

BS5837:2012 Tree Survey  
Land at Kirkby Moats Industrial Estate  
Newbold Road  
Kirkby Mallory  
Leicestershire  
NGR SK45547 01853

Survey by  
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|  <p>smas<br/>worksafe<br/>consultant<br/>www.smasltd.com<br/>as recognised by<br/>SSIP SAFETY<br/>SCHEMES IN<br/>PROCUREMENT</p> | Report prepared by:<br>C Barker        | Date Issued: 15 March 2023                                                                                                          |
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|                                                                                                                                                                                                                     | Report ref:<br><b>P2736 / 0323 /02</b> | C B E Consulting<br>Highbank, 5 Grantham Road, Navenby<br>Lincoln. LN5 0JJ.<br>Telephone (01522) 810086.<br>www.cbeconsulting.co.uk |

# **BS5837 Tree Survey, Land at Kirkby Moats Industrial Estate**

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# 1. Introduction

## 1.1 Site Description and Location

The site surveyed comprises an existing light industrial estate with commercial industrial buildings situated at Kirkby Moats Farm, Newbold Road, Kirkby Mallory, Leicestershire centred at NGR SK45547 01853. The location of the site is shown on the plan within **Figure 1** and an aerial photograph has been provided within **Figure 2** to place the site in context.

The site lies within Hinckley and Bosworth and is not within a designated Conservation Area. Assessment of the survey area using the Hinckley and Bosworth Borough Council on-line Tree Preservation Order mapping system has not identified any TPOs in or immediately adjacent to the survey area.

In order to facilitate an application to obtain permission to redevelop the area surveyed the Applicant has requested a BS5837 (2012) Tree Survey should be completed to assess the quality of the trees within and close to the boundary of the field and the impact any development may have on these. An inspection of the site was completed on 26<sup>th</sup> January 2023. A photographic record of the trees at the site is included within the report.



**Figure 1: Site location.**

Image copyright Microsoft Corporation 2023

## 1.2 Neighbouring Land Uses

The defined site area is in a rural location and comprises an industrial estate with large commercial and industrial building surrounded by palisade fencing along which there are a number of semi-mature trees and hedgerows. Land to the east and south comprises open arable land. To the north is a small parcel of open grassland used for grazing horses beyond which the open arable land continues. To the west is a small fishing pond (no longer in use), a stable and horse exercise / grazing areas. An aerial contextual photograph has been provided as **Figure 2**.



**Figure 2: Site Contextual Aerial Photograph**

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In undertaking the tree survey the assessment has been carried out in accordance with the specifications contained within BS 5837 Trees in Relation to Design, Development and Construction (2012). An inspection of the site and the immediate surrounding areas was completed by Christopher Barker, dipHort, CEnv, an experienced arboricultural consultant and licensed bat worker.

## 2. Tree Survey Appraisal Methodology

### 2.1 Survey Objectives

This tree survey has been carried out with the objective of:

- Identifying the individual tree species present at the site by means of visual inspection;
- To define the approximate age, condition and canopy spread of all individual mature and semi-mature trees identified and the value of these within the development context;
- To identify any trees that present a risk to existing or proposed foundations or other structures that may be constructed on the site and recommend action to remove this risk; and
- Recommend tree management / mitigation measures where appropriate.

The survey broadly assessed the condition and arboricultural value of the trees lying in or adjacent to the site area, paying attention to any mature individual trees present within or adjacent to the site area in order to prepare an assessment in accordance with BS 5837 Trees in Relation to Design, Development and Construction (2012).

### 2.2 Survey Methodology

The methodology set out below is a summary of the suggested approach to tree assessment as described in British Standard 5837:2012.

Trees have been broadly assessed based on guidance set out within the British Standard BS 5837:2012 'Trees in Relation to Design, Development and Construction'. This standard provides recommendations and guidance on the principles to be applied to achieve successful integration of development with trees, shrubs and hedgerows.

Trees on the site have been divided into one of four categories (based on the cascade chart for tree quality assessment). These are classed as A, B, C or U (Section 4 of BS 5837) within the table in Appendix 1. This gives an indication as to the tree's importance in relation to the site, the local landscape and, also, the value and quality of the existing trees on site.

