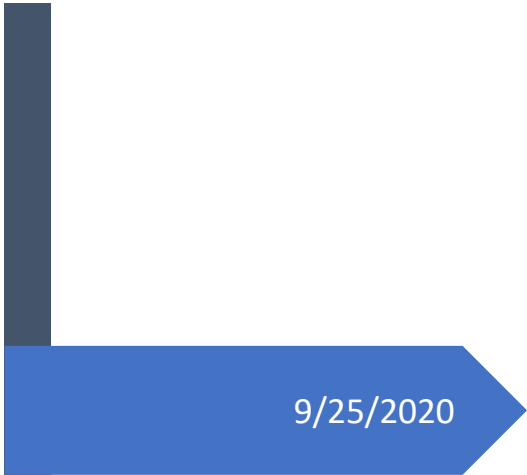
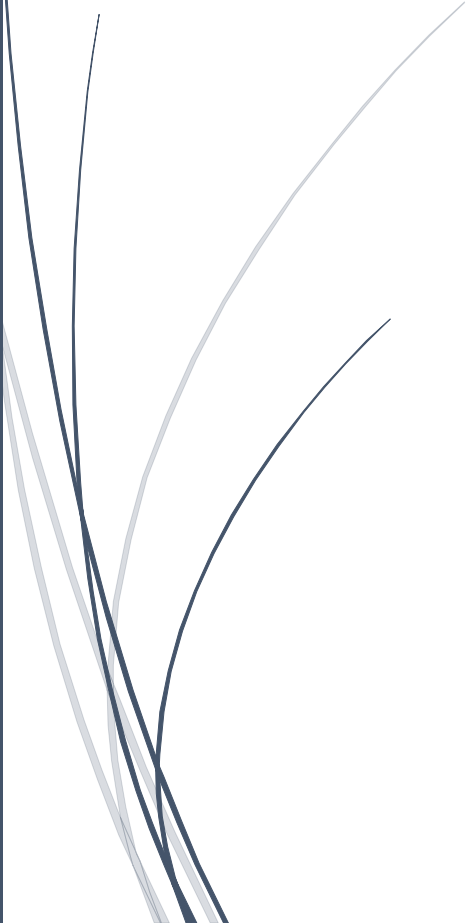


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9/25/2020

# Yale College (Coleg Cambria)

Mature Tree Survey

Several thin, curved lines in dark blue and light grey originate from the bottom left and curve upwards and to the right.

Rob Mays  
EVOLUTION ARBTECH



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## 1.0 Instructions

1.1 Evolution Arbtech have been instructed by Ms J Jones of Coleg Cambria to provide a professional opinion on the condition, vitality, and structural integrity of the 37 mature trees on site with a Diameter at Breast Height (DBH) above 300mm. A site inspection has been undertaken by Robert Mays of Evolution Arbtech.

1.2 We are Instructed to prepare a report in order to provide information to assist the owners in managing their trees and limiting any risk and liability.

1.3 The author of this report is Robert Mays. I hold a Foundation degree in Arboricultural Science, Level 2 Certificate in Arboriculture, I am a licenced practitioner of the CAVAT methodology. I am a Professional member of the Arboricultural Association of Great Britain and Ireland (Member No. PR6273).

I have been employed within the arboricultural industry for 14 years. Working as a bona fide contractor and consultant for the last 4 years. I have a vast range of experience in the operational management, and inspection of trees.

1.4 This report is based on a walked inspection from ground level of the site (attached in this report). Each tree has been inspected individually in its surroundings, measurements taken of DBH, height, and crown spread, and a visual inspection has been made and notes taken with any recommendations for management.

1.5 Where works are recommended these will be undertaken by appropriately qualified staff adhering to the recommendations within BS3998:2010 (BSI 2010).

1.6 Evolution Arbtech if requested by the tree owner will carry out a check for Tree Preservation Orders or Conservation Areas and where works are required will on instruction from the tree owner submit the relevant notices or applications, in circumstances where a tree is in a



significantly deteriorated condition contact should be made to the local authority tree officer as an application may not be required for safety reasons.

**1.7** Evolution Arbtech will not carry out any survey for species any protected under the Wildlife and Countryside Act 1981 (amended 1990). Where obvious signs of nesting birds or bats are present or there is possibility of such, we will notify the tree owner and on instruction contract a specialist consultant to undertake such surveys.

**1.8** Where works are required that may impact on any protected species Evolution Arbtech will ensure that the relevant licences are applied for from Natural England or that prior Notice is given where works of an imminent safety concern are to be undertaken.

## **2.0 Introduction**

### **2.1 Description of site and current uses**

This survey is covering the 37 mature trees within the grounds of Yale College in Wrexham. The college is located between Rhosddu Road to the west and Chester Road to the east. The grid reference for the approximate centre of the college is SJ 33514 50733. The main shopping area in the town is located to the south and south-east of the college.

Yale 6<sup>th</sup> form College is Coleg Cambria's main tertiary education establishment located within Wrexham town centre. Due to its town centre location, it receives a heavy footfall throughout the year. Therefore, the trees on the site must be kept in the best possible condition to enhance the amenity of the site and provide the safest environment achievable for staff , students, and visitors.

### **2.2 Site plan/survey area**

The aerial shot and the maps below illustrate the layout of the college in the local area. Also, the area within the college that has been covered by this survey outlined in red, and the locations of the numbered trees.

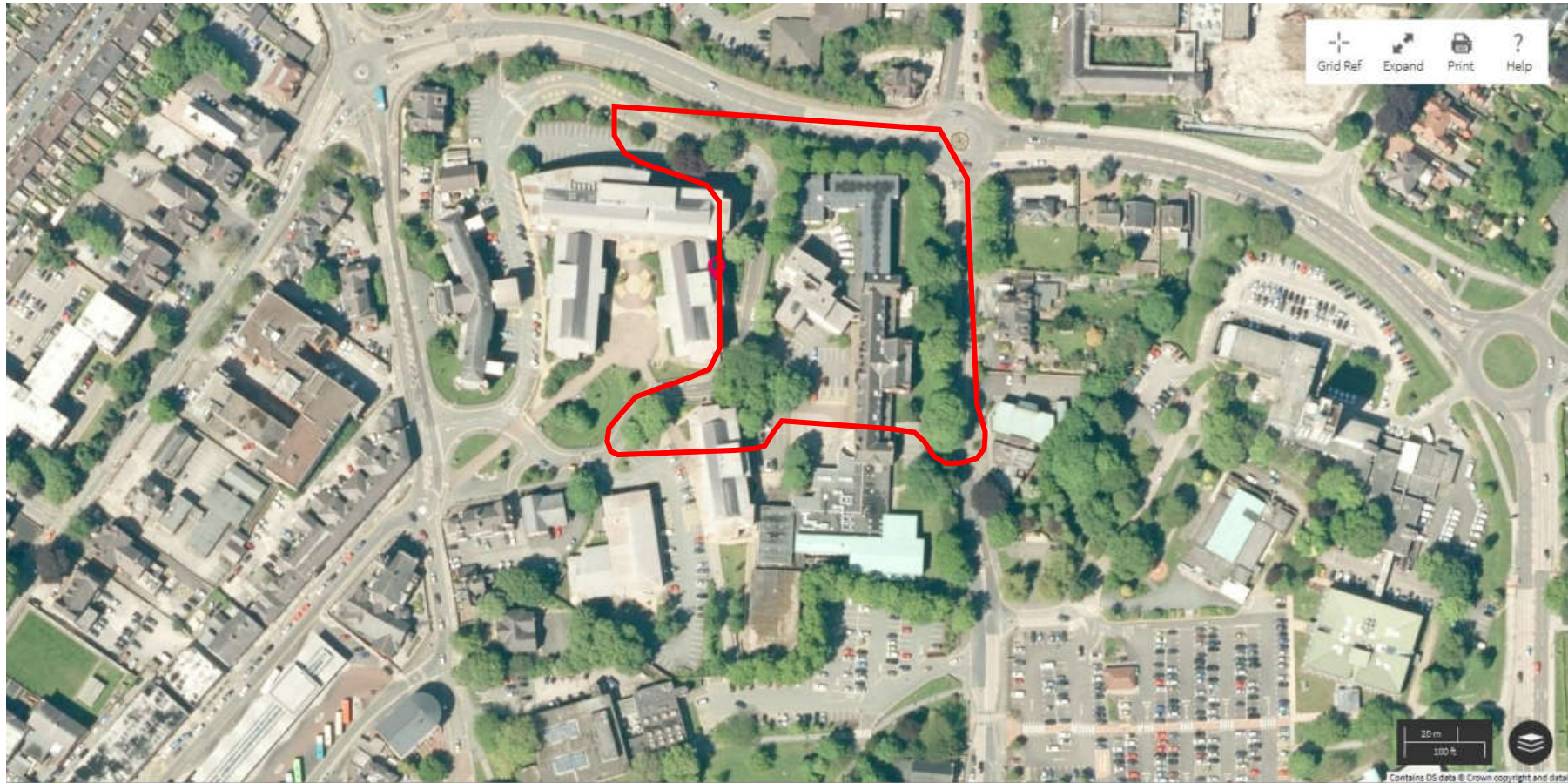


Figure 1. Area covered by survey outlined in red.

