

# Combined Arboricultural Impact Assessment/ Method Statement Plas Farm Hydro Swansea SA8 3JQ



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## Introduction

This survey was carried out by Ben Clark, Arboricultural Consultant, and Director at Tree Check Arboriculture Ltd. with over 8 years' experience in the arboriculture industry and holding the following qualifications:

- Level 4 Diploma in Arboriculture
- BSc. Geology (University of Southampton)
- LANTRA Professional Tree Inspection Certificate (PTI)
- Various NPTC qualifications in tree surgery.

Currently an MSC. Student in Arboriculture and Urban forestry, Ben is a technician member of the arboricultural association and attends regular training and seminars to remain up to date with current arboricultural practices.

The methodology of this report is based on the recommendations provided by the British Standards Institute document BS5837: Trees in Relation to Design, Demolition and Construction – Recommendations, as well as other recommendations provided by institutions such as the Arboral Association.

## Brief

Tree Check has been instructed by Adam Cropper of Eller Green to carry out a tree survey and categorisation at Plas Farm. Based on the findings, we were also instructed to carry out an impact assessment to consider proposed development on site, as well as produce a method statement to protect retained trees

The following information was available:

- Topographical Survey provided by Eller Green
- Proposed layout provided by Eller Green

It should be noted that all of the trees recorded in this report were shown on the topographical plan, and their locations in the Tree Constraints Plan are based on GPS and should be taken as indicative only. All locations and distances should be checked on site.

The site was visited on the 01-Nov-2023 during dry and wet and overcast conditions considered reasonable for this type of survey.

## Scope

- The purpose of this report is to provide a recommended method statement aimed at avoiding, or minimising negative impact to trees by proposed development.
- Trees have only received a cursory inspection and this report does not constitute a full tree condition/safety survey. Ongoing inspection should proceed as per the landowner's tree management plan.
- A tree constraints plan has been produced to indicate the locations of trees and the BS5837 calculated rooting areas. in relation to the site.
- The intended purpose of this report is that it is used as an aid to assess impact on, and constraints caused by trees when designing the layout of the site.
- Where trees have been noted to be hazardous in terms of unacceptable third-party risk this has been noted and recommendations given.
- General management recommendations have been given where appropriate.
- The inspection was carried out at ground level from inside the site and along adjacent public roads trees were not climbed and no internal decay detection was used. It is our policy to recommend further investigation with decay detection equipment where features observed during visual inspection warrant such action.
- All heights of trees were estimated from ground level.
- Branch spread was measured from the base of the trees in four cardinal directions using a laser tape measure.
- Stem Diameter was measured at 1.5m above ground level using a diameter tape measure.

- Data on the observed structural condition of the tree has been entered, e.g., collapsing, leaning and the presence of any observed decay or physical defect has been noted.
- Soil analysis has not been carried out.

## Interpretation

### BS Categories

Trees have been assigned retention categories in accordance with BS5837. These are as follows:

**Category A-** Trees with a high retention value which are either arboriculturally important, important within the landscape, or culturally/ecologically important.

**Category B-** Trees with a moderate retention value i.e. they are good examples of their species, provide some notable amenity value to the area, or provide significant ecological or cultural value.

**Category C-** Trees with a low retention value. Including trees with defects which reduce their amenity value or expected lifespan but not to the extent that they cannot be realistically retained within the development.

**Category U-** Trees of which retention is considered unrealistic within the context of the development due to poor condition and low life expectancy.

See the [Table 1](#) in the annex section of this report for more information on the allocation of categories and subcategories.

### Tree Age Ratings

Y- Young trees in their early stage of growth, have undergone minimal secondary thickening and are still primarily composed of active tissue.

EM- Early mature trees that have started to show characteristics of maturity such more developed crowns and increased stem thickness.

M- Mature fully developed trees.

OM- Over mature trees that are starting to show signs of decline.

A- Ancient trees that have reached a notably old age for their species and are therefore considered to be important.

V- Veteran trees with notable features such as wounds, cavities, cracks, etc. that provide significant habitat value. These are usually older trees.

### Root Protection Areas (RPA's)

Root Protection areas have been calculated according to BS5837 and represent the estimated minimum rooting area required by the tree to carry out its functions.

Excavation in this area can cause physiological or structural harm to a tree and the movement of machinery or personnel over this area can cause soil compaction and in turn, physiological harm to the tree.

There will be excavation works going on in the RPA's of several trees. The methodology of this works will be stated in this method statement.

### Remaining Contribution

Remaining contribution has been estimated based on the trees overall condition, approximate age, and the life expectancy of the species in question. This is based on the assumption that new factors are not introduced that will affect the trees life expectancy, such as pathogens, climate factors or other biotic or abiotic influences.

## Terminology

See annex v for a glossary of the terms commonly used in tree reports.

Trees and groups are numbered with the following prefixes:

- **T-** individual trees.
- **G-** groups of trees with similar characteristics and rooting areas.
- **H-** Hedgerows.
- **W-** woodland groups, designated as such due to the presence of woodland features such as natural regeneration,

## Tree Schedule

| Ref | Tag | Species                                                                                                                                                            | Height (m) | Stem Diameter (mm) | Crown Spread (m) |   |   |   | Crown Clearance (m) | Lowest Branch (m) | Survey Notes                                                                                                                          | Recommendations                                                                         | Life Stage | Life Expectancy (years) | Retention Category | RPA Area (m <sup>2</sup> ) | RPA Radius (m) | Photo             |
|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------------|---|---|---|---------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------|-------------------------|--------------------|----------------------------|----------------|-------------------|
|     |     |                                                                                                                                                                    |            |                    | N                | E | S | W |                     |                   |                                                                                                                                       |                                                                                         |            |                         |                    |                            |                |                   |
| G1  | N/A | Hazel ( <i>Corylus avellana</i> )<br>Common holly ( <i>Ilex aquifolium</i> )<br>Sycamore ( <i>Acer pseudoplatanus</i> )                                            | 10         | 400                | 3                | 3 | 3 | 3 | 10                  | 10                | Small, unremarkable trees growing from rocks above stream.                                                                            | No action required.                                                                     | EM         | 20-40                   | C2                 | 72                         | 4.8            | <a href="#">1</a> |
| G2  | N/A | Sycamore ( <i>Acer pseudoplatanus</i> )<br>Common ash ( <i>Fraxinus excelsior</i> ) Cypress ( <i>Cupressocyparis</i> sp.)                                          | 14         | 600                | 3                | 3 | 3 | 3 | 8                   | 8                 | Trees of reasonable form growing from banking above stream.                                                                           | No action required.                                                                     | M          | 20-40                   | B2                 | 162                        | 7.2            | <a href="#">2</a> |
| G3  | N/A | Common ash ( <i>Fraxinus excelsior</i> ) Common holly ( <i>Ilex aquifolium</i> )<br>Common hawthorn ( <i>Crataegus monogyna</i> )                                  | 10         | 500                | 2                | 2 | 2 | 2 | 6                   | 6                 | Medium to large trees of poor form on stream banking.<br><br>Ash Dieback Disease ( <i>Hymenoscyphus fraxineus</i> ) health stage 1-2. | Reinspect annually in the summertime to monitor the progression of Ash Dieback Disease. | M          | 20-40                   | C2                 | 113                        | 6.0            | <a href="#">3</a> |
| G4  | N/A | Goat willow ( <i>Salix caprea</i> ) Common ash ( <i>Fraxinus excelsior</i> )<br>Hazel ( <i>Corylus avellana</i> )<br>Common hawthorn ( <i>Crataegus monogyna</i> ) | 7          | 350                | 2                | 2 | 2 | 2 | 2                   | 2                 | Unremarkable trees of average form along stream and acting as a boundary between fields.                                              | No action required.                                                                     | EM         | 10-20                   | C2                 | 55                         | 4.2            | <a href="#">4</a> |