**Category (A):** Trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years).

**Category (B):** Trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years).

**Category (C):** Trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150 mm.

**Category (U):** Trees that are considered to have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. These include any trees in such poor condition that they cannot be retained in the context of the current land use for more than 10 years. They are for this reason not considered as being significant within the planning process.

Species have been recorded by common and scientific name. Height has been estimated in metres and stem diameter measured in centimetres unless impractical, taken at a height of 1.5 m from the base of the tree.

The overall condition of any individual tree, or group of trees, has been referred to using one of the definitions listed below. A more detailed description of condition has been noted in the Tree Schedule.

- G **Good:** A sound tree or trees needing little, if any, attention
- F **Fair:** A tree or trees with minor but rectifiable defects or in the early stages of stress, from which it may recover
- P **Poor:** A tree or trees with major structural and physiological defects or stressed such that it would be very expensive and inappropriate to retain
- D **Dead:** A tree or trees no longer alive. However, this could also apply to those trees that are dying and will be unlikely to recover, or are becoming or have become dangerous

The survey was completed from ground level only. Aerial inspections were not undertaken. Evaluations of tree conditions given within this assessment apply to the date of survey and cannot be assumed to remain unchanged, and it may be necessary to review these within 24 months, in accordance with good arboricultural practice.

### 2.3 Site Plans & Tree schedules

The position of significant individual trees or groups of trees measured out on the site is shown on the Tree Location Plan **Figure 3**. Within the summary table (**Appendix 1**) a calculated corresponding radius of the circle for each RPA has been calculated. The Root Protection Areas are formulated to assist when designing layouts in relation to trees and the calculated RPAs in Appendix 1 should be used to inform the design layout of this site.

At the time this survey was completed no development plan were provided. The calculated RPAs are shown within **Figure 4** to provide guidance for the development layout.

### 3. Tree Survey Findings

#### 3.1 Survey Details

The tree inspection took the form of a walkover inspection completed by Christopher Barker dipHort, CEnv. Each individual semi-mature or mature tree of significance that could be impacted by any proposed new development within the survey area was identified, visually inspected and classified. The character of the trees at the site is shown in photographs contained within this section.

#### 3.2 Mature and Semi-Mature Trees

A total of eight individual trees, one hedgerow and one tree group have been identified and assessed as part of the tree survey.

**Trees T1 – T3 and Group G4** comprise Ash and Goat Willow situated on or close to the northern boundary of the survey area. None of these are large veteran trees but the Goat Willow are mature specimens with one having fallen over. Only Ash T1 is of sufficient quality and longevity to be placed into Category B2.



T1 and T2



Group G4



Oak T5



Hedgerow H6

**Oak T5 and Hedgerow H6** are situated outside of the site separated from this by an existing palisade fence. Oak T6 is a tree of good shape and quality with 40 years of useful life expectancy in this location and has been placed into Category A2. The hedgerow comprises untrimmed Hawthorn with some Elder and is placed into Category C2.

A second **Oak T7** is positioned on the north western edge of the survey area. Smaller than T5, this individual Oak has good shape and is in a position where it should have space to continue to have useful life expectancy of 40 years and this tree is placed into Category A2. There is a small apple nearby T8 which is of Category C quality.

**Holly T9 and Hawthorn T10** are two individual trees on the southern boundary of the site located just outside of the boundary palisade fence. Neither tree is of great stature and both are placed within Category C2.