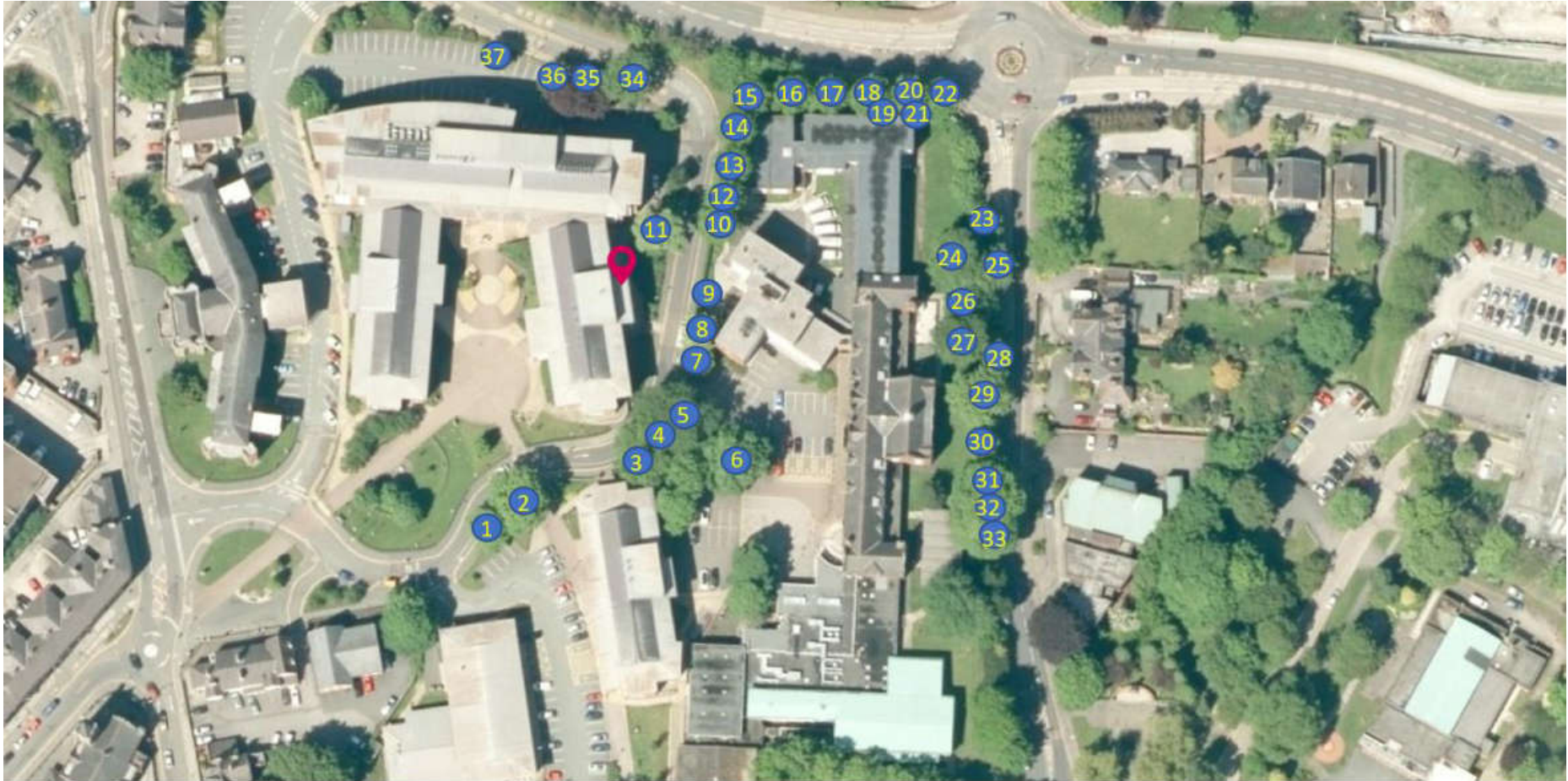


Figure 2. Numbered locations of individual trees in survey area.

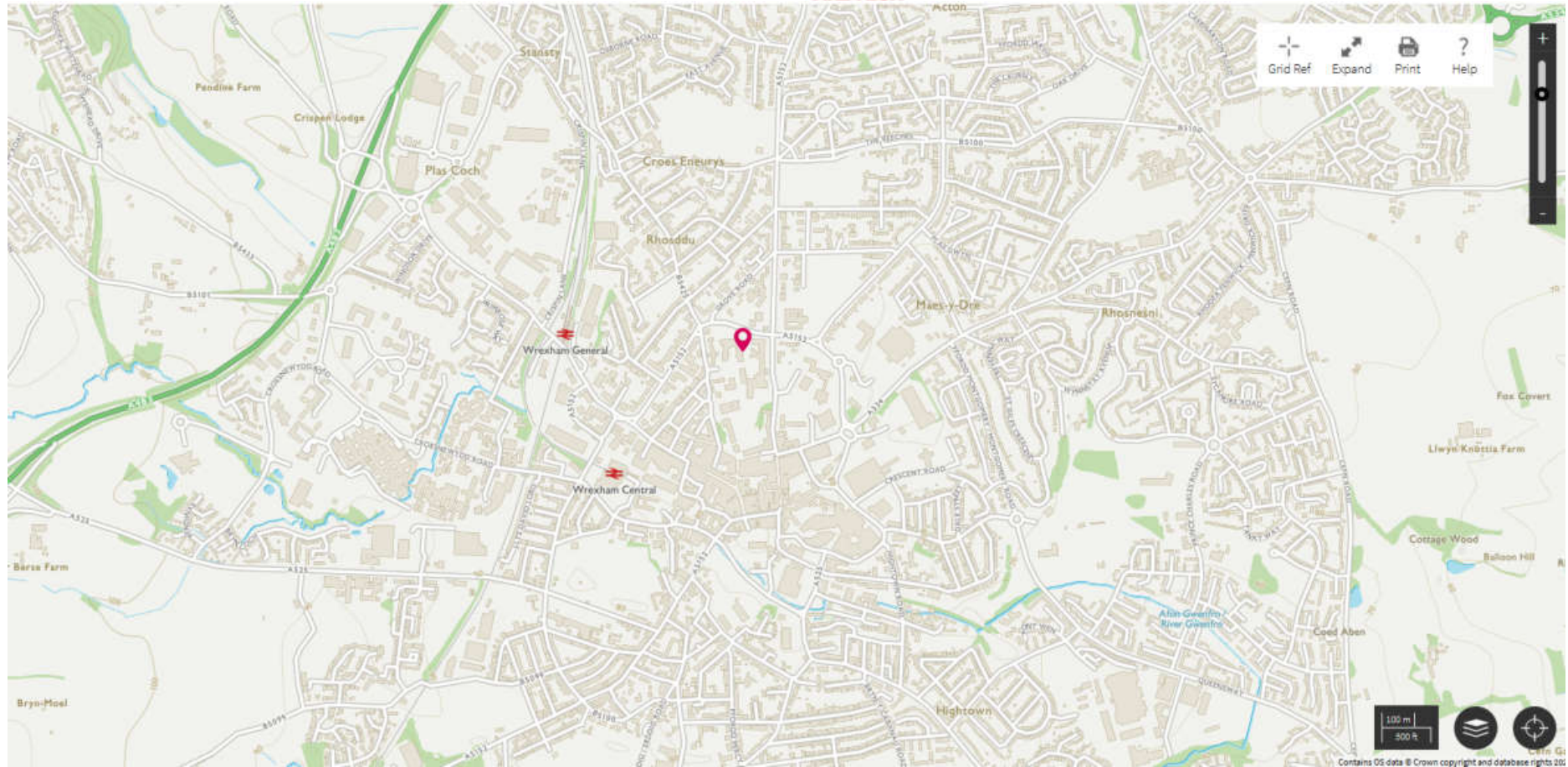


Figure 3. Location of Yale College (denoted by red marker) within Wrexham Town.