| Ref | Tag | Species                                                                                                                                                                                             | Height (m) | Stem Diameter (mm) | Crown Spread (m) |   |   |   | Crown Clearance (m) | Lowest Branch (m) | Survey Notes                                                                                                                                                | Recommendations                                                       | Life Stage | Life Expectancy (years) | Retention Category | RPA Area (m <sup>2</sup> ) | RPA Radius (m) | Photo             |
|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------------|---|---|---|---------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------|-------------------------|--------------------|----------------------------|----------------|-------------------|
|     |     |                                                                                                                                                                                                     |            |                    | N                | E | S | W |                     |                   |                                                                                                                                                             |                                                                       |            |                         |                    |                            |                |                   |
| G5  | N/A | Silver birch ( <i>Betula pendula</i> ) Pedunculate oak ( <i>Quercus robur</i> )<br>Hazel ( <i>Corylus avellana</i> )<br>Sycamore ( <i>Acer pseudoplatanus</i> ) Goat willow ( <i>Salix caprea</i> ) | 12         | 500                | 7                | 7 | 7 | 7 | 4                   | 4                 | Trees of reasonable form. Growing at the edge of field and down to stream.                                                                                  | No action required.                                                   | M          | 20-40                   | B2                 | 113                        | 6.0            | /                 |
| G6  | N/A | Pedunculate oak ( <i>Quercus robur</i> )<br>Common hawthorn ( <i>Crataegus monogyna</i> )<br>Hazel ( <i>Corylus avellana</i> )                                                                      | 9          | 350                | 5                | 5 | 5 | 5 | 5                   | 5                 | Medium sized trees of fair form bordering fields. Recently heavy pruning has been carried out on to facilitate drainage works.                              | No action required.                                                   | EM         | 10-20                   | C2                 | 55                         | 4.2            | <a href="#">5</a> |
| G7  | N/A | Common ash ( <i>Fraxinus excelsior</i> ) Pedunculate oak ( <i>Quercus robur</i> )<br>Common holly ( <i>Ilex aquifolium</i> )                                                                        | 16         | 700                | 4                | 4 | 4 | 4 | 8                   | 8                 | Large trees mostly of good form with multiple failed and dead trees throughout.<br>Ash Dieback Disease ( <i>Hymenoscyphus fraxineus</i> ) health stage 1-2. | Monitor the progression of Ash Dieback. Remove failed and dead trees. | M          | 20-40                   | B2                 | 221                        | 8.4            | <a href="#">6</a> |
| G8  | N/A | Pedunculate oak ( <i>Quercus robur</i> )                                                                                                                                                            | 11         | 350                | 5                | 5 | 5 | 5 | 2                   | 5                 | Group of smaller trees of fair form. Suppressed by neighbouring trees.                                                                                      | No action required at this time.                                      | M          | 20-40                   | C2                 | 55                         | 4.2            | <a href="#">7</a> |

| Ref | Tag | Species                                                                                                                                                                    | Height (m) | Stem Diameter (mm) | Crown Spread (m) |   |   |   | Crown Clearance (m) | Lowest Branch (m) | Survey Notes                                                   | Recommendations                  | Life Stage | Life Expectancy (years) | Retention Category | RPA Area (m <sup>2</sup> ) | RPA Radius (m) | Photo             |
|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------------|---|---|---|---------------------|-------------------|----------------------------------------------------------------|----------------------------------|------------|-------------------------|--------------------|----------------------------|----------------|-------------------|
|     |     |                                                                                                                                                                            |            |                    | N                | E | S | W |                     |                   |                                                                |                                  |            |                         |                    |                            |                |                   |
| G9  | N/A | Common ash ( <i>Fraxinus excelsior</i> )<br>Rhododendron ( <i>Rhododendron ponticum</i> )<br>Goat willow ( <i>Salix caprea</i> )<br>Silver birch ( <i>Betula pendula</i> ) | 10         | 300                | 3                | 3 | 3 | 3 | 0                   | 0                 | Unremarkable scrubby growth.                                   | No action required at this time. | EM         | 10-20                   | C2                 | 40                         | 3.6            | <a href="#">8</a> |
| G10 | N/A | Pedunculate oak ( <i>Quercus robur</i> )<br>Sycamore ( <i>Acer pseudoplatanus</i> )<br>Rhododendron ( <i>Rhododendron ponticum</i> )                                       | 16         | 740                | 8                | 8 | 8 | 8 | 4                   | 4                 | Large mature trees with an understory of rhododendron          | No action required at this time. | M          | 10-20                   | B2                 | 247                        | 8.9            | /                 |
| G11 | N/A | Common beech ( <i>Fagus sylvatica</i> )<br>Pedunculate oak ( <i>Quercus robur</i> )<br>Common holly ( <i>Ilex aquifolium</i> )                                             | 14         | 500                | 6                | 6 | 6 | 6 | 2                   | 2                 | Trees of good form acting as a boundary between fields.        | No action required at this time. | M          | 10-20                   | B2                 | 113                        | 6.0            | /                 |
| G12 | N/A | Hazel ( <i>Corylus avellana</i> )<br>Common hawthorn ( <i>Crataegus monogyna</i> )<br>Sycamore ( <i>Acer pseudoplatanus</i> )<br>Crab apple ( <i>Malus sylvestris</i> )    | 9          | 300                | 3                | 3 | 3 | 3 | 1                   | 1                 | Small trees of fair form at edge of garden next to the stream. | No action required at this time. | EM         | 20-40                   | C2                 | 40                         | 3.6            | /                 |

| Ref | Tag | Species                                                                                                                         | Height (m) | Stem Diameter (mm) | Crown Spread (m) |    |    |    | Crown Clearance (m) | Lowest Branch (m) | Survey Notes                                                                                                      | Recommendations                  | Life Stage | Life Expectancy (years) | Retention Category | RPA Area (m <sup>2</sup> ) | RPA Radius (m) | Photo              |
|-----|-----|---------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------------|----|----|----|---------------------|-------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------|------------|-------------------------|--------------------|----------------------------|----------------|--------------------|
|     |     |                                                                                                                                 |            |                    | N                | E  | S  | W  |                     |                   |                                                                                                                   |                                  |            |                         |                    |                            |                |                    |
| G13 | N/A | Sycamore ( <i>Acer pseudoplatanus</i> )<br>Common ash ( <i>Fraxinus excelsior</i> )<br>Pedunculate oak ( <i>Quercus robur</i> ) | 14         | 700                | 5                | 5  | 5  | 5  | 7                   | 8                 | Woodland area made up of large trees of good form. A section has been recently cleared by National Grid.          | No action required at this time. | M          | 20-40                   | B2                 | 221                        | 8.4            | <a href="#">9</a>  |
| G14 | N/A | Common ash ( <i>Fraxinus excelsior</i> )<br>Sycamore ( <i>Acer pseudoplatanus</i> )<br>Pedunculate oak ( <i>Quercus robur</i> ) | 14         | 700                | 5                | 5  | 5  | 5  | 7                   | 8                 | Woodland area made up of large trees of generally good form. A section has recently been cleared by national Grid | No action required at this time. | M          | 20-40                   | B2                 | 221                        | 8.4            | /                  |
| G15 | N/A | Sycamore ( <i>Acer pseudoplatanus</i> )<br>Pedunculate oak ( <i>Quercus robur</i> )                                             | 12         | 750                | 8                | 8  | 8  | 8  | 0                   | 2                 | Large trees of good form, growing along boundary wall.                                                            | No action required at this time. | M          | 20-40                   | B2                 | 254                        | 9.0            | /                  |
| T1  | N/A | Common ash ( <i>Fraxinus excelsior</i> )                                                                                        | 16         | 1100               | 10               | 10 | 10 | 10 | 8                   | 6                 | Large mature tree of good form. Growing from the embankment, above stream.                                        | No action required at this time. | M          | 20-40                   | B2                 | 547                        | 13.2           | <a href="#">10</a> |
| T2  | N/A | Common ash ( <i>Fraxinus excelsior</i> )                                                                                        | 15         | 850                | 7                | 7  | 7  | 7  | 12                  | 10                | Large mature tree growing out of rocks above stream.                                                              | No action required at this time. | M          | 20-40                   | B2                 | 326                        | 10.2           | <a href="#">11</a> |
| T3  | N/A | Pedunculate oak ( <i>Quercus robur</i> )                                                                                        | 12         | 800                | 3                | 3  | 3  | 3  | 5                   | 5                 | Mature tree with most of the crown damaged and/or snapped out.                                                    | No action required.              | M          | 10-20                   | C2                 | 289                        | 9.6            | <a href="#">12</a> |