Holly T9



Hawthorn T10

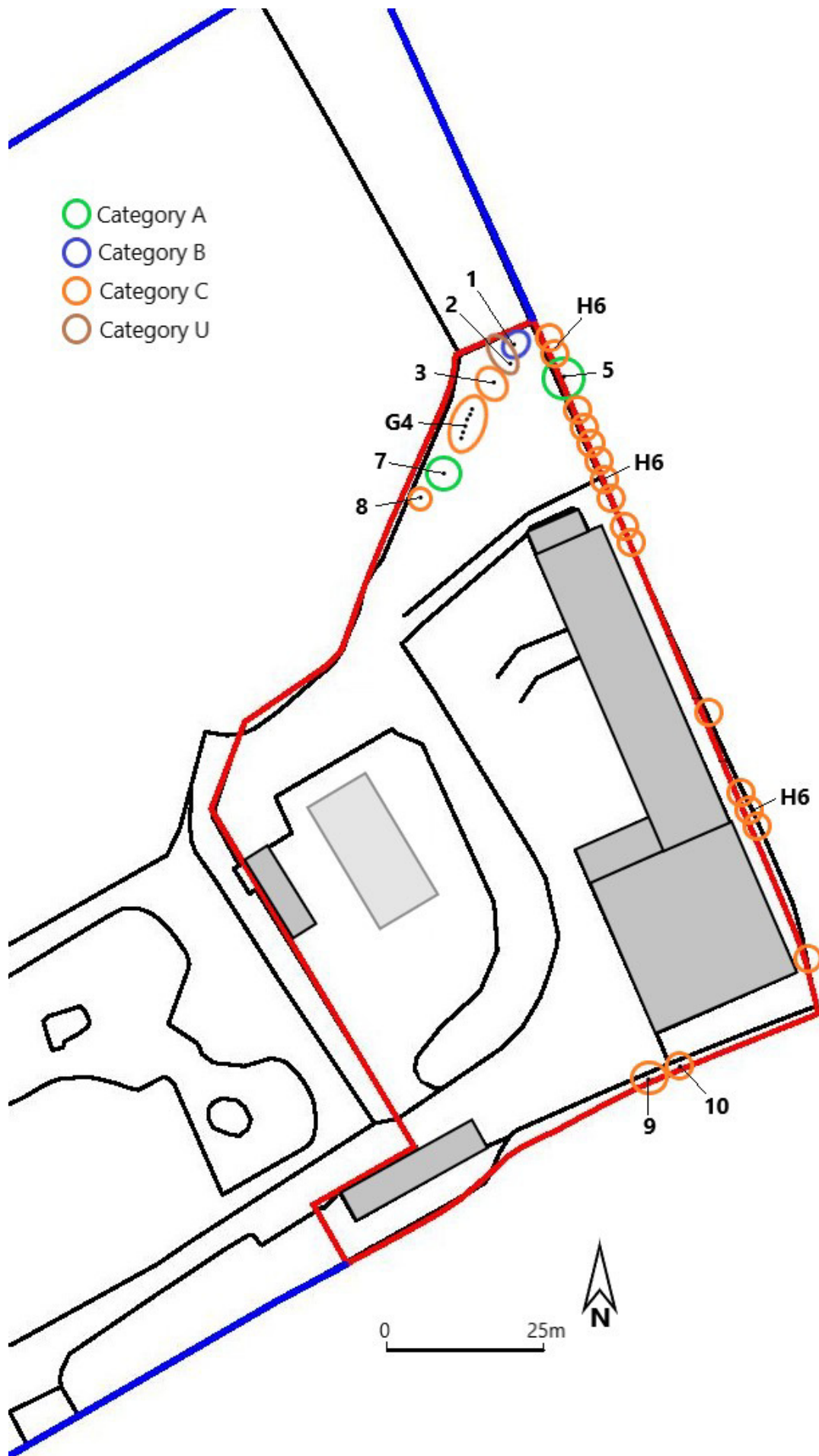