### 2.3 Site Soil make-up

A soil site report was obtained for the survey area from the National Soil Resources Institute. The soil association on site is WICK 1 (541r) which has the following characteristics: -

- Deep well drained coarse loamy and sandy soils locally over gravel.
- Soil Reaction (pH): Acid (Cranfield University, 2018)
- The simple topsoil texture is listed as: Loamy.
- Natural soil fertility: 5 Low
- The Soil parent material is: 92 Glaciofluvial or river terrace drift (NSRI, 2018)

This should provide good growing medium for most of the trees on site (Ashman & Puri, 2002).

## 3.0 Definition of Tools, Methods and Terms Used to Collect Data.

### 3.1 Tools and Methods Used.

The reference books that were used for identification of trees and fungi on the survey site were: Collins Tree Guide (Johnson. & More., 2006), Collins Fungus Guide (Buczacki, et al., 2012) and Fascinated by Fungi (O'Reilly, 2016).

A visual assessment from the ground was used to evaluate the vigour and condition of each tree in the survey. A pair of binoculars were used to evaluate the upper crowns of any large trees surveyed.

Measurements of each tree were taken. The diameter at breast height (DBH) was taken with a girthing tape at 1.5m from the ground, and 1.5m from the upper side if the tree was on a slope. If the tree had any irregular growths, bulges, or divided into its main limbs at 1.5m, the diameter was taken at the highest point up the stem that was regular and without defect, the height of measurement was made note of in the column. Any multi-stemmed trees had all stems measured.

The crown spread was measured with a laser measuring device in each cardinal direction (N, E, S, W). A stainless-steel probe was available to assess any pockets of decay that may have been evident. A nylon faced sounding hammer was also available for the same purpose.

Height was measured using a laser measuring device that had a Pythagorean calculation setting on it.



### 3.2 Terms Used.

|                     |                                                                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Ø                   | Diameter                                                                                                                              |
| ≤                   | Less than or equal to                                                                                                                 |
| ≥                   | More than or equal to                                                                                                                 |
| <                   | Less than                                                                                                                             |
| >                   | More than                                                                                                                             |
| Adventitious Growth | Growth developing from latent buds in the trees stem or main branches                                                                 |
| CAVAT               | Capital Asset Valuation for Amenity Trees (method)                                                                                    |
| Crown clean         | To remove all the dead dying and diseased branches from the crown of a tree.                                                          |
| Crown reduction     | To reduce the overall height and spread of the crown of a tree                                                                        |
| Early Mature        | The stage in the life cycle of a tree between youth and maturity.                                                                     |
| Late Mature         | Trees in the later part of their maturity, with full-sized crowns often with accumulated defects which may or may not be significant. |
| Mature              | A tree that is close to its full height and crown size.                                                                               |
| Newly Planted       | A tree that has very recently been planted and is not yet fully established.                                                          |
| Young               | A tree in its youth, usually the first third of its expected lifespan.                                                                |
| Senescent           | The end stage of a trees life in which it reduces its crown and root volume.                                                          |

Table 1. Glossary of terms.

## 4.0 Threats to the Future of the Tree Population

### 4.1 Pest Control - Squirrel Damage.

There were a number of squirrels spotted at the college during the survey. Squirrels can damage trees by stripping off young thin bark from the upper branches of larger trees to access the sugary phloem just under the bark (Nichols, et al., 2016). This can be an inroad for disease and infection (Forestry Commission, 2017). This bark damage generally occurs between April and the end of July (woodlands.co.uk Blog, 2006). However, as many squirrels as have been observed in the college, damage to the trees seems limited. Many of the thin barked trees that are susceptible to damage by squirrels are mature specimens at 12m plus. Without carrying out a climbing inspection, levels of damage are difficult to determine in full leaf cover even with a good set of binoculars.

### 4.2 Fungal Infections

Only one tree on the survey site had noticeable fruiting bodies.

Tree № 15 a *Tilia X europaea* (common lime) was displaying fruiting bodies identified as the red cracking bolete (*Xerocomellus chrysenteron*) (Buczacki, et al., 2012) (O'Reilly, 2016) around the immediate 900mm of ground surrounding the stem. This fungi is a beneficial mycorrhizal fungi with a wide range of host trees.



It is worth noting that many of the common lime trees on the survey site were exhibiting large volumes of adventitious growth around the root buttresses. Much of this has been controlled with hedge cutters, however it has prevented thorough and proper examination of the root buttresses for the presence of pathogenic fungal fruiting bodies and could do with taking back much further.



Figure 4. Red cracking bolete (*Xerocomellus chrysenteron*) fruiting bodies found at the base of tree 15, a common lime tree.

#### 4.3 Soil Compaction

Soil compaction has a detrimental effect on the ability of tree roots to absorb nutrients, water, and oxygen from the soil solution. Little can be done for trees already encapsulated within hard landscaping such as car parks, footpaths, and roadways. For trees situated in grassed areas however, foot traffic can be restricted to ease any further compaction issues, and if decline in tree health is noted, a soil decompaction plan can be put in place.



## 5.0 Discussions and Conclusion

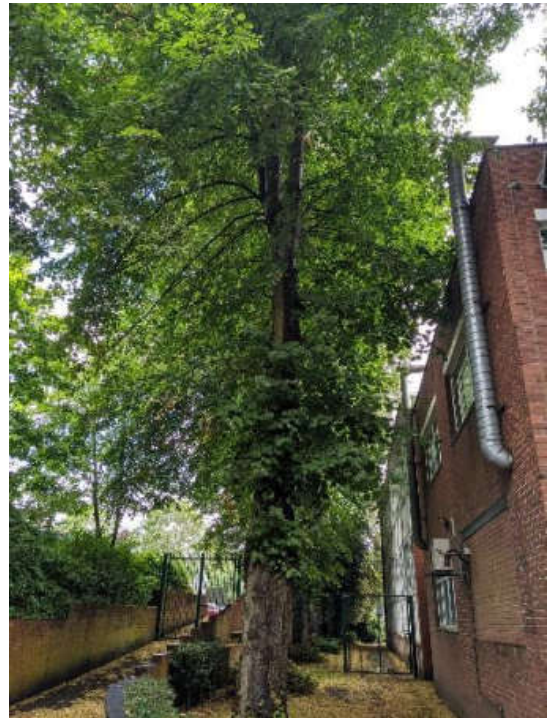
### 5.1 Recommendations and Work to be Carried Out.

In the tables below are the recommendations for work to be carried out to the highlighted trees.

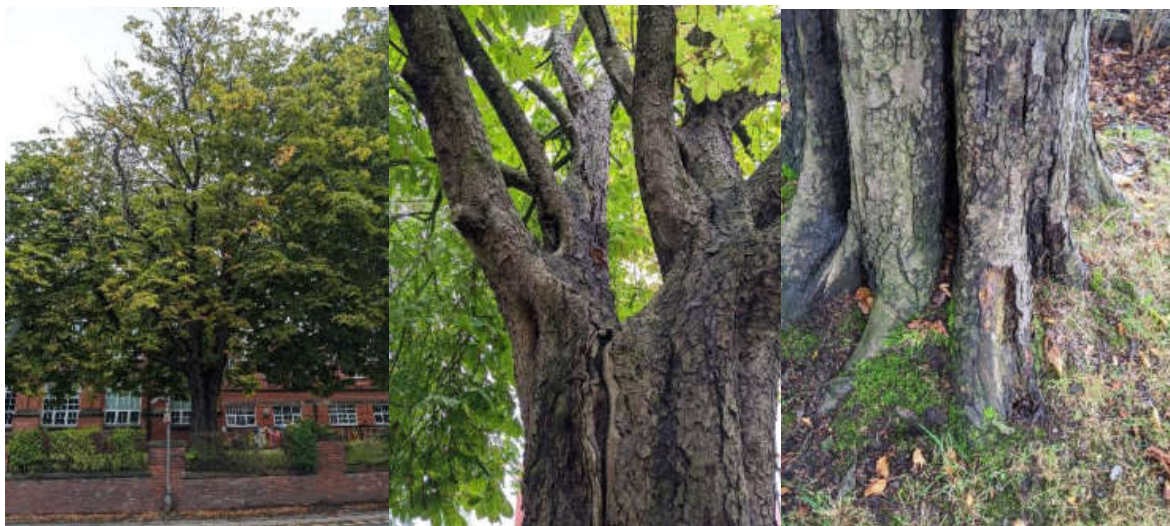
Most of the work required is crown lifting to reduce encroachment on buildings and increase natural daylight entering these buildings. The numbers of these trees are: 12, 13, 14, 15, 16, 17, 18, and 20.

removal of adventitious growth around the basal area. Due to the nature of the site with open public access, this is work that should be kept on top of so the trees can be thoroughly inspected around their buttresses at their designated inspection intervals. The numbers of these trees are: 10, 12, 13, 14, 16, 17, 18, 20, and 22.

