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## **Arboricultural Impact Assessment (AIA)**

**Site Address:** York House School, Sarratt Road, Croxley Green,  
Rickmansworth, Herts, WD3 4LW

**Prepared for:** York House School

**Prepared by:** Mr. C. J. Wallis *Tech Cert (ArborA), AHort II (Arb.)*

**Title:** YHS\_SR\_AIA\_001

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**Report Index**

**Section 1.0 – Summary of Instruction**

**Section 2.0 – Report Limitations**

**Section 2.1 – Time Limits**

**Section 2.2 – Severe Weather Limitations**

**Section 2.3 – Tree Safety Matters / Tree Risk Assessment**

**Section 2.4 – Visual Tree Assessment (VTA)**

**Section 3.0 – Process**

**Section 4.0 – General Site Observations**

**Section 5.0 – Individual Tree Data**

**Section 5.1 – Key to Table 5.0**

**Section 5.2 – Tree Data Notes**

**Section 6.0 – Tree Categorisation**

**Section 7.0 – Tree Constraints**

**Section 7.1 – RPA (Root Protection Area) – (Below Ground Constraints)**

**Section 7.2 – Above Ground Constraints**

**Section 8.0 – Tree Constraints Plan (TCP)**

**Section 8.1 – Tree Constraints Plan (TCP) Notes**

**Section 8.2 – Tree Constraints Assessment**

**Section 8.3 – Arboricultural Phasing**

**Section 8.3.1 – Tree Surgery Works**

**Section 9.0 – Construction Exclusion Zone (CEZ) – General**

**Section 9.1 – Tree Protection Plan (TPP)**

**Section 9.1.1 – Tree Protection Plan (TPP) Notes**

**Section 9.2 – Protective Barrier Specification**

**Section 9.3 – Ground Protection Specification**

**Section 10.0 – Arboricultural Implications**

**Section 10.1 – Arboricultural Method Statement (AMS)**

**Section 10.2 – Responsibilities**

**Section 10.3 – Tree Work Standards**

**Section 11.0 – Report Summary**

**Section 12.0 – Legal and Planning Consents**

**Section 13.0 – Publications**

**Appendix A – Construction Exclusion Zone Inspection Form**

**Appendix B – Site Personnel Induction Form**

**Appendix C – Construction Exclusion Zone (CEZ) – Sign Format**

**Appendix D – Foundation Plan (NOT TO SCALE)**

## **1.0 – Summary of Instruction**

An Arboricultural Impact Assessment (AIA) in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* was commissioned by our client to be undertaken at York House School, Sarratt Lane, Croxley Green, Rickmansworth, Herts, WD3 4LW.

I have been instructed to provide an Arboricultural Impact Assessment (AIA) & tree protection strategy for a proposed development scheme at the above address.

The AIA seeks to demonstrate that the proposed development work will not adversely impact on the physiological health, or structural condition of retained on site and/or off site trees.

The AIA is also required to detail effective tree protection and control measures to be implemented at the site, to safeguard retained trees above and below ground level throughout all of the proposed development phases.

The development scheme relates to the proposed:

- *Construction of a single storey, Modulek building (Art Classroom), with a covered canopy structure at the southern end of the building (off of the western elevation) and a paved patio surface off of the northern elevation.*

The AIA process is followed in accordance with guidelines detailed in the British Standard *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* :

- Carry out a tree survey;
- Assess the quality and categorise surveyed trees in close proximity to the proposed development area, to ascertain their suitability for retention;
- Provide all relevant tree data including species identification, dimensions, life stage, condition assessments and make Preliminary/General Management Recommendations where necessary;
- Undertake an Arboricultural Impact Assessment (AIA) to evaluate the potential direct and indirect effects of the proposed development scheme and associated construction activity on nearby significant trees;
- Identify the potential above and below ground tree constraints posed to the development proposal, to assist the development team with conception, design and scheme feasibility, (i.e. A *Tree Constraints Assessment*);
- Highlight the arboricultural implications that the development design and associated construction processes may have on retained trees;
- Provide tree protection information, methods, specifications and control measures to be employed at the site (*in conjunction with other specialist's input where necessary*), as required to mitigate impact and safeguard the retained trees above and below ground level throughout all of the development phases;
- Produce a written AIA report including a Tree Protection Plan (TPP) and an Arboricultural Method Statement (AMS) for submission to the Local Planning Authority for approval.