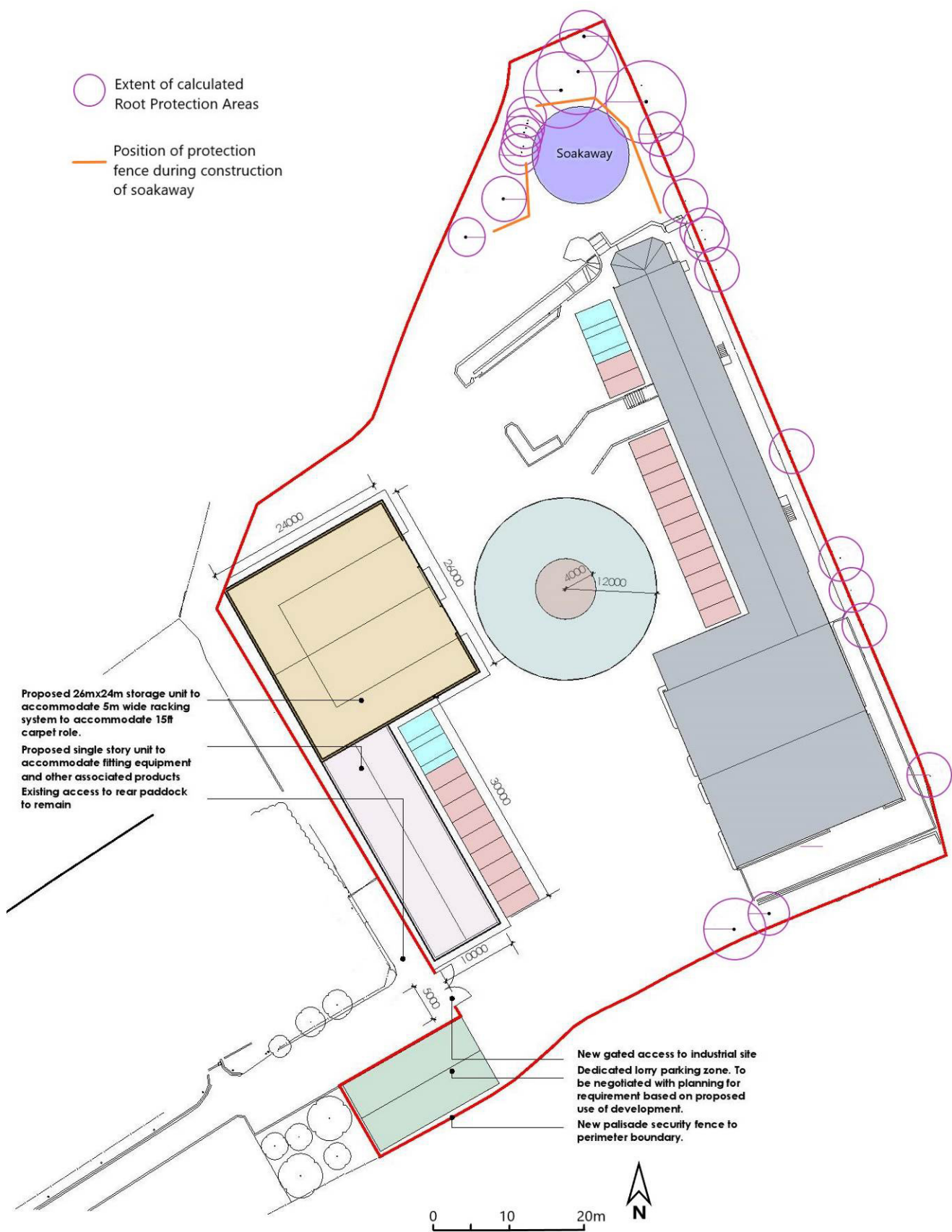