Tree № 29 a horse chestnut requires removal due to its incredibly poor physiological condition and its proximity to the public highway. in such a high traffic area, it is better to remove the risk altogether (Mattheck, et al., 2015).



*Figure 5. Branches of one of the many lime trees encroaching on the building and blocking light.*



*Figure 6. Crown dieback and some of the points of the poor physiological condition of tree 29.*



Tree № 28 a horse chestnut requires a crown reduction to reduce lever forces on the root-plate due to the angle the stem has grown at (Mattheck, et al., 2015), and to maintain bio-mechanical integrity and prevent tree failure, a 20% reduction is recommended (BSI, 2010).



Figure 7. Potential *Phytophthora* spp. infection in the stem of tree 33, a sugar maple.

Trees that need to be monitored closely for future developments in their physiological condition are Nos 28, 31, 32, and 33. № 28 is a horse chestnut exhibiting a small amount of dieback in the western section of the crown (Kubler, 1988) (Hirons &

Thomas, 2018). Nos 31, 32, and 33 are sugar maples. Construction work has been carried out in close proximity to their root protection areas, they should be monitored closely for any detrimental reaction to this work for the next 3 years. Tree 33 is exhibiting some dark bleeding spots around its stem to the eastern side at around 1.3 –

1.8m These could be due to a possible *Phytophthora* spp. infection (University of Massachusetts Amherst, 2020).

Tree Nos 2, 4, and 34 have quantities of deadwood in their crowns that require removal.

This work that has been highlighted can be seen detailed in table 3.

|                                                                                                                     |                                       |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| <b>Trees that require crown-lifting to prevent encroachment upon and increase natural daylight inside buildings</b> | 12, 13, 14, 15, 16, 17, 18, 20        |
| <b>Trees that require basal adventitious growth removing</b>                                                        | 3, 10, 12, 13, 14, 16, 17, 18, 20, 22 |
| <b>Trees that require removal</b>                                                                                   | 29                                    |
| <b>Trees That Require crown reduction work</b>                                                                      | 28                                    |
| <b>Trees that require monitoring</b>                                                                                | 28, 31, 32, 33                        |
| <b>Trees that require removal of deadwood</b>                                                                       | 2, 4, 34                              |

Table 2.

All specified works shown in table 3 below, should be carried out by a qualified contractor in accordance with BS3998:2010.

| Tree № | Species                               | Recommended works |
|--------|---------------------------------------|-------------------|
| 2      | <i>Acer pseudoplatanus</i> , Sycamore | Remove deadwood.  |
| 4      | <i>Fagus sylvatica</i> , Beech        | Remove deadwood.  |



Figure 8. Tree 28 heavily leaning towards the public highway.



|    |                                       |                                                                                                                                                                                                                                                                                                          |
|----|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 | <i>Tilia x europaea</i> , Common lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.                                                                                                                                                                        |
| 12 | <i>Tilia x europaea</i> , Common lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.<br><br>Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building. |
| 13 | <i>Tilia x europaea</i> , Common Lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.<br><br>Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building. |
| 14 | <i>Tilia x europaea</i> , Common lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.<br><br>Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building. |
| 15 | <i>Tilia x europaea</i> , Common lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.<br><br>Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building. |
| 16 | <i>Tilia x europaea</i> , Common Lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.<br><br>Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building. |
| 17 | <i>Tilia x europaea</i> , Common lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.<br><br>Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building. |
| 18 | <i>Tilia x europaea</i> , Common lime | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.                                                                                                                                                                        |



|    |                                                |                                                                                                                                                                                                                                                                                                                 |
|----|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                | Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building.                                                                                                                                                 |
| 20 | <i>Tilia x europaea</i> , Common lime          | <p>Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.</p> <p>Crown lift to above the roofline of the adjacent building to prevent further encroachment and to allow natural light into the upstairs windows of the building.</p> |
| 22 | <i>Tilia x europaea</i> , Common lime          | Completely and thoroughly remove all adventitious growth from around base of tree to enable proper inspection of root buttresses.                                                                                                                                                                               |
| 28 | <i>Aesculus hippocastanum</i> , Horse chestnut | 20% reduction to reduce lever forces on root plate. Monitor progression of crown dieback.                                                                                                                                                                                                                       |
| 29 | <i>Aesculus hippocastanum</i> , Horse chestnut | Remove.                                                                                                                                                                                                                                                                                                         |
| 31 | <i>Acer saccharum</i> , Sugar maple            | Monitor for detrimental effects of construction work within RPA.                                                                                                                                                                                                                                                |
| 32 | <i>Acer saccharum</i> , Sugar maple            | Monitor for detrimental effects of construction work within RPA.                                                                                                                                                                                                                                                |
| 33 | <i>Acer saccharum</i> , Sugar maple            | Monitor for detrimental effects of construction work within RPA, Also, tree owner should monitor condition of dark bleeding spots in the lower section of the stem and monitor the crown for signs of stress or dieback.                                                                                        |
| 34 | <i>Acer pseudoplatanus</i> , Sycamore          | Remove deadwood.                                                                                                                                                                                                                                                                                                |

Table 3.

## 5.2 Future Sustainability and Maintenance of Site.

The sustainability of this site as an environment to be used and enjoyed, as well as one to support the future of arboriculture is as with all sites, taken into consideration. The retention of trees wherever possible will always be a priority (James, 1990). Where this is not possible due to irreparable damage, pathogenic infestation, or extremely poor physiological condition, the trees should be replaced with species that have been carefully selected for environmental needs, size at maturity, vigour of growth, and shade or exposure tolerance to fit the environment they are going into.

As far as future additions to the college, space is already at a premium and so the possibility of future additions is more likely to be restricted to replacement of future trees lost. However, correct species selection and placement should be brought into play to try and avoid any overcrowding problems.

The health and safety of members of the public and staff takes precedence over the retention of any trees likely to fail. this is considered when making decisions on which direction to take involving the sustainability of the site (Cox, 2011).



### 5.3 Tree measurements and notes on findings.

| Tree No | I.D tag | Species                          | DBH (mm) | Crown Spread |     |     |     | Age Class | Height (m) | Notes                                                                                                                                                                    |
|---------|---------|----------------------------------|----------|--------------|-----|-----|-----|-----------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |         |                                  |          | N            | E   | S   | W   |           |            |                                                                                                                                                                          |
| 1       | -       | Sycamore                         | 554      | 5            | 3   | 4   | 5   | EM        | 9.5        | Extremely close to dwarf wall.<br>50x100mm cavity on NW side at 1.9m showing good occlusion. Probed, timber inside solid.<br>Crown lifted to 4m.                         |
| 2       | -       | Sycamore                         | 830      | 6            | 5   | 7   | 6   | M         | 11         | Close to dwarf wall.<br>Crown lifted to 4m.<br>Small quantity of deadwood <50mm                                                                                          |
| 3       | 170     | Common Lime                      | 700      | 5            | 2   | 4   | 5   | M         | 14         | Epicormic growth around buttresses making examination difficult.<br>Fairly close to roof and guttering.                                                                  |
| 4       | -       | Beech                            | 725      | 9            | 4   | 7   | 3   | M         | 13         | Bark-stripped branch over road at 9m<br>Ø150mm.<br>Crown lifted to 6m.                                                                                                   |
| 5       | -       | Beech                            | 1093     | 9            | 8   | 7   | 3   | M         | 13         | Slight lean towards NE.<br>Crown lifted to 7m.                                                                                                                           |
| 6       | -       | Sycamore                         | 970      | 6            | 5   | 7   | 8   | M         | 12         | Co-dominant stems forming crown with slight bark inclusion.                                                                                                              |
| 7       | -       | Swedish whitebeam                | 364      | 2.5          | 2   | 5   | 3.5 | EM        | 8          | Main stem splits into 3 at 2.4m exhibiting some bark inclusion.<br>Potential level change has occurred at some point in the recent past.<br>Close to corner of building. |
| 8       | -       | Variegated Sycamore (Variegatum) | 498      | 5            | 4.5 | 6   | 5.5 | EM        | 10.5       | Lower branches pruned away from building at 3m.                                                                                                                          |
| 9       | -       | Common Lime                      | 163      | 3            | 3   | 3   | 3   | Y         | 8          | Tight fork at 2.2m, remove subordinate leader                                                                                                                            |
| 10      | -       | Common Lime                      | 555      | 5            | 2.5 | 7   | 5   | M         | 14.5       | Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses.                                               |
| 11      | 1738    | Variegated Sycamore (Variegatum) | 934      | 7            | 6   | 7   | 5   | M         | 16         | Occluded pruning wounds up SW side to around 5m.                                                                                                                         |
| 12      | -       | Common Lime                      | 595      | 3            | 5   | 2.5 | 5   | M         | 15         | Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses.                                               |
| 13      | -       | Common Lime                      | 670      | 4            | 2.5 | 3   | 4   | M         | 15         | Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses.                                               |