The British Standard Institute publication *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* is referred to throughout this report. This is a nationally recognised standard typically used by Local Planning Authorities to assess planning applications. It is frequently referred to in planning conditions to enforce protection or control of works that may be harmful to trees both on and off the site.

This report has been produced in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* for the sole use of our client (as detailed on the Title Page). Information provided by third parties for use in the preparation of this report is assumed to be correct. (i.e. *Proposed Site Plans, Construction Management Plans, Engineer Specifications etc*).

## **2.0 – Report Limitations**

- Assessments of all trees have been conducted using Stage 1 of the Visual Tree Assessment (VTA) method of inspection, as appropriate in enough detail to inform the development project. (See Sections 2.3 and 2.4).
- All observations of tree conditions were undertaken from ground level, a visual assessment of external features only, assisted as required by the use of binoculars, a metal probe and a rubber mallet (used for audible resonance testing) where necessary. Below ground tree roots and buried parts were not inspected.
- The Proposed Block Plan (Drawing No. 2332-MEB-XX-XX-DR-A-3-105-A) provided by MEB Design Ltd. which is based on a Topographical Survey of the site has been used to create the Tree Constraints and Tree Protection Plans in the AIA report.
- All measurements of tree heights, crown spreads and crown clearance from ground level are recorded to the nearest half metre for dimensions up to 10m and to the nearest metre for dimensions over 10m.
- Stem diameters are measured to the nearest 10mm, or where obscured / inaccessible, estimated based on the visible features and characteristics of the tree in question.
- Stem diameter measurements were recorded in accordance with methods detailed in Annex C (fig.C.1a-C.1f) as applicable for each individual tree and adjusted in accordance with Table D.1 of Annex D in BS 5837:2012 as required.
- Detailed background information is not known concerning the past history of the site, the soil type, geology or hydrology of the environs. No inspection material has been acquired by Tree Sense Arboricultural Consultants for assessment and no soil analysis information has been provided by third parties.
- Tree Sense Arboricultural Consultants cannot be held responsible for property damage arising from soil shrinkage or heave issues related to the retention or removal of trees on site.
- The AIA is only concerned with arboricultural issues relating to the protection of good quality retained trees against adverse development impacts, although other disciplines such as engineering and ecology may be mentioned where relevant.
- The author of the AIA report does not have formal qualifications in the areas of structural engineering or law. However, making comment on such matters from an arboricultural perspective is both within the normal scope of our instructions and also within the range of the author's experience. Notwithstanding this, specialist professional advice must be sought to clarify/confirm any observations on engineering or legal matters that this report may contain.
- The tree management recommendations made in this report relate to the assessment of the trees and their surroundings at the time of inspection and in some cases, may be recommended within the context of the development proposal and the end land use. The tree survey undertaken is not a full tree risk assessment, but carried out as appropriate in enough detail to inform the development proposal.
- Treatment recommendations assume that the client understands that tree management is a continuing process, requiring regular attention and that as part of this process the condition of the trees should be thoroughly reassessed at regular, timely intervals, with hazard checks after periods of likely tree stress, e.g. after periods of severe weather.
- Weather conditions were dry with sunny intervals on the day of the tree survey (22<sup>nd</sup> March 2024).
- Where a tree is subject to a Tree Preservation Order (TPO) and/or stands within a designated Conservation Area, it will be necessary for the tree owner or his/her appointed agent to ensure appropriate compliance with planning requirements, before any recommended, non-urgent treatments can be undertaken. (See Section 12.0).
- BS 5837:2012 does not make a distinction between trees which are subject to statutory protection, such as a TPO, and those trees without. This is principally because all trees are a material consideration and full planning consent overrides any TPO protection. Therefore, we do not seek to offer any comparison between, or imply any difference in the quality or importance of trees covered by a TPO and other trees which are not statutory protected.
- The AIA report is provided to detail impartially the potential tree constraints posed to the development proposal as identified at the site and detail the tree protection measures and methodologies to be employed, in the interest of safeguarding the short and long term health of significant retained trees.
- The provision of the AIA does not guarantee that the associated Local Planning Authority (LPA) will agree with the opinion of the Consulting Arboriculturist, or grant planning consent based on the content and findings of the AIA report.
- This report is compiled into a single PDF file designed for electronic release. If printing this document, please note that the plan drawings may be a different size or orientation to the standard A4 / portrait of the rest of the report. Some PDF reader software may also automatically adjust the size of drawings included in this report. It is the responsibility of the user to ensure that resulting prints are to scale and that the scale bars on the plans measure correctly.
- The Tree Constraints Plan (TCP) and Tree Protection Plan (TPP) are drawn to the scale indicated in Sections 8.1 and 9.1.1 respectively and feature a scale bar on the drawings for cross reference and scaling purposes.
- All third party information supplied for use in the AIA report (particularly Site Plans) are assumed to be correct in terms of accuracy and scaling.