Figure 3 – Tree Category Plan



**Figure 4 – Constraints Plan**

## 4. Tree Management

### 4.1 Initial Arboricultural Assessment

In the context of this site the proposed development will retain the two main buildings B1 and B2 but remove the remaining buildings B3 / B4 and the area where there is an existing polytunnel frame. The remainder of the site will be cleared but the trees around the northern, Eastern and southern boundaries will be retained. None are identified as being removed. A soakaway will be constructed close to the trees along the northern boundary as shown within Figure 4 above. Based on this plan, the table below summarises the potential impact of the proposed development on the trees present within the area surveyed.

| Ref | Tree             | Category | Potential Impact of development                                                                                                                                                                                                                                                                                                                            |
|-----|------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T1  | Ash              | B2       | No impact from development and no works required to the tree canopy.                                                                                                                                                                                                                                                                                       |
| T2  | Goat Willow      | U        | The calculated RPA extends into the edge of the area identified for the construction of the soakaway. Minor loss of RPA will not impact the quality of longevity of this poor-quality tree.                                                                                                                                                                |
| T3  | Goat Willow      | C2       | The calculated RPA extends into the edge of the area identified for the construction of the soakaway. Minor loss of RPA will not impact the quality of longevity of this tree.                                                                                                                                                                             |
| G4  | Ash              | C2       | The calculated RPA extends into the edge of the area identified for the construction of the soakaway. Minor loss of RPA will not impact the quality of longevity of this tree group.                                                                                                                                                                       |
| T5  | Oak              | A2       | The calculated RPA extends into the edge of the area identified for the construction of the soakaway. It is recommended that the shaping of the soakaway should be amended to run along the outside edge of the RPA of this tree rather than disturb ground within this area. The RPA will need to be protected by fencing as the soakaway is constructed. |
| H6  | Hawthorn \ Elder | C2       | No impact from development and no works required to the tree canopy.                                                                                                                                                                                                                                                                                       |
| T7  | Oak              | A2       | No impact from development and no works required to the tree canopy. The RPA will need to be protected by fencing as the soakaway is constructed.                                                                                                                                                                                                          |
| T8  | Apple            | C2       | No impact from development and no works required to the tree canopy.                                                                                                                                                                                                                                                                                       |
| T9  | Holly            | C2       | No impact from development and no works required to the tree canopy.                                                                                                                                                                                                                                                                                       |
| T10 | Hawthorn         | C2       | No impact from development and no works required to the tree canopy.                                                                                                                                                                                                                                                                                       |

The proposed development is unlikely to have any significant impact on the trees within the survey area. The excavation of the new soakaway may extend into the edge of the calculated RPAs of a number of the trees along the northern and eastern boundaries. Whilst the impact of T2, T3 and G4 will be of negligible significance, it would be prudent to consider amending the shape of the soakaway a little to avoid the edge of the RPA of Oak T5.

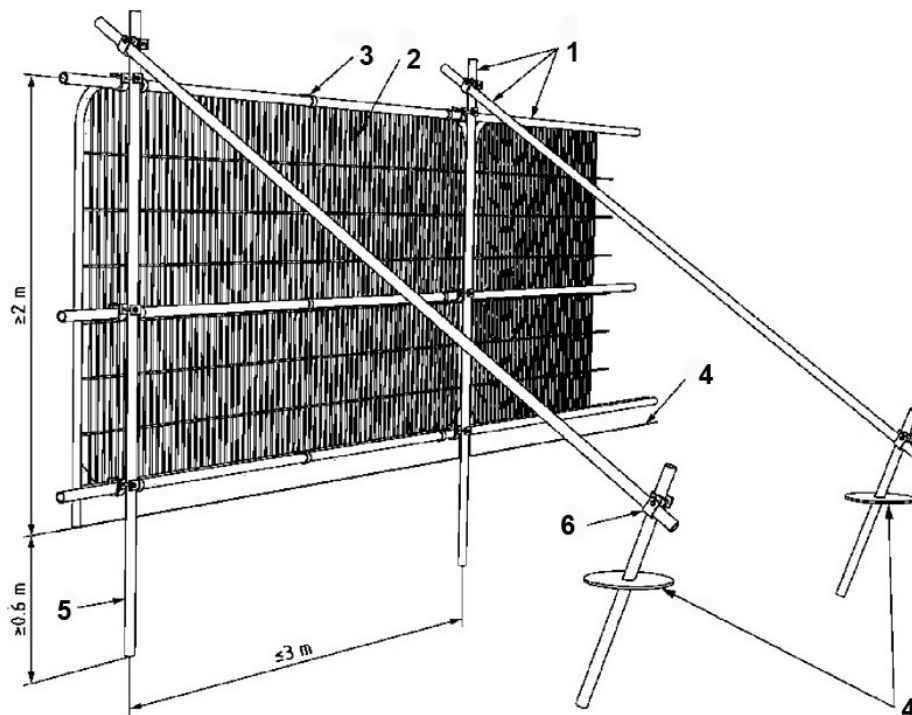
Both T5 and T7 are located sufficiently close to the area where the soakaway is to be excavated that protection fencing will be required to ensure there is no trafficking by excavators or other vehicles within the calculated RPAs.