|    |   |                  |            |     |   |     |     |   |      |                                                                                                                                                                                                                                                                                                                  |
|----|---|------------------|------------|-----|---|-----|-----|---|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14 | - | Common Lime      | 695        | 3   | 4 | 2.5 | 5   | M | 15.5 | <p>Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses.</p> <p>Foliage of tree encroaching upon the upstairs windows of the building blocking natural light.</p>                                                                           |
| 15 | - | Common Lime      | 630        | 3   | 3 | 4   | 5   | M | 16   | <p>Adventitious growth around base of tree pruned back with hedge cutters.</p> <p>Foliage of tree encroaching upon the upstairs windows of the building blocking natural light.</p> <p>Fungal fruiting bodies found at base of tree identified as the Red Cracking Bolete (<i>Xerocomellus chrysenteron</i>)</p> |
| 16 | - | Common Lime      | 680        | 5.5 | 4 | 5   | 3.5 | M | 16   | <p>Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses.</p> <p>Foliage of tree encroaching upon the upstairs windows of the building blocking natural light.</p>                                                                           |
| 17 | - | Common Lime      | 655        | 6   | 4 | 6   | 4   | M | 16   | <p>Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses.</p> <p>Foliage of tree encroaching upon the upstairs windows of the building blocking natural light.</p>                                                                           |
| 18 | - | Common Lime      | 720        | 5   | 5 | 5   | 5   | M | 16   | <p>Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses.</p> <p>Foliage of tree encroaching upon the upstairs windows of the building blocking natural light.</p>                                                                           |
| 19 | - | Yew              | 546 @1m    | 5   | 4 | 2   | 5   | M | 11   | Bifurcated at 1.0m                                                                                                                                                                                                                                                                                               |
| 20 | - | Common Lime      | 590 @1.6 m | 6.5 | 5 | 5   | 4.5 | M | 15.5 | <p>Large amounts of adventitious growth around base of tree to 1.5m completely obscuring view of root buttresses and lower stem.</p> <p>Foliage of tree encroaching upon the roofline of the building.</p> <p>Small piece of deadwood approx. 50mm hanging on SE side.</p>                                       |
| 21 | - | Variegated Holly | 290        | 3   | 4 | 5   | 3   | M | 9    | 15° lean to the SE although crown has straightened and corrected this.                                                                                                                                                                                                                                           |



|    |   |                |      |   |   |   |     |   |    |                                                                                                                                                                                                                                                                      |
|----|---|----------------|------|---|---|---|-----|---|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22 | - | Common Lime    | 614  | 6 | 5 | 4 | 4   | M | 12 | Large amounts of adventitious growth around base to 1.3m completely obscuring root buttresses and lower stem.                                                                                                                                                        |
| 23 | - | Common Lime    | 475  | 4 | 4 | 4 | 4   | M | 10 | Crown lifted to 5m above road                                                                                                                                                                                                                                        |
| 24 | - | Horse Chestnut | 1000 | 7 | 6 | 8 | 7   | M | 18 | Evidence of previous pruning work throughout crown, wounds in various stages of occlusion.<br><br>A large branch (Estimated 400mm Ø) at 6m to the NE has ripped out, wound is occluding.<br><br>Tree is moderately affected by horse chestnut leaf miner.            |
| 25 | - | Horse Chestnut | 766  | 7 | 6 | 8 | 3   | M | 13 | Slight lean to the SE over road.<br><br>Some dysfunction evident in bark of lower limb to SW (burs etc).<br><br>Extensively crown lifted over both road around street light and above grassed area.<br><br>Tree is moderately affected by horse chestnut leaf miner. |
| 26 | - | Sycamore       | 765  | 5 | 8 | 3 | 5   | M | 11 | Tree reduced to around 9m and showing extensive pruning work carried out in the past.                                                                                                                                                                                |
| 27 | - | Beech          | 850  |   |   |   |     | M | 19 | Small holly bush growing out of W side of stem.<br><br>Bird box @ 1.8m on NW side and brackets @3.0m on W side fixed to stem.                                                                                                                                        |
| 28 | - | Horse Chestnut | 585  |   |   |   |     | M | 16 | Leaning to the E over Chester Road as shaded from the W side.<br><br>W side of tree is exhibiting thin foliage.<br><br>200mm Ø branch to the N snapped off, showing beginnings of occlusion.<br><br>Tree is moderately affected by horse chestnut leaf miner.        |
| 29 | - | Horse Chestnut | 870  | 7 | 6 | 7 | 8.5 | M | 13 | Missing bark from floor level and stem is split up to main fork at 2.5m to the W. Splits in bark continue up N side of scaffold limbs.<br><br>Leaf cover throughout the canopy is fairly thin.<br><br>SE section of crown exhibiting fairly heavy dieback.           |



|    |   |              |     |     |     |     |     |   |      |                                                                                                                                                                                                 |
|----|---|--------------|-----|-----|-----|-----|-----|---|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |   |              |     |     |     |     |     |   |      | Tree is moderately affected by horse chestnut leaf miner.                                                                                                                                       |
| 30 | - | Common Lime  | 430 | 3.5 | 3.5 | 3.5 | 3.5 | M | 10   | Tree pruned around road sign but beginning to encroach again.<br><br>Adventitious growth around base of tree pruned back with hedge cutters although it still obscures view of root buttresses. |
| 31 | - | Sugar Maple  | 655 | 4   | 6   | 2   | 8   | M | 13   | Slight lean to E.<br><br>Crown lifted to 4.5m<br><br>Potential root damage due to construction work. Monitor health.                                                                            |
| 32 | - | Sugar Maple  | 615 | 2   | 6   | 2   | 8   | M | 13   | Slight lean to E.<br><br>Crown lifted to 5.5m<br><br>Potential root damage due to construction work. Monitor health.                                                                            |
| 33 | - | Sugar Maple  | 820 | 2   | 6   | 7.5 | 8   | M | 13   | Slight lean to E.<br><br>Crown lifted to 5.5m<br><br>Dark spotting on SE side of stem.<br><br>Potential root damage due to construction work. Monitor health.                                   |
| 34 | - | Sycamore     | 730 | 7   | 6   | 6   | 7   | M | 12   | Pruning wound to the N at floor level around 300 x 400mm wound is occluding.<br><br>75mm Ø deadwood @7m.<br><br>Some paving slabs around base have been moved by the roots of the tree.         |
| 35 | - | Copper Beech | 800 | 4.5 | 5.5 | 9   | 9   | M | 13.5 | Heavy lean to the SW.<br><br>Hollowed branch socket @ 2.3m.<br><br>Mechanical damage @3.2m to the W most likely caused by tall vehicles parking next to tree.                                   |
| 36 | - | Yew          | 637 | 5   | 3   | 4   | 4   | M | 11   | Bifurcated at 1.6m, Slight bark inclusion.                                                                                                                                                      |
| 37 | - | Yew          | 614 | 2.5 | 3   | 5   | 5   | M | 10   | Some lower limbs have been reduced around E, S and W CL to 2.5m.<br><br>Slight lean to S and slightly asymmetric crown. Open crown, Healthy tree.                                               |

#### 5.4 Pictures.



*Figure 9. Tree 1 (sycamore) and its occluding wound on the NW side of the stem at 1.9m*



*Figure 10. Tree 2 (sycamore)*



Figure 11. Tree 3 (common lime) with its adventitious growth around the base (left) and its crown proximity to the adjacent building (right).



Figure 12. Tree 4 (beech) showing its bark-stripped deadwood above roadway to the right.



Figure 13. Tree 5 (beech)



Figure 14. Tree 7 (Swedish whitebeam)) with slight bark inclusion and proximity to building.

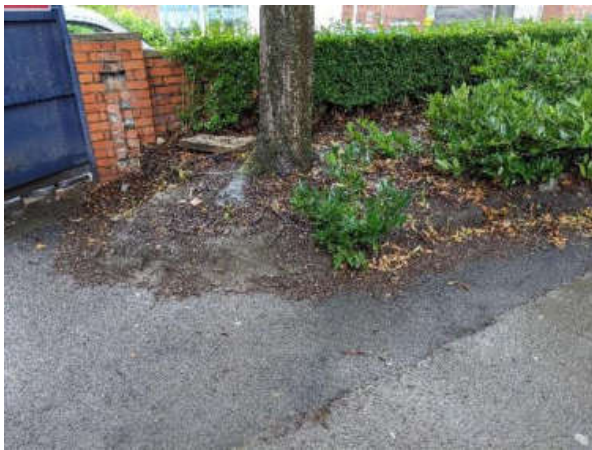


Figure 15. Tree 7 (Swedish whitebeam)( left) showing potential level change having occurred some time ago. Tree 8 (variegated sycamore)(right) proximity to building.