## **2.1 – Time Limits**

It should be understood that trees are not static objects, but growing, living organisms; and their condition, size and relationship to buildings and other trees can change significantly and sometimes unpredictably over the course of a full growing season and periods of dormancy. Trees can also be affected by pathogen attack and react to seasonal weather events, particularly strong wind conditions which have become more frequent in recent years.

Therefore, this report is given a validity period of 12 months from the date of publication and is subject to any suggested management recommendations being undertaken within the correct time frames.

A re-assessment tree survey will be necessary to enable revision and re-validation of the AIA report based on updated tree data, should the 12 month validation period of this publication expire. Additional fees for re-validation and re-publication will apply.

## **2.2 – Severe Weather Limitations**

Impacts of severe drought, storm, inundation, land slip or subsidence are not covered by this report.

## **2.3 – Tree Safety Matters / Tree Risk Assessment**

The Arboricultural Impact Assessment (AIA) in accordance with *BS 5837:2012 (Trees in relation to design, demolition and construction - Recommendations)* is carried out in sufficient detail to gather data for and to inform the current project.

Our appraisal of the structural integrity of trees on and adjacent (if applicable) to the site is of a preliminary nature and sufficient only to inform the current development proposal. The tree assessment is carried out from ground level as is appropriate for this type of survey, without invasive investigation and is not a full Tree Risk Assessment.

The disclosure of hidden tree defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious visual defects that are significant in relation to the existing and proposed land use. As such, General Management Recommendations (GMR) or Preliminary Management Recommendations (PMR) may be made regarding the assessed trees, in accordance with published best practice tree management guidelines and methodologies.

## **2.4 – Visual Tree Assessment (VTA)**

The Visual Tree Assessment (VTA) method of inspection is an internationally recognised tree hazard assessment method developed by Prof. Claus Mattheck: *Body Language of Trees – a handbook for failure analysis (HMSO, 1994)*.

The basis of VTA is the identification of (external) symptoms which a tree produces in reaction to a weak spot or area of mechanical stress. These can then be interpreted in terms of potential direct impact hazard features within a tree.

The VTA method of inspection does not allow for opinions to be made concerning the risk of a trees potential to cause indirect impact on nearby structures. Indirect impact refers to potential problems caused by changes in soil moisture content in shrinkable soils (i.e. those soils with a high clay content); to which trees can be a contributing factor.

The tree inspection survey undertaken at the above site was conducted in accordance with Stage 1 of the VTA process, as appropriate to inform the development proposal.

If required following the Stage 1 VTA, it may be necessary for trees to undergo further investigation to ascertain in greater detail their physiological health and structural integrity before determining their safe retention. (See Section 5.2).

### **3.0 – Process**

The Arboricultural Impact Assessment (AIA) in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* was commissioned to be undertaken as part of the initial feasibility study at the planning stage of the process and seeks to provide supporting arboricultural information to the planning application.

Additionally, the AIA report is to be retained and used by on site contractors and any related third parties, for instructions relating to the installation and management of tree protection apparatus at the site and control measures to be followed during all construction operations.