## 4.2 General Recommendations

Some of the trees along the boundaries of the survey area will need to be protected during any approved development works. As a general rule at this site, measures to protect trees should follow the best practice principles set out in BS5837: Trees in Relation to Design, Development and Construction (2012). Prior to any construction or development work proceeding, the RPAs of individual trees to be retained should be marked out using the distances provided in the table within Appendix 1.

Marking out should be completed by a person with arboricultural or horticultural expertise as individual trees will have root zones that may be affected by local conditions and allowances will need to be made to accommodate this. The best practice principles have been broadly summarised below.

- All trees retained adjacent to the site should be protected by barriers or ground protection around the calculated Root Protection Area (RPA) and as indicated on any Tree Constraints Plan (TCP) that may be produced in association with the assessment.
- Any fencing required should be erected prior to commencement of construction and before demolition including erection of any temporary structures. Once set up fences should not be removed or altered without prior consultation with the arboricultural advisor.



1. Standard scaffold poles
2. Heavy Gauge 2m tall galvanised tube and weld mesh infill panels
3. Panels secured to uprights and cross members with wire ties
4. Ground Level
5. Uprights driven into ground until secure (up to 0.6m)
6. Standard scaffold clamps

- All tree works should follow best practice procedures as set out in BS 3998 (2010). All trees should be maintained in good condition on site and be inspected annually (where overall condition requires) or every 2 years and after any major storm events, with safety a priority.

- Fencing should be clearly visible and suitable for the location, type and proximity of construction activity.
- Where it has been agreed and shown on a Tree Protection Plan, construction access may take place within the RPA of T20 and T21 if suitable ground protection measures are in place (e.g. existing surfaced car park areas). In other areas this may comprise single scaffold boards or  $\frac{3}{4}$  inch plyboard over a compressible layer laid onto geo-textile materials for pedestrian movements. This will also be suitable for scaffolding. Vehicular movements over the RPA will require the calculation of expected loading and may require the use of proprietary protection systems.
- Once areas around trees have been protected by fencing, any works on the remaining site area may be commenced providing activities do not impinge on protected areas. Notices should be placed on fencing to indicate that operations are not permitted within the fenced area.
- Wide or tall loads etc. should not come into contact with retained trees. Banksman should supervise transit of vehicles, jibs, booms etc. where this is in close proximity to retained trees.
- Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree bole. No concrete mixing should be done within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
- Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment, as part of construction works, and such equipment would have potential to cause injurious contact with crown material i.e. low branches and limbs, of retained trees within the RPA fencing, it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obvious problem branches. This is classed as 'Facilitation Pruning' within BS 5837 (2012). Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.
- It is advised that a Pre-Commencement Site Meeting is held with contractors who are responsible for operating machinery, as described above. To firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.
- In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with BS 3998 (2010) Recommendations for Tree Work, to correct the damage, upon completion of development.



Christopher Barker CEnv dipHort

## Appendix 1: BS5837 Tree Schedule

| Key: | Measurements                           | Age – Class                                                                       | Overall Condition | BS 5837 2012 : Cascade Chart for Quality Assessment/Retention Category                                                   | Symbols:          |
|------|----------------------------------------|-----------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|
|      | MS – Multi-stemmed                     | YNG-MAT-Young Mature                                                              | G – Good          | A – High                                                                                                                 | < = less than     |
|      | Ht - Height in metres                  | SM – Semi-mature                                                                  | F – Fair          | B – Moderate                                                                                                             | ~ = approximately |
|      | Stem – Stem Diameter at 1.5m in mm     | Mat – Mature                                                                      | P – Poor          | C – Low                                                                                                                  | > = greater than  |
|      | Crown – Crown spread in metres         | OM – Over mature                                                                  | D – Dead          | U – Trees of negligible significance                                                                                     |                   |
|      | TD - Trunk division (height in metres) | <b>Est Yrs</b> – estimate of years remaining (>40 years; 20 –40 years; <20 years) |                   | <b>Sub-categories:</b><br>1 = mainly arboricultural values<br>2 = mainly landscape values<br>3 = mainly cultural values. |                   |

RPA = Root protection area (equivalent to a circle with a radius 12 x the stem diameter for single stem trees and 10 x the basal diameter for trees with more than one stem arising below 1.5m above ground level).