Figure 16. Tree 9 (common lime)(left). Tree 10 (common lime)(right).



Figure 17. Tree 10 (common lime) basal adventitious growth and crown structure.



Figure 18. Tree 11 (variegated sycamore)(left). Tree 12 (common lime)(right).



Figure 19. Tree 13 (left) and tree 14 (right) showing crown proximity to the adjacent building (both common limes).



Figure 20. Tree 15 (common lime) and its crown proximity to the adjacent building.



Figure 21. Tree 15 (common lime) red cracking bolete fruiting bodies found around the base of the tree.



Figure 22. Disected red cracking bolete (*Xerocomellus chrysenteron*) fruiting bodies (left). Tree 16 stem and adventitious growth (right).



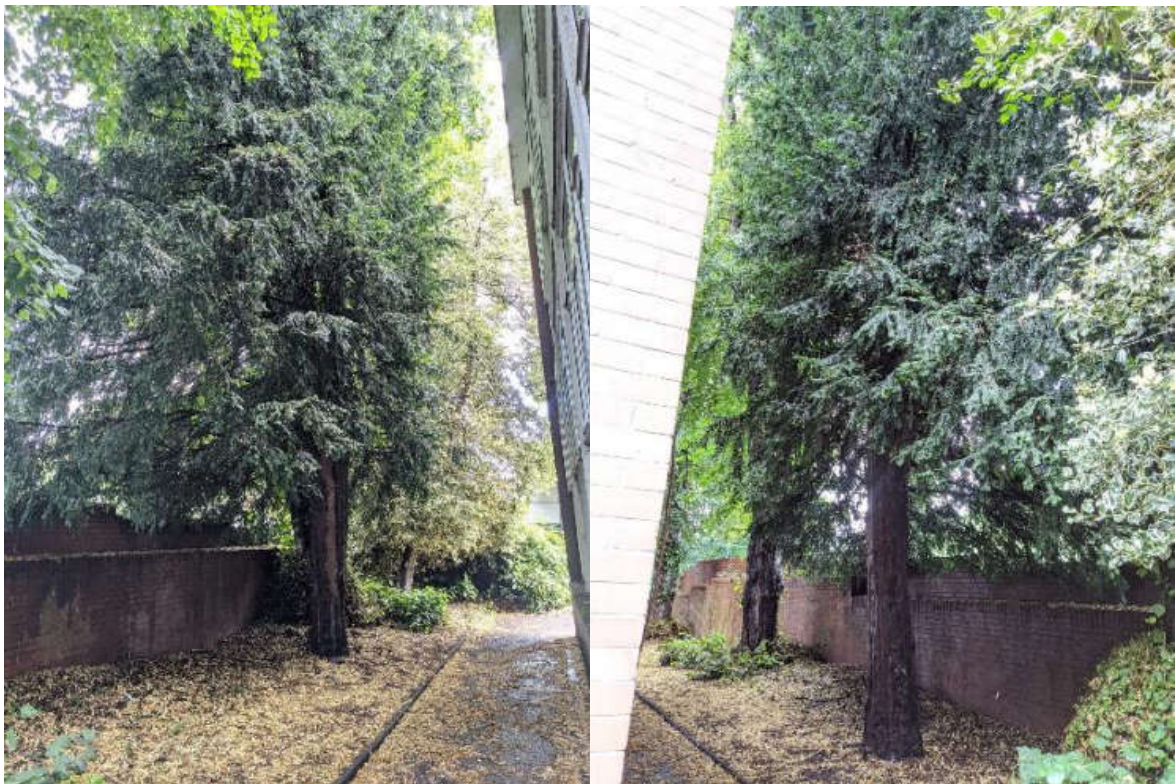
*Figure 23. Tree 16 (common lime) crown proximity to adjacent building.*



*Figure 24. Tree 17 (common lime) crown proximity to adjacent building (left) and basal adventitious growth (right).*



*Figure 25. Tree 18 (common lime) crown proximity to adjacent building.*



*Figure 26. Tree 19 (yew).*



Figure 27. Tree 19 (yew) bifurcation at 1.0m (left). Tree 20 (common lime) basal adventitious growth to 1.5m completely obscuring the root buttresses.



Figure 28. Trees 20 (common lime) and 21 (variegated holly) crown proximities to adjacent building (left). Tree 21 (variegated holly) exhibiting correction of 15° lean.



Figure 29. Tree 22 (common lime) has adventitious growth to 1.3m completely obscuring the root buttresses (left). Tree 23 (common lime) with a small amount of basal adventitious growth (right).



Figure 30. Tree 23 (common lime) exhibiting its small amount of basal adventitious growth (left). Tree 24 (horse chestnut)



Figure 31. examples of levels of horse chestnut leaf miner affecting all of this species on this site. Taken from tree 24.

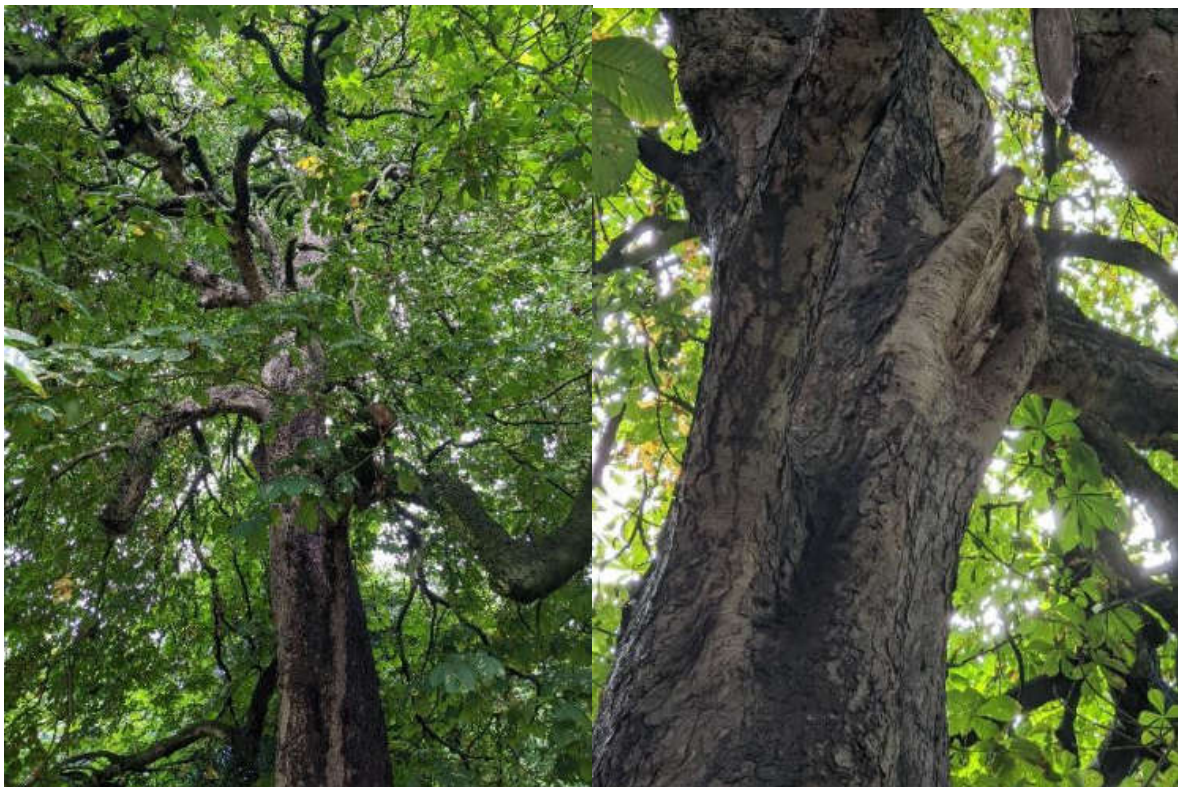


Figure 32. Tree 24 (horse chestnut) crown structure and large limb removed to SW (left). Tree 25 (horse chestnut) occlusion of large limb-loss wound to SW.