| Ref | Tag   | Species                                       | Height (m) | Stem Diameter (mm) | Crown Spread (m) |   |   |   | Crown Clearance (m) | Lowest Branch (m) | Survey Notes                                                                                                                                             | Recommendations                                                                        | Life Stage | Life Expectancy (years) | Retention Category | RPA Area (m <sup>2</sup> ) | RPA Radius (m) | Photo              |
|-----|-------|-----------------------------------------------|------------|--------------------|------------------|---|---|---|---------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------|-------------------------|--------------------|----------------------------|----------------|--------------------|
|     |       |                                               |            |                    | N                | E | S | W |                     |                   |                                                                                                                                                          |                                                                                        |            |                         |                    |                            |                |                    |
| T4  | 0759  | Common ash ( <i>Fraxinus excelsior</i> )      | 14         | 490                | 6                | 6 | 6 | 6 | 6                   | 8                 | Large twin stemmed tree on edge of banking.<br>Ash Dieback Disease ( <i>Hymenoscyphus fraxineus</i> ) health stage 1-2.                                  | Reinspect annually in the summertime to monitor the progression of Ash Dieback Disease | M          | <10                     | C2                 | 108                        | 5.9            | /                  |
| T5  | No ne | Common ash ( <i>Fraxinus excelsior</i> )      | 14         | 580                | 6                | 6 | 6 | 6 | 6                   | 8                 | Large tree on the edge of the embankment.<br>Ash Dieback Disease ( <i>Hymenoscyphus fraxineus</i> ) health stage 1-2.                                    | Reinspect annually in the summertime to monitor the progression of Ash Dieback Disease | M          | <10                     | C2                 | 152                        | 7.0            | /                  |
| T6  | N/A   | Pedunculate oak ( <i>Quercus robur</i> )      | 15         | 750                | 8                | 8 | 8 | 8 | 4                   | 5                 | Tree of good form on banking above stream.                                                                                                               | No action required at this time.                                                       | M          | 20-40                   | B2                 | 254                        | 9.0            | /                  |
| T7  | N/A   | Pedunculate oak ( <i>Quercus robur</i> )      | 15         | 750                | 8                | 8 | 8 | 8 | 4                   | 5                 | Tree if good amongst scrub area between fields.                                                                                                          | No action required at this time.                                                       | M          | 20-40                   | B2                 | 254                        | 9.0            | /                  |
| T8  | N/A   | Sycamore ( <i>Acer pseudoplatanus</i> )       | 14         | 720                | 7                | 7 | 7 | 7 | 1                   | 2                 | Large tree with extensive dieback throughout crown and large areas of dysfunctional sapwood characterised by peeling and moribund bark on the main stem. | Fell to ground level.                                                                  | M          | <10                     | U                  |                            | 8.6            | <a href="#">13</a> |
| T9  | N/W   | Hazel ( <i>Corylus avellana</i> )             | 10         | 200                | 3                | 3 | 3 | 3 | 1                   | 0                 | Small tree of fair form.                                                                                                                                 | No action required.                                                                    | M          | 10-20                   | C2                 | 18                         | 2.4            | <a href="#">14</a> |
| T10 | NA    | Rhododendron ( <i>Rhododendron ponticum</i> ) | 6          | 150                | 5                | 5 | 5 | 5 | 0                   | 0                 | Small shrubby tree growing from wall.                                                                                                                    | No action required.                                                                    | SM         | 10-20                   | C2                 | 10                         | 1.8            | /                  |

# Arboricultural Impact Assessment/Method Statement

## 1. Tree Preservation Orders and Conservation Areas

The site isn't subject to any tree preservation orders but is situated within a conservation area.

Under the Town and Country Planning Act (1990) six weeks' notice must be given to the relevant local planning authority before carrying out any works including pruning and removal on trees over 75mm diameter at 1.5m above ground level within the designated area.

## 2. Tree Removal

No trees are recommended for removal to make way for development.

T8 is recommended for removal due to its poor condition and U category.

## 3. Pruning Works

No trees are recommended for pruning to make way for development.

## 4. Root Protection Areas (RPA's)

Root Protection areas have been calculated according to BS5837. These represent the below ground constraints for a given tree, the radius of which is included in the tree schedule and represented as an orange circle or polygon on the tree constraints plan.

## 5. Areas of Caution

A number of areas on site have been highlighted as areas of caution, these are areas where there is a heightened risk of damage to the above ground structure or root system of retained trees through the proposed works. In these areas prescribed measures must be followed. Certain methodologies in this document will state that they are to be followed within areas of caution. The location of all areas of caution can be found on the [Tree Protection Plan](#) within the appendix section of this report.

## 6. Impact from Construction Activity

### Physical Damage

Wherever construction or demolition work takes place on a site with retained trees, there is a risk of damage to the branches and scaffold structure of retained trees from the movement and use of plant within the site.

The following trees are at risk of direct physical damage during development works and the methodology outlined below must be followed in areas of caution in order to prevent such incidents from occurring:

- |       |      |
|-------|------|
| • G13 | • G3 |
| • G14 | • T4 |
| • G10 | • T3 |
| • T8  | • G1 |
| • G6  | • T1 |
| • G4  |      |

### Control Measures

- By maintaining a construction exclusion zone, with tree protective barrier fencing segregating retained trees from the rest of site, physical damage to trees can be avoided.
- Tree protective barrier fencing must be installed in the configuration outlined in the [Tree Protection Plan](#).

- The alternative tree protective fencing ([figure 3](#)) as outlined in BS5837 is preferable for this site due to its steep nature with fencing within RPA's. This configuration avoids driving posts into the ground, thus reducing root disturbance.
- The crowns of all trees must be enclosed within the tree protective fencing. If more space is needed than the current crown extents allow, the project arboriculturist must be consulted in order to arrange appropriate pruning measures.
- Machine operators are to be briefed on positioning their equipment to avoid contact with branches from retained trees and the root protection zones.

### Chemical Damage

There is a risk of chemical damage to trees from the mixing and storage of cement and other damaging chemicals.

The following trees are at significant risk of chemical damage during development works due to their close proximity to proposed built structures and the methodology outlined below must be followed in areas of caution in order to prevent such incidents from occurring:

- T1
- G1
- G13
- G14

### Control Measures

- Materials that may have an adverse effect on the health of trees will not be stored or transported within the RPA. E.g., oil, bitumen, cement, and concrete.
- Concrete and cement will not be mixed within 10m of the base of trees.
- Cement and concrete will be mixed downhill from the base of trees or watercourses to avoid the risk of contamination to runoff.
- Where it is not possible to mix and store concrete downhill from trees and watercourses, sediment barriers must be used to prevent runoff from storage and mixing areas.

### Soil Compaction

With the movement of personnel and machinery around site, there is a risk of soil compaction when construction activity takes place near retained trees. Soil compaction limits gas exchange between the soil and the atmosphere and inhibits water and nutrient uptake by the root system. Often leading to physiological decline of the tree.