| Tree No | Species                                                                 | Ht (m) | Stem Diam mm@ 1.5m | Canopy Spread (m)        | Height of Crown Clearance | Age Class | Est yrs | Overall Condition | Structural condition                                                                                                                 | Recommendations         | BS 5837 Category | RPA Radius (m) |
|---------|-------------------------------------------------------------------------|--------|--------------------|--------------------------|---------------------------|-----------|---------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------|----------------|
| T1      | Ash<br><i>Fraxinus excelsior</i>                                        | 7      | 240                | N-4<br>S-1<br>E-3<br>W-3 | 3                         | Y         | 20      | F                 | Leans north. Crown irregular extending north across fence. No structural faults visible from ground level but lean needs monitoring. |                         | B2               | 2.8            |
| T2      | Goat Willow<br><i>Salix caprea</i>                                      | 5      | 465                | N-1<br>S-7<br>E-1<br>W-3 | 0                         | OM        | <10     | P                 | Fallen and lying on the ground with root bole exposed. I                                                                             | Remove if a constraint. | U                | 5.5            |
| T3      | Goat Willow<br><i>Salix caprea</i>                                      | 9      | 385                | N-5<br>S-5<br>E-3<br>W-4 | 2                         | M         | 10      | F                 | Broad dense crown with minor dead wood present. No structural faults visible from ground level                                       |                         | C2               | 4.6            |
| G4      | Ash<br><i>Fraxinus excelsior</i>                                        | 6-7    | <200               | N-3<br>S-3<br>E-3<br>W-3 | 1                         | Y         | 10      | F                 | Line of crowded young self-seeded / coppice regeneration. No structural faults visible from ground level                             |                         | C2               | 2.4            |
| T5      | Oak<br><i>Quercus petraea</i>                                           | 12     | 455                | N-7<br>S-6<br>E-6<br>W-6 | 4                         | SM        | 4-      | G                 | Broad balanced crown with under canopy Hawthorn and Elder. No structural faults visible from ground level                            |                         | A2               | 5.4            |
| H6      | Hawthorn<br><i>Crataegus monogyna</i><br>Elder<br><i>Sambucus nigra</i> | 3-5    | <250               | N-3<br>S-3<br>E-3<br>W-3 | 0                         | SM        | 10      | F                 | Untrimmed hedgerows dominated by Hawthorn behind the boundary palisade fencing. No structural faults visible from ground level       |                         | C2               | 3.0            |

| Tree No | Species                               | Ht (m) | Stem Diam mm@ 1.5m | Canopy Spread (m)        | Height of Crown Clearance | Age Class | Est yrs | Overall Condition | Structural condition                                                                                           | Recommendations | BS 5837 Category | RPA Radius (m) |
|---------|---------------------------------------|--------|--------------------|--------------------------|---------------------------|-----------|---------|-------------------|----------------------------------------------------------------------------------------------------------------|-----------------|------------------|----------------|
| T7      | Oak<br><i>Quercus petraea</i>         | 6      | 260                | N-4<br>S-4<br>E-3<br>W-4 | 1                         | Y         | 40      | G                 | Broad balanced crown with good shape and balance.<br>No structural faults visible from ground level            |                 | A2               | 3.1            |
| T8      | Apple<br><i>Malus sylvestris</i>      | 5      | 135                | N-2<br>S-2<br>E-2<br>W-2 | 1                         | Y         | 10      | F                 | Irregular dense crown with under canopy Dogwood.<br>No structural faults visible from ground level             |                 | C2               | 1.8            |
| T9      | Holly<br><i>Ilex aquifolium</i>       | 5      | 305                | N-3<br>S-2<br>E-3<br>W-3 | 0                         | M         | 10      | F                 | Dense and bushy crown with internal regeneration throughout.<br>No structural faults visible from ground level |                 | C2               | 3.6            |
| T10     | Hawthorn<br><i>Crataegus monogyna</i> | 5      | 185                | N-3<br>S-2<br>E-3<br>W-2 | 2                         | SM        | 10      | F                 | Irregular crown extending to the east. Crowded by Holly T9.<br>No structural faults visible from ground level  |                 | C2               | 2.2            |