The elements of the AIA at the initial Tree Constraints Assessment stage were:

- To undertake the tree survey;
- Categorise the trees;
- Identify the above and below ground tree constraints posed to the development, with a view to assisting with the conceptual design and feasibility of the proposal from an arboricultural perspective.

The identified tree constraints are to be used to inform and assist with the scheme design, including advising on any necessary engineering solutions and demolition/construction methods which may need to be explored to mitigate potential damage to retained trees in the short and long term, both above and below ground level.

The identified tree constraints will also later assist in determining the specification and positioning of all tree protection measures to be employed at the site, as required to safeguard retained trees above and below ground level throughout all development phases to project completion.

Following the identification of tree constraints, the AIA evaluates the identified direct and indirect effects of the proposed design in relation to nearby trees. The assessment will consider the effect of any tree loss or damaging activities proposed in the vicinity of retained trees. Activities such as:

- *Removal of existing structures or hard surfacing;*
- *Installation of new hard surfacing;*
- *The location and dimensions of all proposed excavations or alterations in ground levels;*
- *Construction of any new structures above ground level;*
- *Construction or alterations to any below ground utility infrastructure (i.e. for drainage, water, gas, electricity etc.).*

In addition to the permanent works, account should be taken to the buildability of the scheme in terms of access, plant machinery use, waste management, adequate operational space and provision for the storage of materials including topsoil, without inflicting damage to the retained trees. Post development pressure on nearby trees is also closely considered and assessed.

As well as an evaluation of the extent of the impact on existing trees, the AIA includes and details within this document:

*a) The tree survey data;*

*b) Trees selected for retention, clearly identified (e.g. by number) and marked on a plan with a continuous outline or similar;*

*c) Trees to be removed, also clearly identified (e.g. by number) and marked on a plan with a dashed outline or labelled / detailed as appropriate;*

*d) Trees to be pruned, including any access facilitation pruning, also clearly identified and labelled or detailed as appropriate;*

*e) Areas designated for structural landscaping that need to be protected from construction operations in order to prevent the soil structure being damaged;*

*f) Evaluation of impact of proposed tree losses (if applicable);*

*g) Evaluation of tree constraints and production of a draft tree protection plan including details of tree protection measures;*

*h) Issues to be addressed by an arboricultural method statement where necessary in conjunction with input from other specialists associated with the project.*

#### **4.0 – General Site Observations**

York House School is set on a large site with the main school buildings located to the east of the access driveway, which runs west - east from the gated entrance into the school from Sarratt lane. Immediately north of the driveway as you enter the school, there features a large car park area.

To the north of the main school buildings, there are expansive playing fields, with a gravel surfaced car park to the south of the fields and caged astro turf sports courts to the west.

The detached art classroom building is proposed to be constructed adjacent to the existing main school building, utilising an area of the playing field immediately to the north of the gravel car park area.

The art classroom building location proposed lies between two existing footpaths to the north and south.

In terms of trees growing in close proximity to the area of development and areas of site related operations which are considered to be potentially at risk of adverse development impact, one Scots Pine tree features to the west of the proposed building location, with a collection of four other trees (Ash, Sycamore and two English Oak trees) which are growing in a verge to the west of the gravel car park area and adjacent (east) of the caged astro turf sports courts.

The gravel car park is proposed to be used for all site related operations, site compounds, bulk material storage and material preparation areas. This includes for the delivery on lorries of the pre-constructed modular building units to be constructed. It is understood that a crane will be in operation in the gravel car park area for use in the installation and construction of the modular building units.

For the purposes of the Arboricultural Impact Assessment (AIA), five individual trees were assessed and recorded overall, with particular focus on the Scots Pine tree (T1) which is in close proximity to the area where the new art classroom building is to be constructed.

Details of the individual trees surveyed for inclusion in the AIA can be found in the Individual Tree Data Table in Section 5.0 below, with additional tree data notes provided in Section 5.2.