The following trees are at significant risk of damage through soil compaction during development works and the methodology outlined below must be followed in areas of caution in order to prevent such incidents from occurring:

- |       |      |
|-------|------|
| • G13 | • G3 |
| • G14 | • T4 |
| • G10 | • T3 |
| • T8  | • G1 |
| • G6  | • T1 |
| • G4  |      |

### Control Measures

- By maintaining a construction exclusion zone, with tree protective barrier fencing segregating retained trees from the rest of site, soil compaction related damage to trees can be avoided.
- Tree protective barrier fencing must be installed in the configuration outlined in the [Tree Protection Plan](#).
- The alternative tree protective fencing ([figure 3](#)) as outlined in BS5837 is preferable for this site due to its steep nature with fencing within RPA's. This configuration avoids driving posts into the ground, thus reducing root disturbance.

- Areas of Caution are outlined on the Tree Protection plan as areas where entering the RPA's are necessary.
- Ground protection should be used in the areas of caution in the form of interlocking track mats for machinery.
- No materials are to be stored within the RPA's of trees for any period of time, including in areas of caution.
- All RPA's are to be checked on site and marked out, measured based on the RPA radius shown in the tree schedule.

## 7. RPA Incursions

### Conflicts Between Proposed Structures and the RPA's of Retained Trees

Construction within the RPA of retained trees can cause damage through root severance and negatively impact the health of the tree by removing potential rooting medium.

The construction of the pump house conflicts with the RPAs of the following groups of trees.

- G13
- G14

### Control Measures

- Excavation works are to be carried out under arboriculturists supervision, all roots encountered are to be pruned back to the edge of the excavation using a sharp hand saw or secateurs.
- Excavations may be carried out using a small excavator (e.g. 1.5t) under the supervision of a qualified arboriculturalist.
- Interlocking ground protection mats are to be installed before machine access into any areas of caution or RPA's occurs.
- Trenches are to be lined with an impermeable membrane prior to the pouring of concrete for foundations.

### Demolition Within the RPA's of Retained Trees

No demolition work is proposed within the root protection areas of retained trees.

- If the proposed layout is changed in any way that causes a conflict with the RPA of retained trees the project arboriculturalist must be consulted.

### Installation of Services Within the RPA's of Retained Trees

The 200mm plastic pipe that connects the intake to the pump house, and the outfall pipe cross through the RPA's of the following trees and groups:

- |      |       |
|------|-------|
| • G1 | • G13 |
| • G4 | • G14 |
| • G6 | • T3  |
| • G8 | • T4  |

- The pipe is to be installed above ground in all areas of caution.
- In these areas the pipe is to be transported and installed by hand, maintaining the construction exclusion zones for all vehicles.
- If vehicle access is required into these areas, interlocking ground protection boards must be installed and a qualified arboriculturalist consulted.
- Where the outfall pipe cannot be installed above ground, excavations are to take place under Arboricultural Supervision, with the use of interlocking ground protection boards with use of a small 1.5t excavator. All roots are to be pruned to the edge of the trench using a sharp hand saw or secateurs.

## Hard Surfacing Within the RPA's of Retained Trees

A pedestrian path is to be installed to allow access to the pump house, this will affect the following group:

- G13

The following methodology must be applied to prevent damage to the retained trees of the above group.

### Control Measures

- The new footpath must be of a tree friendly construction where it crosses the RPAs of G13 and G14 incorporating a geocell design to ensure that loads are distributed to prevent soil compaction within the RPA of retained trees.
- This method statement is based on Arboricultural Association Guidance Note 12- Cellular Confinement Systems: a Guide to Good Practice and is to be used as an example of the basic desirable approach, but in order to guarantee that the surface will be suitably durable the final specification should be produced or approved by a suitably qualified and experienced person. This may be the project engineer or an engineer from a geocell provider (such advice is a standard service provided by most UK geocell suppliers and adds little or nothing to the cost of the installation).
- Numerous proprietary cellular confinement systems are available of various designs and thicknesses. The product used on site will be determined by the expected loads, site conditions and consultation with manufacturers.
- See Figure 1 for a conceptual diagram outlining the design principle.

### Ground Preparation:

- Pre-existing hard surfacing or the turf layer (if present), is to be removed with a grading bucket over the area of installation.
- Machine excavation is appropriate as ground protection is to be installed within the areas of caution and root material is expected to be limited below any current hard surfacing or within the turf layer, however, arboricultural supervision is necessary for this to ensure damage of roots over 25mm, or root clusters is avoided.
- This work must be carried out in dry conditions as wet soil is more easily compacted.
- Ramps made of sharp sand should be used to cover up any exposed roots and ensure a level surface. The depth of sand should be kept to a minimum to reduce the risk of sand layer erosion leading to surface failure.
- Protruding rocks must be removed from the area and backfilled with excavated soil or sharp sand.

### Geotextile Membrane

- A geotextile membrane layer is to be rolled out over the installation areas. This base layer of geotextile should be made of polypropylene or polyester (min. 300g/m<sup>2</sup>) with a CBR puncture resistance of 4000N to prevent puncture from the angular aggregate to be laid above.
- Sheets of geotextile membrane must overlap by at least 300mm.

### Geocell

- Geocell mat is to be laid out above the geotextile membranes. Depending on site conditions, sections can either be butted up together, or stapled together at each cell.
- Cells must be fully extended in order for the ground protection to be effective.
- Sections can be secured in place with the use of J-hooks (steel reinforcing bars bent into a 'candy cane' shape)

### Infill

- The cells are then to be filled to 25mm over their limit with 20/40 aggregate (or 4/20 if this is not available.)
- M.O.T type 1 or crushed stone with fines are not suitable materials for this design.
- Machines used to carry out this operation are to be placed outside of the RPA of trees or on ground protection mats.
- This material is not to be compacted down.

**Edging (optional)**

- Edging is not typically necessary to support the cellular confinement system, which forms its own rigid structure. However, edging may be desirable to provide the desired finish.
- A timber edging can be secured in place with pins, or path edging stones laid directly on to the geocell, using concrete to fill in the outer edge of the system to provide a base.

**Finishing Layer**

- A Gravel finishing layer bound in a stabilisation grid may be used for the surface of the footpath.
- An upper geotextile membrane will be used to separate the finishing layer from the cellular confinement system in order to prevent fines from clogging the system and inhibiting gas exchange.
- upper membrane to be non woven polypropylene or polyester (min. 100- 300g/m<sup>2</sup>) with a CBR puncture resistance of 4000N to prevent puncture from the angular aggregate below.
- A permeable Asphalt layer is also appropriate for this type of design, the upper geotextile membrane is not required if this finish is opted for.

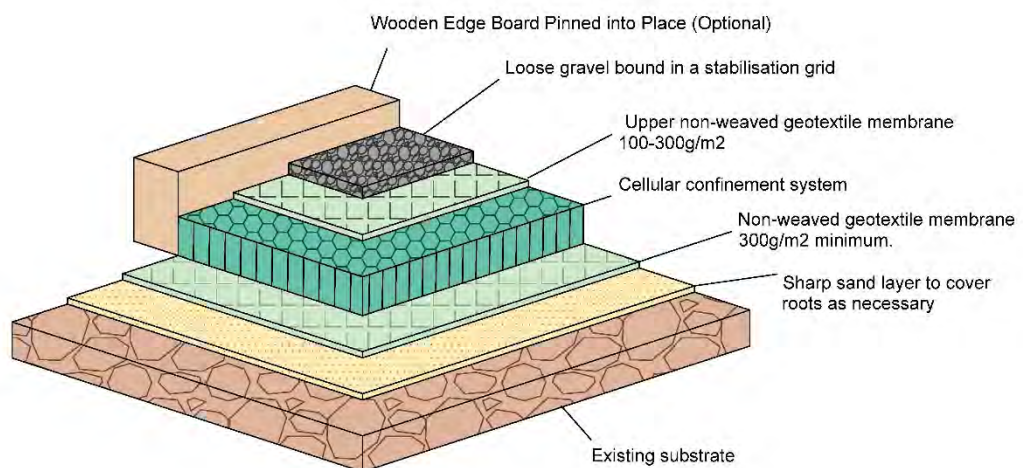


Figure 1. This drawing, produced by Tree Check Arboriculture Ltd. is not to scale and is intended as an indicative tool for the use in planning application only. It is not to be taken as a finalised design to be used on site. Numerous proprietary ground protection boards are available and the manufacturers advice, site specific conditions, and the advice of engineering specialists should be taken into consideration when designing ground protection.