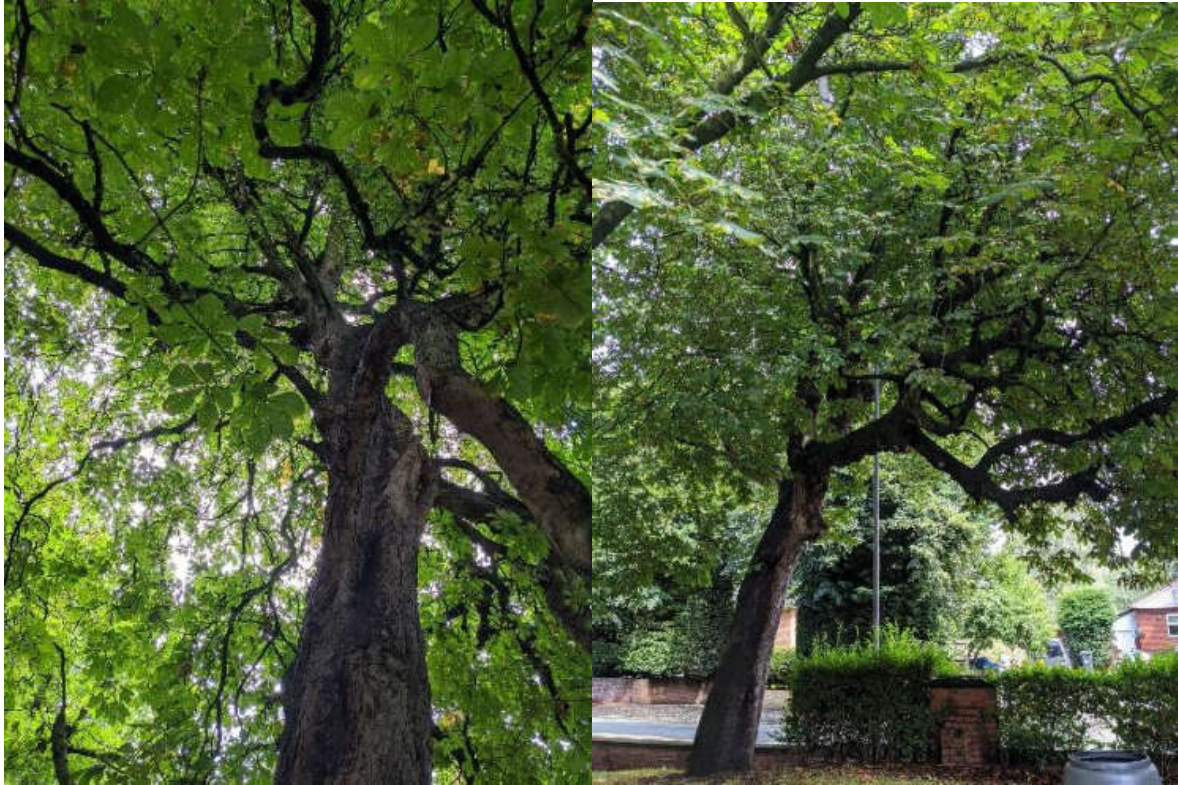
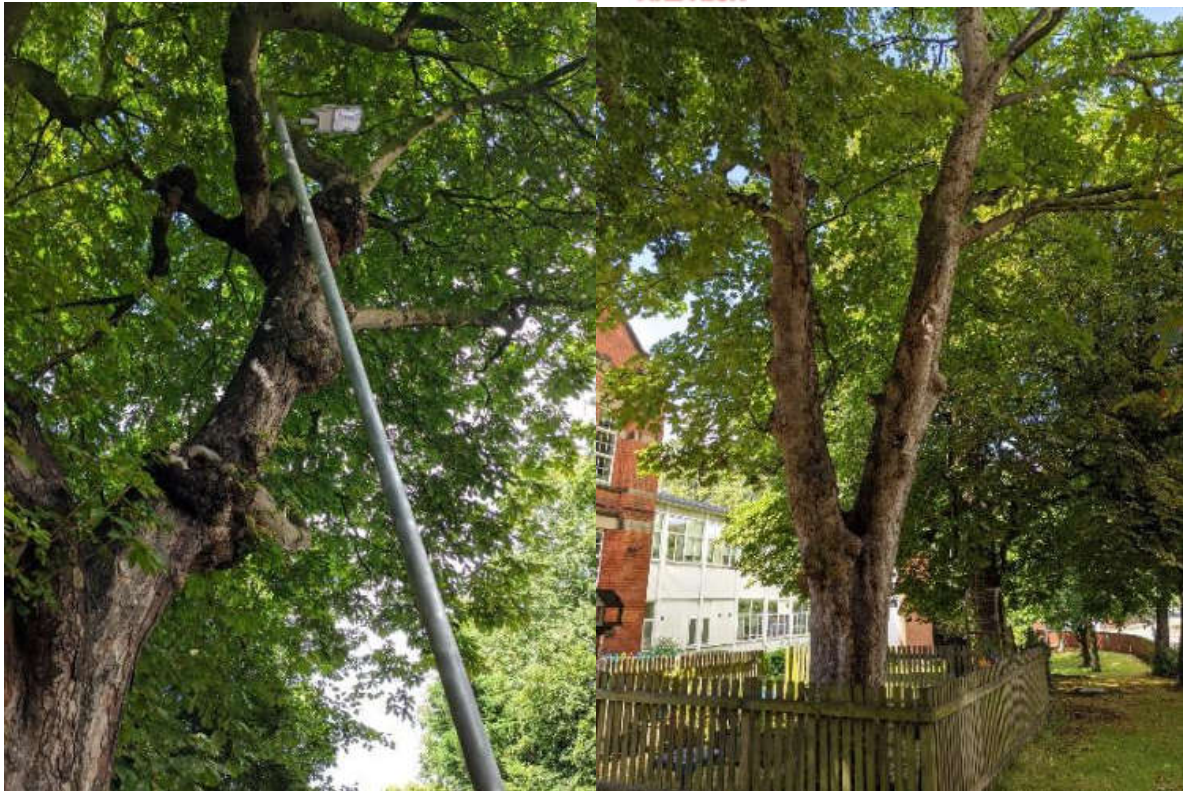


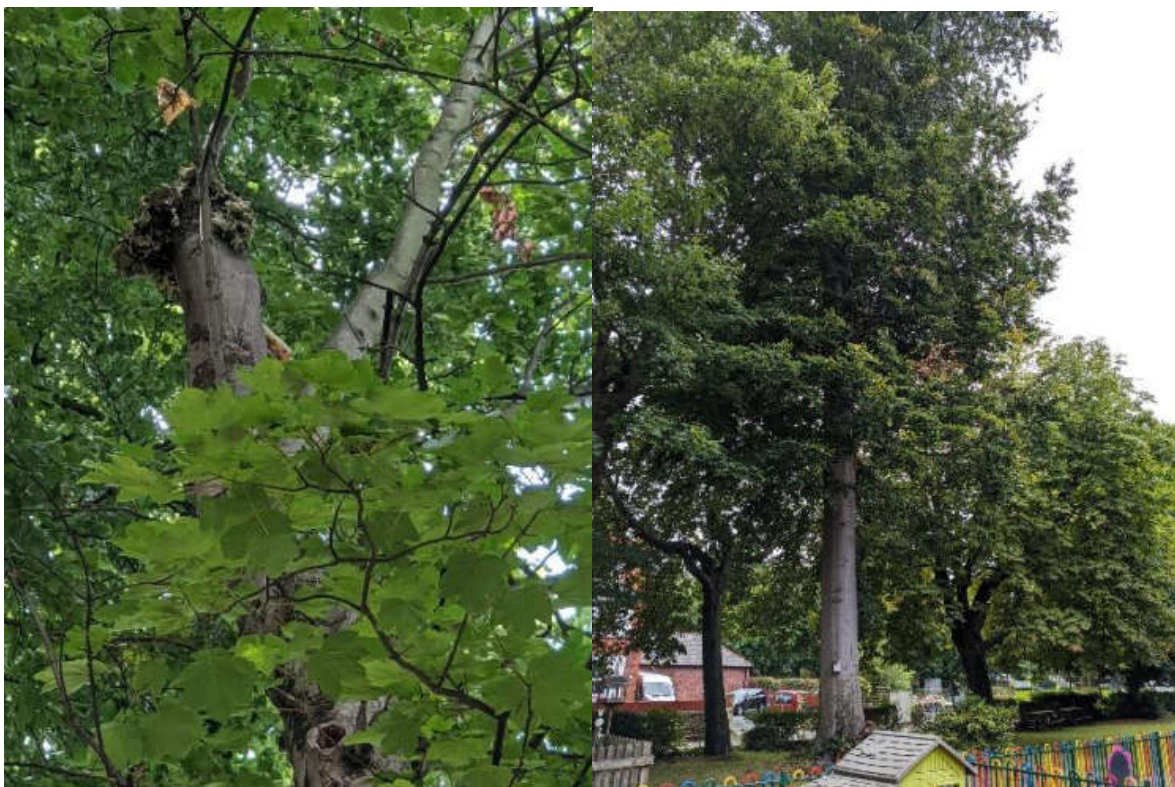
Figure 33. Tree 25 (horse chestnut) large limb-loss wound to SW (left) and exhibiting lean over road to SE (right).



