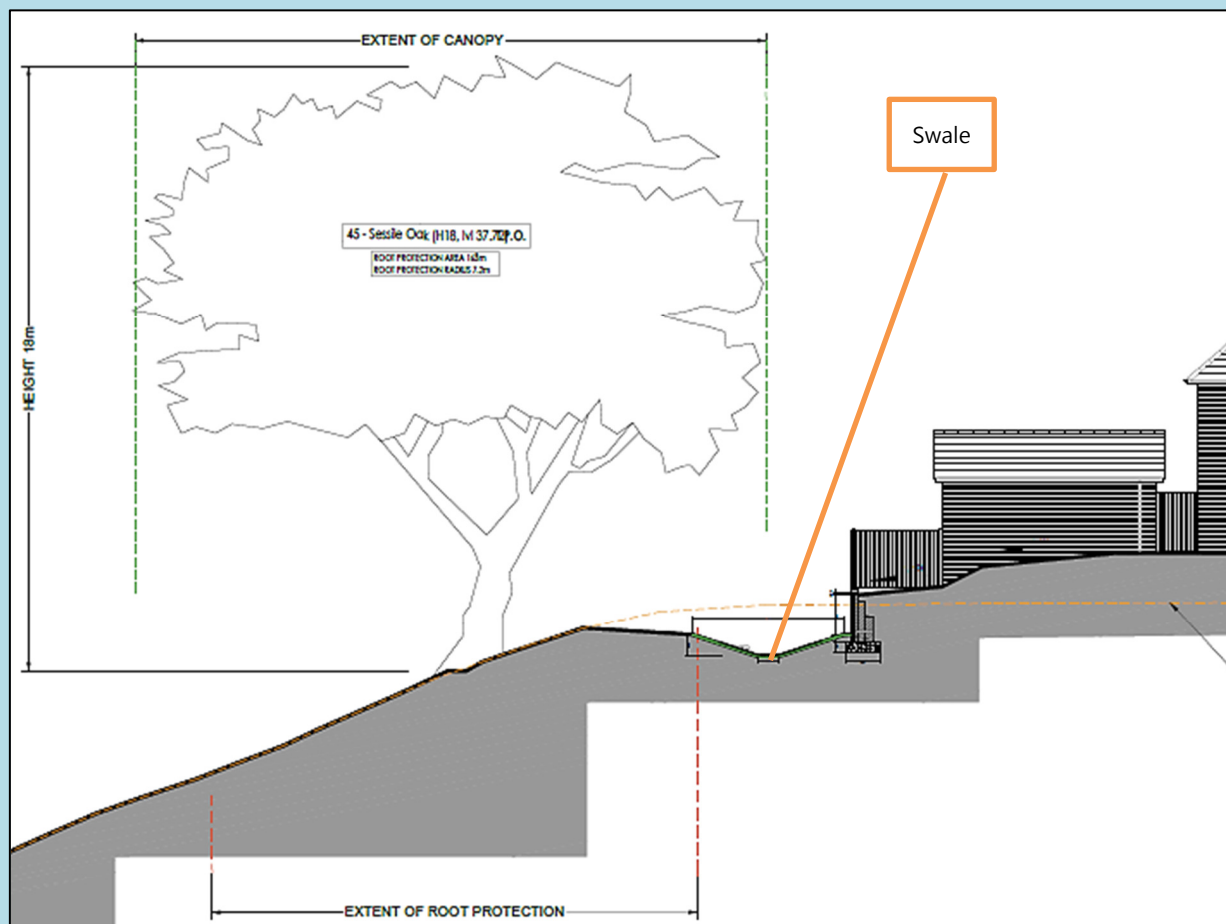
Plan Extract 7c. Section T3 - Swale abutting west of G21.