## 8. Level Changes

No conflicts involving level changes are anticipated on site, although no level data has been provided. If there are any significant level changes around trees the project arboriculturalist must be consulted.

- If the proposed layout is changed in any way that causes a conflict with the RPA of retained trees the project arboriculturalist must be consulted.

## 9. Impact of Retained Trees on the Proposed Structure

**Shading Issues**

No shading issues are anticipated as no living areas are proposed.

- No specific methodology is applicable for this section due to absence of significant impact.

**Nuisance Caused by Detritus From Trees**

There is a risk that the water intake will become clogged with detritus from the surrounding trees, causing a nuisance and increasing pressure for tree clearance.

- The water intake should be designed in such a way to prevent detritus causing blockages, employing leaf guards or similar measures where necessary.

### **Perceived Threat of Damage to Property Through Tree Failure**

Not applicable to this type of site.

### **Displacement of Lightweight Structures through Secondary Root Thickening**

There is a small risk of future displacement of the pedestrian footpath due to secondary root thickening, however, the above ground load spreading design of the footpath should significantly mitigate the risk of this.

- No specific methodology is applicable for this section due to absence of significant impact.

### **Indirect Damage through Shrinkable Clay Soils**

Not Applicable to this site.

- No soil analysis has been carried out but, geotechnical advice including soil testing should be taken when construction is taking place near large trees. For advice on avoiding subsidence related damage refer to NHBC Chapter 4.2.

### **Potential Damage Through Branch Contact**

Not applicable on this site.

- No specific methodology is applicable for this section due to absence of significant impact.

## **10. Drainage and SUDS**

No drainage plans have been provided but the topography of the site and positioning of trees does not suggest any likely conflicts between drainage arrangements and trees, if any drainage features are proposed near any arranged trees the project arboriculturalist must be consulted, including situations where water may be diverted towards or away from trees.

- If the proposed layout is changed in any way that causes a conflict with the RPA of retained trees the project arboriculturalist must be consulted.

## **11. Conflict from Boundary Walls and Fences**

There is no conflict between proposed boundary walls and fences with retained trees.

- If the proposed layout is changed in any way that causes a conflict with the RPA of retained trees the project arboriculturalist must be consulted.

## **12. Conflict with Proposed Landscaping and Retained Trees**

Not applicable for this site.

- If the proposed layout is changed in any way that causes a conflict with the RPA of retained trees the project arboriculturalist must be consulted.

## **13. Scope for Preventing Tree Losses through Design Change**

Not applicable as no tree losses are proposed.

- No specific methodology is applicable for this section due to absence of significant impact.

## 14. Mitigation of Tree Losses

Not applicable as no tree losses are proposed.

- No specific methodology is applicable for this section due to absence of significant impact.

## Appendix

Appendix i: Photographs taken on site.

Appendix ii: Tree constraints plan showing the location of trees and their root protection areas

Appendix iii: Tree protection/loss/retention plan showing the location of trees, their root protection areas and their retention category in relation to the proposed development.

Appendix iv: A cascade chart from BS5837: 2012- Trees in relation to design, demolition, and construction– Recommendations explaining the categorisation of trees.

Appendix v: A diagram showing the recommended configuration for tree protective fencing, from BS5837: 2012- Trees in relation to design, demolition, and construction– Recommendations.

Appendix vi: A Glossary of terms and phrases commonly used in tree reports.

Appendix vii: References.

## Appendix i: Photographs

**Photo 1:** [G1](#)- Small unremarkable trees set above the stream and growing in rocky conditions.



**Photo 2:** [G2](#)- Large trees on far side of the stream.



**Photo 3:** [G3](#)- Ash trees infected with Ash Dieback Disease Health stage 1-2.



**Photo 4:** [G4](#)- Small, unremarkable trees between fields and subject to powerline maintenance pruning.



**Photo 5:** [G6](#)-Small trees between fields with evidence of recent heavy pruning works.



**Photo 6:** [G7](#)- trees generally of reasonable form but with several failed and dead trees within the group.



**Photo 7: G8- woodland group.**



**Photo 8:** [G9](#)- Dense area of unremarkable trees and shrubs.



**Photo 9:** [G13](#)- Large trees of reasonable form adjacent to the area that has been cleared by National Grid recently.