### 5.0 – Individual Tree Data

Tree No.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)	First Significant Branch Height and Direction of Growth (m)	Canopy Height (m)	Life Stage	General Comments Inc. Physiological and Structural Condition	Preliminary / General Management Recommendations (PMR / GMR)	Estimated Remaining Contribution (Years)	Category
T1	Scots Pine	12	600	N – 4 E – 3.5 S – 5 W – 5	5 – W	5	SM	<p>Physiological Condition – Good Structural Condition – Fair</p> <p>Major roots exposed at surface level on all sides, but primarily north and east. Largest exposed root exposed above ground level extending 2m eastwards.</p> <p>Historical low limb and branch removal wounds evident on all sides of the lower stem, part and fully occluded. Some stubs remain which will prevent full pruning wound occlusion.</p> <p>Vitality appears normal with good foliage. Slight south-western crown bias. Major and minor sized deadwood visible within the crown framework, including broken out, suspended branches.</p>	<p><b>GMR:</b></p> <p>Crown clean to remove deadwood.</p>	20+	<b>B 1</b>
T2	Ash	10	225	N – 1 E – 3 S – 3 W – 1	2 – W	4 – S	Y	<p>Physiological Condition – Fair Structural Condition – Fair</p> <p>Self set tree growing tight to the south of T3.</p>	–	10+	<b>C 2</b>
T3	Sycamore	11	1 – 200 2 – 225 SE - 300	N – 3 E – 4 S – 4 W – 1	3 – E	4	Y	<p>Physiological Condition – Fair Structural Condition – Fair</p> <p>Good bud proliferation. (<i>not yet in leaf</i>)</p> <p>Co- dominant stems (2) from stem base. Tight fork at stem union with some included bark.</p> <p>Historical crown pruning evident. T2 growing in close proximity on the south side.</p>	–	10+	<b>C 2</b>



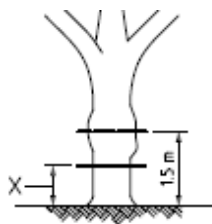
Tree No.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)	First Significant Branch Height and Direction of Growth (m)	Canopy Height (m)	Life Stage	General Comments Inc. Physiological and Structural Condition	Preliminary / General Management Recommendations (PMR / GMR)	Estimated Remaining Contribution (Years)	Category
T4	English Oak	12	350	N – 3 E – 4 S – 4 W – 3	3 – E	4	Y	<p>Physiological Condition – Good Structural Condition – Good</p> <p>Good bud proliferation. (<i>not yet in leaf</i>)</p> <p>Bark damage and exposed sapwood on the west side stem base. Some minor sized deadwood visible in the crown.</p> <p>Historical low limb and branch removal wounds on the stem, primarily the east and south sides – partial wound occlusion, with reaction wood evident.</p>	–	20+	<b>B 2</b>
T5	English Oak	11	350	N – 5 E – 5 S – 3 W – 2	3 – N	4	Y	<p>Physiological Condition – Good Structural Condition – Good</p> <p>Good bud proliferation. (<i>not yet in leaf</i>)</p> <p>Some minor sized deadwood visible in the crown framework.</p>	–	20+	<b>B 2</b>

## 5.1 – Key to Table 5.0

- 1) **Height** describes the height of the tree from the base of the trunk/stem in metres.
- 2) **Stem Diameter** is the diameter of the trunk in millimetres, measured at 1.5m from ground level. For multi stemmed trees, a single stem diameter equivalent (SE) is calculated and indicated beneath the measurements of each separate stem. (Est.) indicates the stem diameter was estimated due to the tree being obscured and/or inaccessible to physically measure.
- 3) **Branch Spread** is the average length of branch spread from the centre of the tree in the direction of each cardinal point of the compass in metres.
- 4) **First Significant Branch Height and Direction of Growth** – Clearance height from the ground of the first major structural branch of the trees' crown and its direction of growth.
- 5) **Canopy Height** is the distance between the lowest visible canopy branches and ground level in metres.
- 6) **Life Stage** is represented as: Y= Young (*in first third of life expectancy*), SM = Semi Mature (*in second third of life expectancy*), M= Mature (*final one third of life expectancy*). Trees considered to be beyond their likely life expectancy are normally classed as OM = Over Mature or V = Veteran.
- 7) **Physiological Condition** relates to the vitality of the tree.  
**Structural Condition** relates to the mechanical integrity of the tree and assesses the presence of structural defects. (*i.e. dead branches, cavities, splits, cracks, included bark etc.*)
- 8) **Estimated Remaining Contribution** is an estimate of the minimum remaining contribution of the tree, based on its condition and life stage at the time of assessment.
- 9) **Preliminary Management Recommendations (PMR)** detail any additional arboricultural practices to be undertaken, such as Stage 2/3 VTA, or climbed/aerial inspections.  
**General Management Recommendations (GMR)** may also be indicated and relate to tree surgery management works which are recommended in respect of good tree management and are not made in the context of a potential development project. (See Section 5.2).
- 10) **Category grading** is based on tree categorization guidelines provided in The British Standard *BS 5837:2012 Trees In relation to design, demolition and construction - Recommendations* (See 6.0 below).