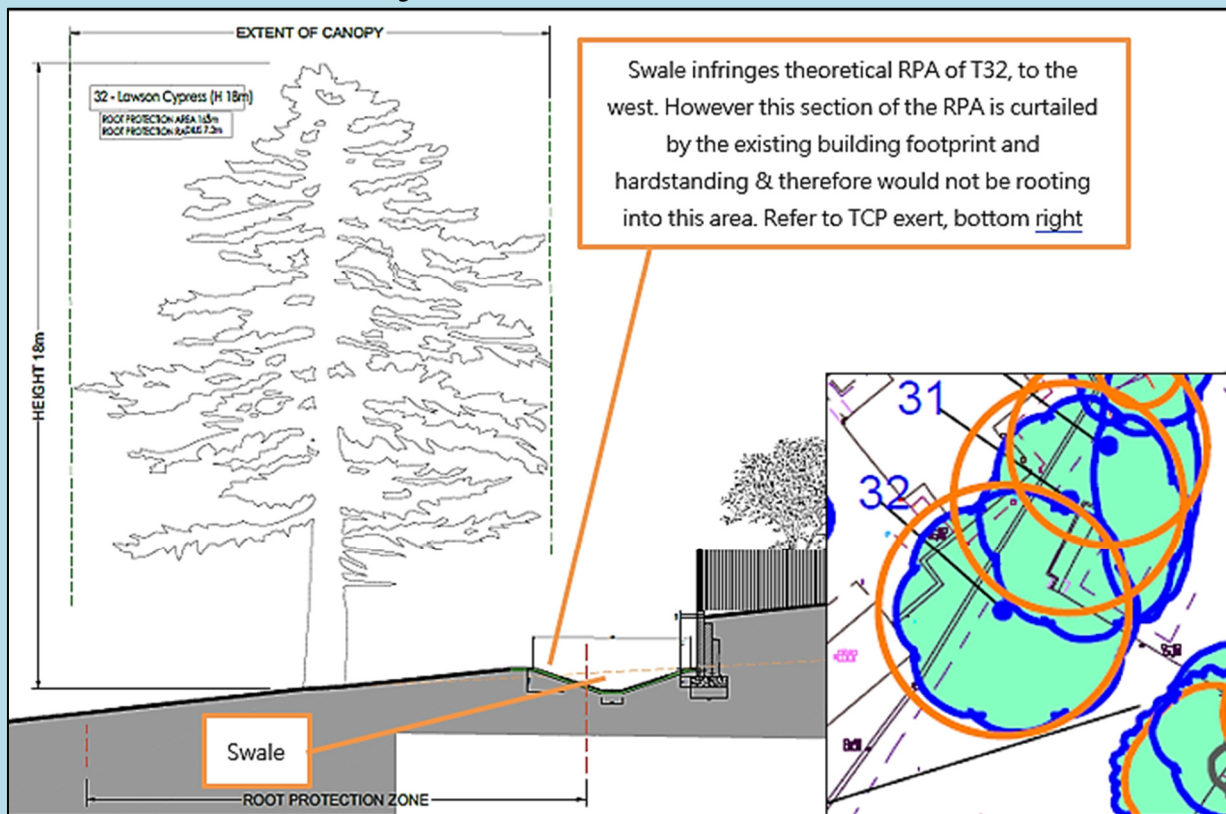
Plan Extract 7d. Section T4 - Swale abutting west of Tree 49 & 50.



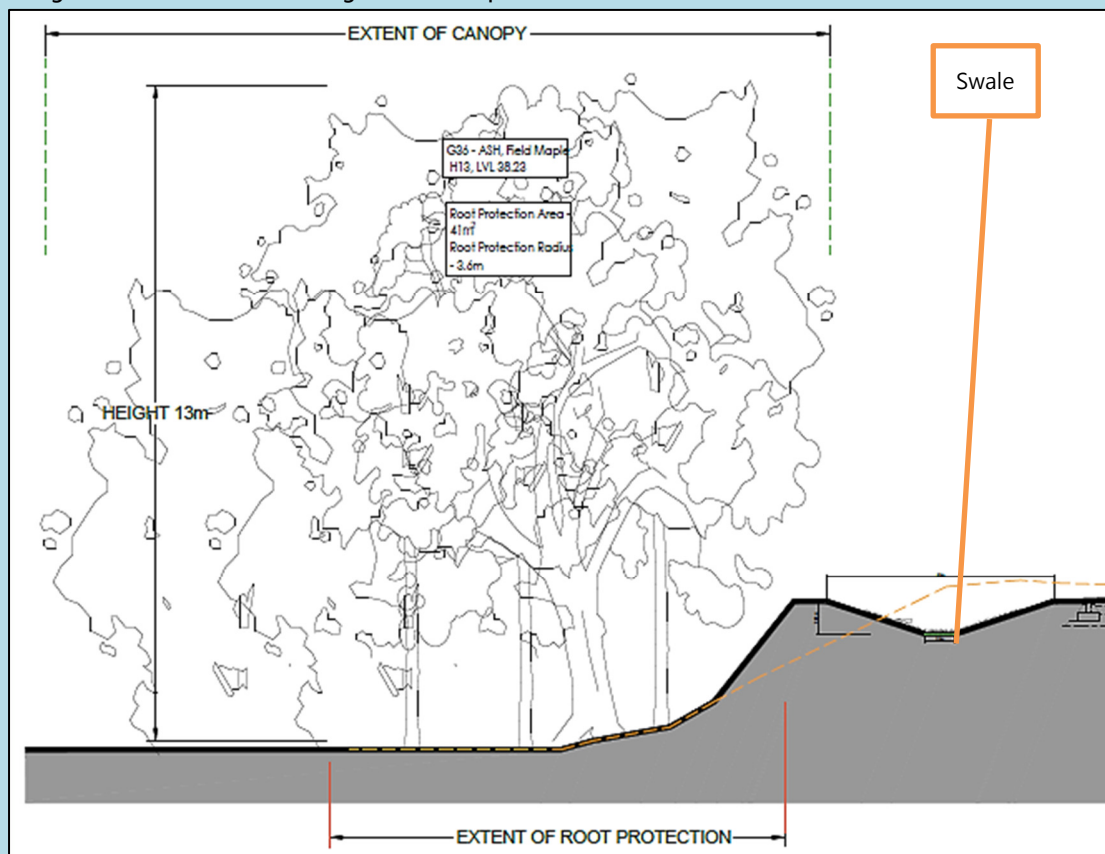
Plan Extract 7e. Section T5 - Swale abutting west of Tree 45.



Plan Extract 7f. Section T6 - Swale abutting west of Tree 32.



Plan Extract 7g. Section T7 - Swale abutting east of Group 36.



Plan Extract 7h. Section T13 - Swale abutting east of Tree 116.