**Photo 10: T1- Large tree at the edge of the stream.**



**Photo 11:** [T2](#)- Large Ash tree growing from banking above stream.



**Photo 12: T3- Oak tree with much of its crown failed.**

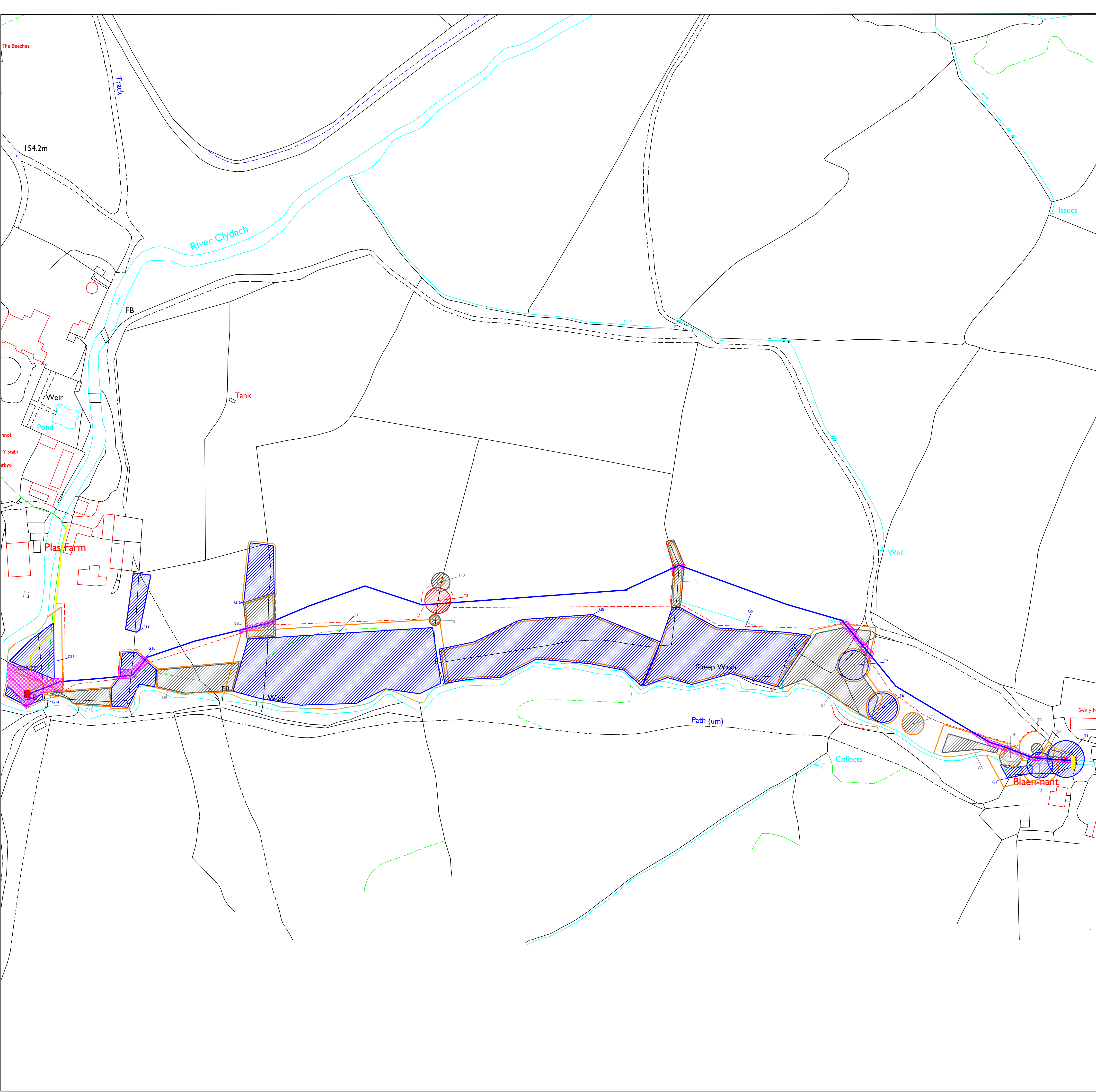


**Photo I3: T8-** Dysfunctional bark on much of the main stem.



**Photo 14: T9- Smal Hazel tree.**





| Ref | Tag | Species                                                                                                                                                      | Height | Stem Diam (mm) | Life Stage | Life Expectancy | Retention Category | RPA Area (m <sup>2</sup> ) | RPA Radius (m) |
|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------|------------|-----------------|--------------------|----------------------------|----------------|
| G1  | N/A | Hazel (Corylus avellana)<br>Common holly (Ilex aquifolium)<br>Sycamore (Acer pseudoplatanus)                                                                 | 10     | 400            | EM         | 20-40           | C2                 | 72                         | 4.8            |
| G2  | N/A | Sycamore (Acer pseudoplatanus)<br>Common ash (Fraxinus excelsior)<br>Cypress (Cupressocyparis sp.)                                                           | 14     | 600            | M          | 20-40           | B2                 | 163                        | 7.2            |
| G3  | N/A | Common ash (Fraxinus excelsior)<br>Common holly (Ilex aquifolium)<br>Common hawthorn (Crataegus monogyna)                                                    | 10     | 500            | M          | 20-40           | C2                 | 113                        | 6              |
| G4  | N/A | Goat willow (Salix caprea)<br>Common ash (Fraxinus excelsior)<br>Hazel (Corylus avellana)<br>Common hawthorn (Crataegus monogyna)                            | 7      | 350            | EM         | 10-20           | C2                 | 55                         | 4.2            |
| G5  | N/A | Silver birch (Betula pendula)<br>Pedunculate oak (Quercus robur)<br>Hazel (Corylus avellana)<br>Sycamore (Acer pseudoplatanus)<br>Goat willow (Salix caprea) | 12     | 500            | M          | 20-40           | B2                 | 113                        | 6              |
| G6  | N/A | Pedunculate oak (Quercus robur)<br>Common hawthorn (Crataegus monogyna)<br>Hazel (Corylus avellana)                                                          | 9      | 350            | EM         | 10-20           | C2                 | 55                         | 4.2            |
| G7  | N/A | Common ash (Fraxinus excelsior)<br>Pedunculate oak (Quercus robur)<br>Common holly (Ilex aquifolium)                                                         | 16     | 700            | M          | 20-40           | B2                 | 222                        | 8.4            |
| G8  | N/A | Pedunculate oak (Quercus robur)                                                                                                                              | 11     | 350            | M          | 20-40           | C2                 | 55                         | 4.2            |
| G9  | N/A | Common ash (Fraxinus excelsior)<br>Rhododendron (Rhododendron ponticum)<br>Goat willow (Salix caprea)<br>Silver birch (Betula pendula)                       | 10     | 300            | EM         | 10-20           | C2                 | 41                         | 3.6            |
| G10 | N/A | Pedunculate oak (Quercus robur)<br>Sycamore (Acer pseudoplatanus)<br>Rhododendron (Rhododendron ponticum)                                                    | 16     | 740            | M          | 10-20           | B2                 | 248                        | 8.9            |
| G11 | N/A | Common beech (Fagus sylvatica)<br>Pedunculate oak (Quercus robur)<br>Common holly (Ilex aquifolium)                                                          | 14     | 500            | M          | 10-20           | B2                 | 113                        | 6              |
| G12 | N/A | Hazel (Corylus avellana)<br>Common hawthorn (Crataegus monogyna)<br>Sycamore (Acer pseudoplatanus)<br>Crab apple (Malus sylvestris)                          | 9      | 300            | EM         | 20-40           | C2                 | 41                         | 3.6            |
| G13 | N/A | Sycamore (Acer pseudoplatanus)<br>Common ash (Fraxinus excelsior)<br>Pedunculate oak (Quercus robur)                                                         | 14     | 700            | M          | 20-40           | B2                 | 222                        | 8.4            |
| G14 | N/A | Common ash (Fraxinus excelsior)<br>Sycamore (Acer pseudoplatanus)<br>Pedunculate oak (Quercus robur)                                                         | 14     | 700            | M          | 20-40           | B2                 | 222                        | 8.4            |
| G15 | N/A | Sycamore (Acer pseudoplatanus)<br>Pedunculate oak (Quercus robur)                                                                                            | 12     | 750            | M          | 20-40           | B2                 | 254                        | 9              |
| T1  | N/A | Common ash (Fraxinus excelsior)                                                                                                                              | 16     | 1100           | M          | 20-40           | B2                 | 547                        | 13             |
| T2  | N/A | Common ash (Fraxinus excelsior)                                                                                                                              | 15     | 850            | M          | 20-40           | B2                 | 327                        | 10             |
| T3  | N/A | Pedunculate oak (Quercus robur)                                                                                                                              | 12     | 800            | M          | 10-20           | C2                 | 290                        | 9.6            |
| T4  | 075 | Common ash (Fraxinus excelsior)                                                                                                                              | 14     | 490            | M          | <10             | C2                 | 109                        | 5.9            |
| T5  | N/A | Common ash (Fraxinus excelsior)<br>Pedunculate oak (Quercus robur)                                                                                           | 14     | 580            | M          | <10             | C2                 | 152                        | 7              |
| T6  | N/A | Pedunculate oak (Quercus robur)                                                                                                                              | 15     | 750            | M          | 20-40           | B2                 | 254                        | 9              |
| T7  | N/A | Pedunculate oak (Quercus robur)                                                                                                                              | 15     | 750            | M          | 20-40           | B2                 | 254                        | 9              |
| T8  | N/A | Sycamore (Acer pseudoplatanus)                                                                                                                               | 14     | 720            | M          | <10             | C2                 | 235                        | 8.6            |
| T9  | N/A | Hazel (Corylus avellana)                                                                                                                                     | 10     | 200            | M          | 10-20           | C2                 | 18                         | 2.4            |
| T10 | NA  | Rhododendron (Rhododendron ponticum)                                                                                                                         | 6      | 150            | SM         | 10-20           | C2                 | 10                         | 1.8            |

Key

- Category A. Trees with high retention value.

- Category B. Trees with moderate retention value.

- Category C. Trees with low retention value.

- Category U. Trees unsuitable for retention due to condition

- Root Protection Area (RPA)

Tree Key

Canopy extents, hatched area represents area within the canopy.

Location of tree base, taken from position on TOPO or GPS.

Reference number (T for trees, G for groups, W for woodlands, H for hedges).

RPA- an indication of the estimated minimum rooting area required by the tree. Calculated in accordance with BS5837.