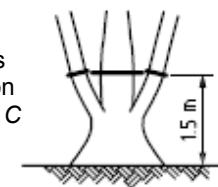
### Stem diameter measurements:

T4 exhibits irregular swelling of the stem at 1.5m above ground level. The stem diameter was therefore recorded based on the measuring method shown in Fig. C.1d in Annex C of BS 5837:2012, as required.



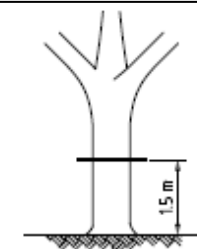
d) Measurement of stem with irregular swelling made at the narrowest point below the swelling

T3 features more than one stem at 1.5m above ground level. As such, a single stem equivalent has been calculated and recorded for this tree, based on the measuring method shown in Fig. C.1f in Annex C of BS 5837:2012, as required.



f) Measurement of a tree with more than one stem at 1.5 m above ground level

T1, T2 and T5 are single stem trees measured at 1.5m. As such, stem diameter measurements were taken at 1.5m above ground level, based on the measuring method shown in Fig. C.1a in Annex C of BS 5837:2012, as required.



a) Stem diameter measured at 1.5 m above ground level

- Major deadwood = over 25mm diameter, Minor deadwood = under 25mm diameter.
- \*= CODIT – (*Compartmentalisation of Decay in Trees*).
- PMR = Preliminary Management Recommendation - i.e. VTA Stage 2/3, semi invasive tree condition investigations (Tomography/Resistograph testing etc.) or climbed/aerial tree inspection.
- GMR = General Management Recommendation – i.e. Tree surgery management works (pruning, felling etc, including Access Facilitation Pruning). **For on site trees which are under the management control of the applicant.**
- ADVISORY GMR = General Management Recommendation – i.e. Tree surgery management works (pruning, felling etc, including Access Facilitation Pruning). **For off site trees which are NOT under the management control of the applicant.**

## **5.2 – Tree Data Notes**

The trees detailed individually in Section 5.0 are those which were considered in the Arboricultural Impact Assessment (AIA).

*General Management Recommendations – (GMR)* for tree surgery works may have been made in the interest of good tree management and are not necessarily required in relation to the proposed development project.

*Preliminary Management Recommendations – (PMR)* may have been made where \*further investigation into tree health and condition is required before a decision can be made concerning the safe retention of a tree.

*\*Further investigation normally refers to (but is not restricted to):*

- *Stage 2/3 of the Visual Tree Assessment (VTA) process, which involves semi invasive testing with Tomography, Resistograph and Fractometer equipment on areas of the tree where a significant internal structural defect is suspected following the Stage 1 VTA. Stage 2/3 VTA can determine in much greater detail the extent and severity of suspected internal wood decay and/or structural defects and also determine the strength of supporting wood tissue.*
- *Recommendations for a climbed/aerial inspection to be undertaken, to assess the upper sections of the tree stem or crown, where a significant structural defect is suspected but could not be quantified during the Stage 1 VTA undertaken from ground level.*

Any tree surgery work recommended must be undertaken following the correct procedures relating to trees protected by Tree Preservation Orders (TPO), or which are growing within a designated Conservation Area, where applicable to both on site and off site trees. (See Section 12.0).