Figure 34. Tree 25 (horse chestnut) extensively pruned away from streetlight (left) and dysfunction shown in lowest limb to the SW probably caused by extensive crown lifting (right).



*Figure 35. Tree 25 (horse chestnut) extensively pruned away from street light)(left). Tree 26 (sycamore) bifurcation at 2.3m and showing extensive crown lifting.*



*Figure 36. Tree 26 (sycamore) zoomed-in shot of point where tree has been reduced to around 9m (left). Tree 27 (beech) (right)*



Figure 37. Tree 27 (beech) attachment of bird box to stem at 1.8m to the NW (left). Tree 28 (horse chestnut) exhibiting an asymmetric crown and lean due to shading out from the W side.

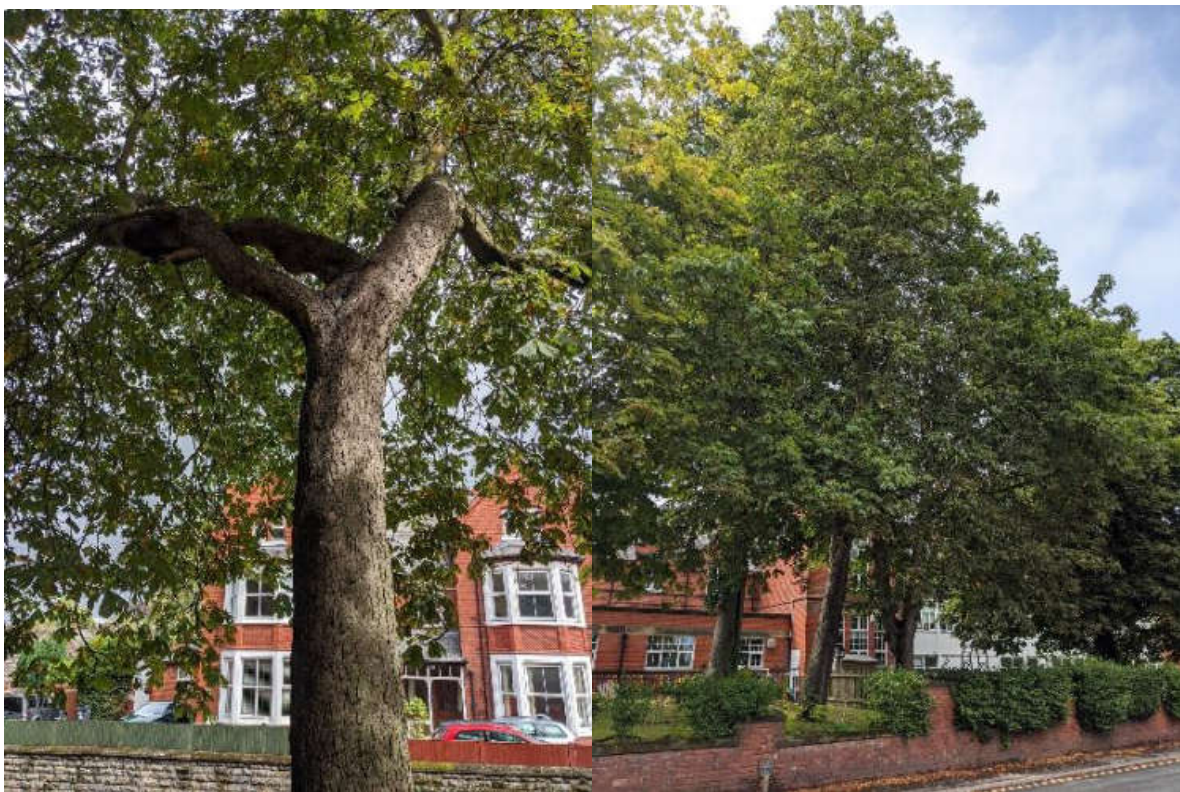
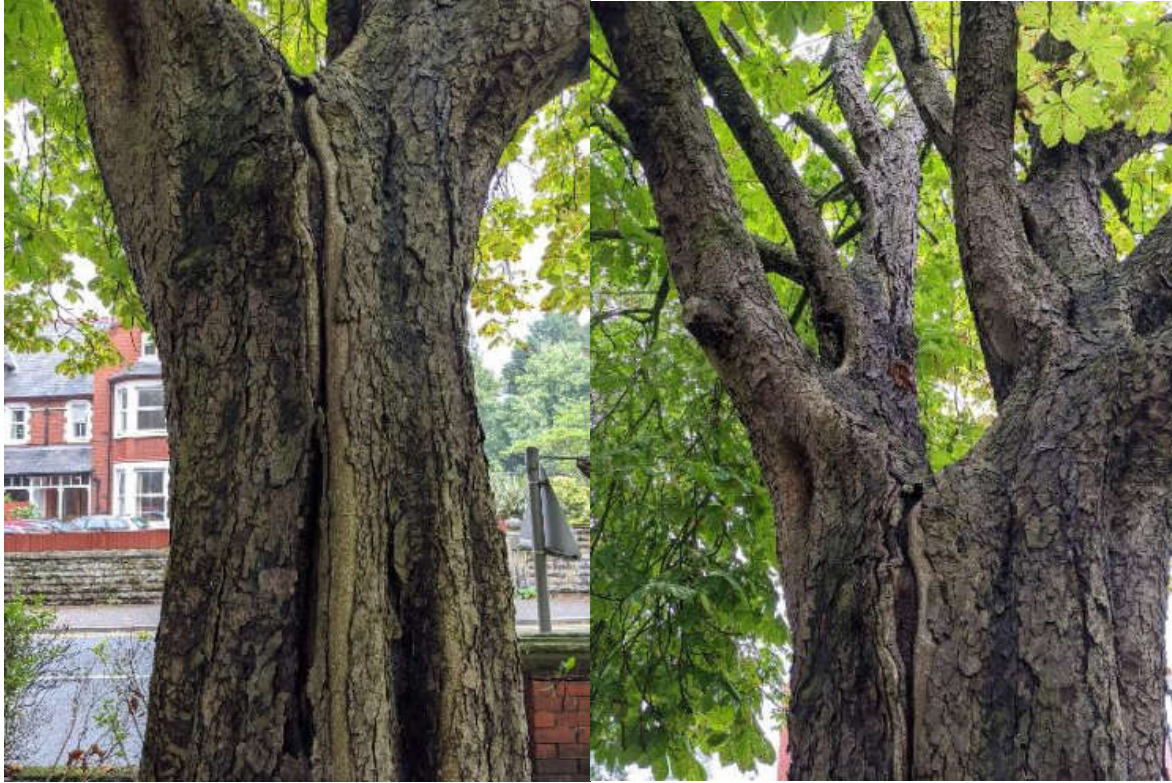


Figure 38. Tree 28 (horse chestnut) from W side showing lean over Chester Road (left) and crown taken from E side (right).



*Figure 39. Tree 29 (horse chestnut) exhibiting dieback in the S side of the crown (left) and bark missing from the root buttresses exposing very soft timber beneath.*



*Figure 40. Tree 29 (horse chestnut) exhibiting a large split that runs from the floor to the main fork. This is showing some signs of occlusion but exposed timber is soft and degrading. The crown above is showing many areas of missing bark and dieback above these areas.*



Figure 41. Tree 29 (horse chestnut) showing its main area of thinning and dieback in the crown to the S side from below (left). Tree 30 (common lime) with basal adventitious growth obscuring the root buttresses (right).



Figure 42. Tree 31 32 and 33 (sugar maples) all exhibiting a slight lean to the E and crown lifts between 4.5m ad 5.5 m



Figure 43. Trees 31, 32, and 33(sugar maples) and their proximity to the current construction work.



Figure 44. Tree 33 (sugar maple) Dark spotting found on stem at 1.3m to SE.



Figure 45. Tree 34 (sycamore) well contained within a hard-standing environment (left). Large limb removed at ground level showing beginnings of occlusion.



Figure 46. Tree 34 (sycamore) Crown size and structure (left). Roots pushing up between flags (right).



Figure 47. Tree 35 (copper beech) leaning heavily to the SW (left) and extensive crown lifting work including hollowing branch sockets and some areas of mechanical damage (right).



Figure 48. Tree 36 (yew)(left). Tree 37 (yew) exhibiting a slightly asymmetric crown.



*Figure 49. Tree 37 (yew) lower branches showing beginnings of good occlusion.*



*Figure 50. . Tree 37 (yew) lower branches showing beginnings of good occlusion.*



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