Tree Protective Fence

- Areas of Caution

200mm buried pipeline

Overground pipeline

Powerhouse

Intake

Outfall buried pipe

Buried LV connection cable

Access path (pedestrian path only)

|                             |                  |
|-----------------------------|------------------|
| Plas Farm, Swansea, SA8 3JQ |                  |
| 1:1000 at A1                |                  |
| Client                      | AT Environmental |
| Survey Code                 | 24031            |
| Drawn by                    | JC               |
| Surveyed by                 | JC               |
| Date                        | 01/03/2024       |

Tree Check

Arboriculture Ltd.

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## Appendix iii: Cascade Table for the Categorisation of Trees (BS5837)

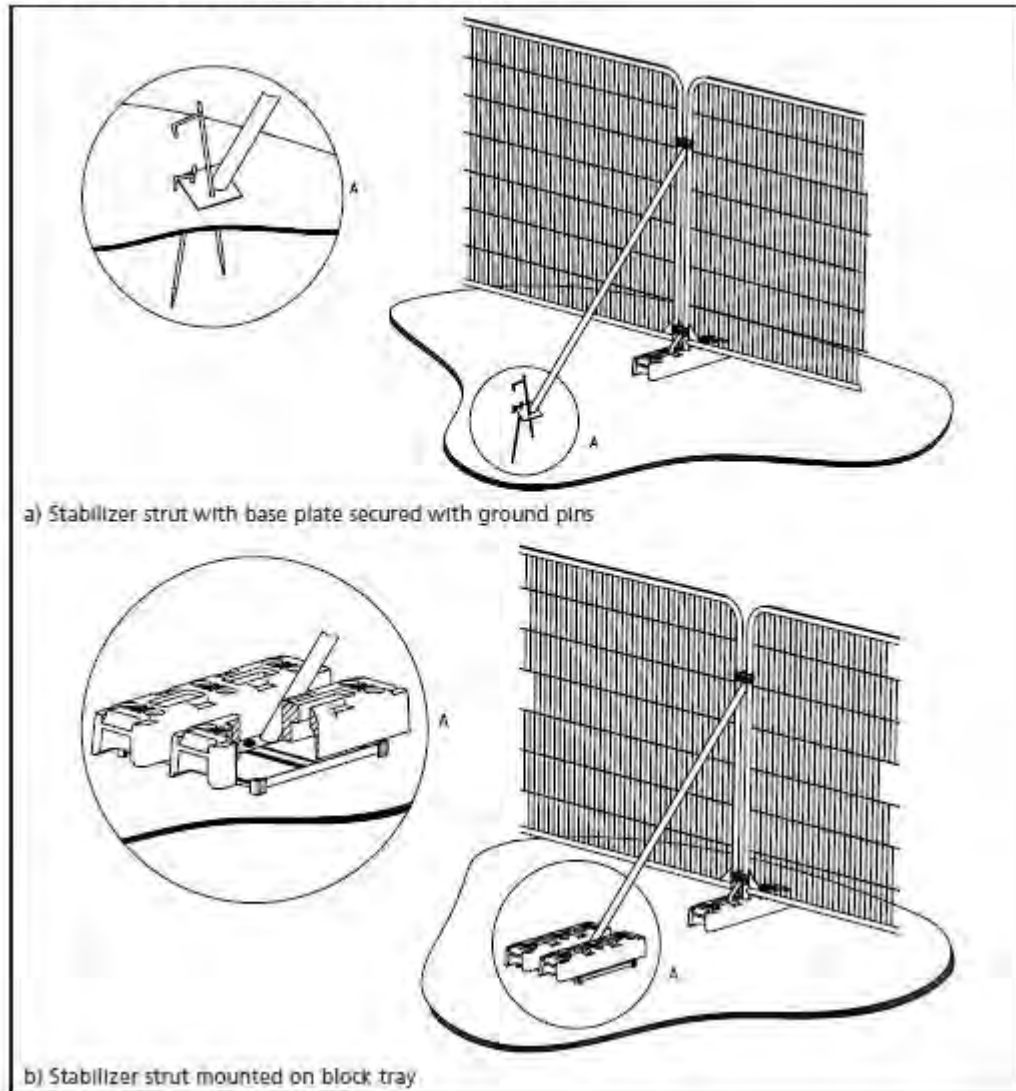
Table 1 – Cascade chart for tree quality assessment

| Category and definition                                                                                                                                                   | Criteria (including subcategories where appropriate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                   |                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Category U</b><br>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years | <ul style="list-style-type: none"><li>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li><li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li><li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li></ul> <p>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7</p> |                                                                                                                                                                                                                                                                   |                                                                                                                                       |
|                                                                                                                                                                           | 1 Mainly Arboricultural values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2 Mainly landscape values                                                                                                                                                                                                                                         | 3 Mainly cultural values, including conservation                                                                                      |
| <b>Category A</b><br>Those of high quality with an estimated remaining life expectancy of at least 40 years                                                               | Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features                                                                                                                                                            | Trees, groups or woodlands of significant conservation; historical, commemorative or other value (e.g. veteran trees or wood-pasture) |
| <b>Category B</b><br>Those of moderate quality with an estimated remaining life expectancy of at least 20 years                                                           | Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation                                                                                                                                                                                                                                                                                                                                                                                                    | Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality | Trees with material conservation or other cultural benefits                                                                           |
| <b>Category C</b><br>Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm               | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value, and/or trees offering low or only temporary/transient landscape benefits                                                              | Trees with no material conservation or other cultural value                                                                           |

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## Appendix iv: Recommended Configuration for Tree Protective Fencing (BS5837)

Figure 3 Examples of above-ground stabilizing systems



## Appendix v: Glossary

**Aerial Inspection:** A close inspection of the aerial part of a tree, either by mobile elevated work platform (MEWP) or by a tree surgeon (climbing inspection). **Adaptive Growth;** The growth of new wood in response to a stress concentration in the structure of a tree

**Adventitious;** A shoot which arises from tissue other than a growing shoot apex or bud, for instance in callus associated with a wound.

**Anchorage;** The holding of the structural root system of a tree with in the soil,.

**Architecture;** the formation and distribution of a trees branch system.

**Arboricultural Impact Assessment:** That part of the BS 5837 (2012) procedure that evaluates the tree-related constraints to a development (loss of trees, encroachment into root protection areas etc.).

**Arboricultural Method Statement:** That part of the BS 5837 (2012) procedure that sets out how site works should be carried out near trees to avoid accidental damage.

**Arboriculturalist:** A person skilled or knowledgeable in the field of arboriculture. The alternative term 'arboriculturalist' is sometimes used. A Person trained and experienced in the management of trees, and trees in relation to construction.,

**Assessment;** The process of examining the variables involving a trees condition and location in order to assess the risk posed by an individual tree.

**Bole (trunk):** The main , vertical stem or trunk of a tree.

**Branch:** a limb extending from the main stem or parent branch of a tree

**Canopy:** the combined foliage of a group of trees or a woodland, i.e. the combined area of numerous crowns.

**Construction Exclusion Zone;** The part of a development site from which all pedestrian and vehicular movements are excluded by protective fencing, typically to ensure the wellbeing of trees, during site works. Usually determined by the RPA of a tree.

**Crown:** in arboriculture the main foliage-bearing portion of a tree containing the leaves and branches

**Defect:** Any feature of a tree that is likely to make it less safe (in the case of a structural defect) or otherwise to reduce its health, longevity, landscape prominence or conservation value for any other reason.

**Dysfunction:** The cessation of physiological function in woody material, especially vascular functions such as water and sap transportation.

**Failure:** Fracture or deformation in any load bearing part of the tree, compromising stability or causing loss of support for part of, or all of the tree structure,

**Group:** More than one tree in close proximity that possess sufficient similarity or cohesiveness that they can be treated as a single entity for the purpose of this report.

**Heave:** deformation of shrinkable clay soil related to the expansion caused by rehydration.

**Leader:** the dominant, vertical shoot or stem of a tree.

**Pruning:** The cutting off or cutting back of tree branches or foliage to direct growth, remove an obstructing part, mitigate a nuisance, make safe, remove a diseased part, increase longevity, simulate natural damage, enhance habitat for wildlife etc.

**Retained Tree:** a tree that has been considered suitable for retention and therefore selected to remain as part of the final site layout.

**Risk:** the likelihood of a hazard to cause actual harm to people or property,

**Root Protection Area (RPA);** The area around the base of a tree that contains sufficient root volume to ensure the future well-being of the tree in the event of nearby soil disturbance (as on a development site). It is calculated according to guidelines in BS 5837 (2012).

**Subsidence (branch):** Branches, especially if spreading, tend gradually to subside under their own weight, and may eventually reach ground level in large open-grown trees. Rapid subsidence may result in crown separation or congested bark and can lead to branch failure where there is no support within the elastic limit of a given branch.

**Subsidence (soil):** Broadly, the downward movement of ground and an affected foundation influenced by soil properties, weather, foundation depth and nearby vegetation.

**Targets:** An element of tree risk: the subject of injury or damage within range of a hazard.

**Tree:** The definition of 'tree' is a composite of tree species, tree form and tree size. The blue book offers the following: A perennial plant with a self-supporting woody main stem, usually developing woody branches at some distance from the ground and growing to a considerable height and size. This definition has the three main elements in general form. **For the purposes of 5837 surveys, only plants with a stem diameter of 75mm or above are considered trees.**

**Tree Constraint Plan (TCP):** Site plan showing the tree-related constraints to development as envisaged in BS 5837 (2012). Common constraints are the loss of trees, encroachment into a tree's root protection area.

**Tree Condition Inspection/Survey:** A procedure to inspect a tree or trees. Variables used to describe a tree include position (if not already plotted on a topographical survey), species identity, maturity, various dimensions (main stem diameter, height, crown radius etc.), aspects of form, vigour, condition, incidence of pests, diseases, damage and defects, evidence of past management etc. Site factors, position in the landscape and site usage may also be relevant, usually including its position, species identity, dimensions, age class, condition, conservation value etc. as appropriate, and to identify and evaluate defects. It is also common to make management recommendations (see schedule of works). Tree inspection is a fundamental of tree management and advisory practice in arboriculture.

**Tree Preservation Order:** (UK) an order made by a local authority or other planning authority to protect a tree, group of trees, area of (scattered) trees or woodland under Part VIII of the Town and Country Planning Act 1990. There have been several amendments, the latest being the Town and Country Planning (Tree Preservation) (England) Regulations 2012. An order is generally made on the grounds of amenity and expediency. Anyone proposing works to a TPO tree must seek prior consent from the authority using the form IAPP. With the advent of the 2012 regulations, some of the detail in existing TPOs in England has been revoked.

**Tree Protection Plan:** scale drawing prepared by an arboriculturalist showing the final layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

**Trunk:** see bole.

**Vigour:** The health and resilience of a tree (from the Latin 'to be strong'), reflected in the capacity of the whole tree to grow (see growth rate). The term is often used as a description of overall condition on a qualitative scale from 'high' to 'low'.

**Visual Tree Assessment (VTA):** The standard approach to tree risk assessment consisting of the diagnosis of structural defects and the evaluation of their significance from visible signs and the application of biomechanical criteria. Simple equipment such as a sounding mallet, probe and binoculars are commonly used.

**Wind exposure:** the degree to which a tree or other object is exposed to wind, with regard both to duration and velocity, often taking into account prevailing wind directions.

**Windthrow:** the blowing over of a tree at its roots.

## Appendix vi: References

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## Terms and conditions

The Client is the party commissioning and funding the survey. The Consultant is any person(s) employed by Tree Check Arboriculture LTD to carry out any related works, as well as Tree Check Arboriculture LTD as an entity.

## Limitations

1. This survey reflects the condition of the trees as they were observed on 04/10/2023. The condition of trees can change quickly and if any significant change is observed then a qualified arboriculturist should be consulted regardless of the recommended reinspection period.
2. While every attempt has been made to provide accurate recommendations based on the condition of the observed trees, Tree Check Arboriculture Ltd. can accept no liability for damage, injury, or loss of property caused by faults that were not apparent at the time of inspection. These include but are not limited to faults that may only be visible seasonally such as fungal fruiting bodies, or faults that were obscured or inaccessible to the surveyor such as those high up in the crown or obscured by ivy.
3. During adverse weather conditions such as storms, otherwise healthy trees can fail. Trees should be visually inspected after any high winds.
4. This report cannot predict the reaction of inspected trees to external factors such as extreme climate events, accidents, or vandalism.
5. The author(s) can accept no liability for damages if the recommended works are not carried out as per this report in line with BS:3998.
6. Operational recommendations (e.g.) climb and dismantle, are for loose guidance only. It remains the responsibility of the assigned contractor to decide on the safest work method. Tree Check Arboriculture LTD. accepts no responsibility for damages occurring during the carrying out of recommended works.
7. This report does not cover any underground part of trees, nor does it consider any affect inspected trees may have on shrinkable clay soils since these issues are almost entirely restricted to areas of shrinkable clay soils and soil analysis was not specified in the brief.
8. **Recommendations made in this report do not override any legislation covering the affected trees. Trees in a conservation area, trees subject to preservation orders and groups of trees requiring felling licenses still require relevant permissions before work can be carried out. Unless otherwise agreed the Tree Check Arboriculture LTD will not be checking for the presence of this legislation or be applying for these permissions. The Client must contact the consultant if they are unsure on this matter.**
9. Certain areas of the site were inaccessible in the time scale of this survey due to dense vegetation cover. Areas and trees where this has been an issue are described in certain trees and groups in the survey table.
10. **The findings of this report cannot be relied upon after 12 months from the time of inspection or the recommended reinspection date (if sooner).**

## Legal Constraints

1. The report is for use by the client and any reasonably involved third party advisors only. Rights to reproduce, publish, or broadcast the contents of this reports are reserved.
2. It is prohibited to make any amendments or omissions to this report under any circumstances. This report should be provided unaltered and in full to any third-party advisors, contractors or other involved parties to ensure that the hazards highlighted are understood and the necessary remedial works are commissioned. Failure to comply will invalidate the report and Tree Check Arboriculture Ltd. will accept no liability for damages occurring.
3. Tree Check Arboriculture LTD retains full title on this, and all subsequent reports until the relevant invoices are settled. Tree Check Arboriculture LTD accepts no liability relating to the contents of reports that have not been fully paid for.
4. This report only covers the scope described in the introduction of this report, as discussed with the client, Trees, and methods of inspection not described in the scope were not included, and it is the client's responsibility to bring it to the attention of Tree Check Arboriculture LTD if they feel the scope doesn't fully meet their requirements.
5. The consultant is under no obligation to inspect trees in areas that are not freely accessible. It is the client's responsibility to ensure that all relevant areas of site are legally and practically accessible to the consultant.
6. In some instances, the consultant may recommend that further professional opinions are sought. For example, structural engineers, geotechnical engineers, drain engineers etc. Tree Check Arboriculture LTD accepts no responsibility for losses occurring from the advice sought from these third parties, nor from damages caused from acting without the consultation of the recommended professionals.
7. Tree Check Arboriculture LTD. accepts no responsibility for losses occurring between the time of commissioning and the delivery of a written report. No responsibility is accepted for losses occurring where delays or failure to deliver a report on the agreed date where delays or failures occurred due to circumstances out of the control of Tree Check Arboriculture LTD.
8. Each provision of these conditions limiting or excluding liability operates and survives independently of the others