Any *General Management Recommendation (GMR)* which may have been made to remove hazardous trees, deadwood from crowns, or removal of invasive climbing vegetation (such as Ivy) from TPO or Conservation Area trees does not require permission from the Local Authority before actioning. However, it is considered good practice to inform the Local Authority of any intended emergency tree removals and/or deadwood and Ivy removal works. In the case of complete tree removal emergencies, taking before and after photographs is strongly recommended.

*Advisory GMRs* are made if any works are recommended to be undertaken to off site trees which are outside of the management responsibility of the applicant.

*Advisory GMRs* must also be permissible by the tree owners, except in situations where Common Law allows. (The Statutory Protection process as above still applies where relevant).

*Advisory GMRs* are made in the interests of good tree management and should be brought to the attention of those who own or have the responsibility to manage the trees concerned.

All recommended tree work must be undertaken in accordance with guidelines set out in *BS 3998:2010 Tree work – Recommendations (As updated)*. (See Section 10.3).

The following sections provide information regarding the categorisation of the surveyed trees and the tree constraints which have been identified at the site.

## 6.0 – Tree Categorisation

The purpose of Tree Categorisation as detailed in *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*, is to identify the quality and value of existing tree stock, allowing informed decisions to be made concerning which tree(s) should be retained or removed should development occur. This process is the starting point of the tree survey, following a land survey and should ideally, be undertaken before any site design or layout is proposed.

Trees are given a category grading based on individual tree assessment, in line with the categorisation methodology as detailed in Table 1 of *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*. Table 1 is reproduced as an informative below:

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
<b>Trees unsuitable for retention (see Note)</b>				
<b>Category U</b> 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 category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li> <li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li> </ul> <p><i>NOTE</i> Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
<b>Trees to be considered for retention</b>				
<b>Category A</b> Trees 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 those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
<b>Category B</b> Trees 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 value	See Table 2
<b>Category C</b> Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	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	See Table 2

To easily identify the category grading for each tree assessed for inclusion in the AIA, all tree identification numbers on the Tree Constraints Plan(s) and Tree Protection Plan(s) are shown in a colour which represents the tree's category grading. Table 2 below, again reproduced from *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*, details the identification colours to be used for each category grade:

Table 2 Identification of tree categories

Category (from Table 1)	Colour <sup>A)</sup>	RGB code <sup>A)</sup>
U	Dark red	127-000-000
A	Light green	000-255-000
B	Mid blue	000-000-255
C	Grey	091-091-091

<sup>A)</sup> Colours verified against <http://safecolours.rigdenage.com/palettefiles.html#files> [viewed 2012-03-26].

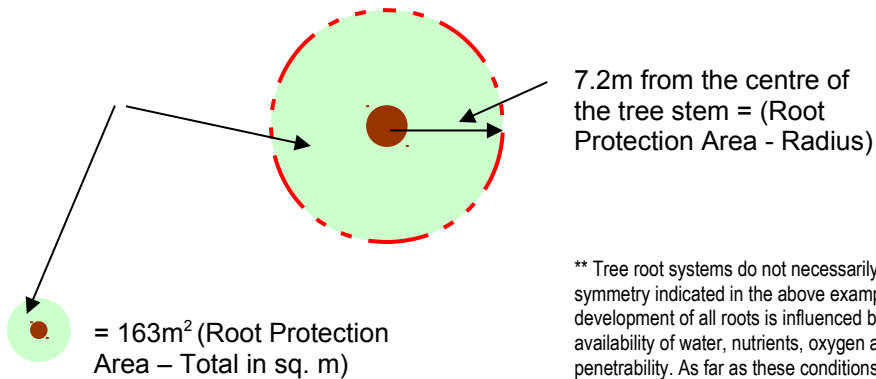
Once it has been established which trees can and are suitable to remain and are worthy of retention, necessary measures to protect them throughout the course of the development project must be undertaken.

## 7.0 – Tree Constraints

The tree constraints are the influences the trees will have below and above ground level in relation to the development proposal. The below ground constraints are represented by the trees Root Protection Area (RPA), the above ground constraints are represented by the trees size and position, including shading dominance caused by crown density and spread which may affect light into newly developed or extended buildings. The physical constraints posed by trees and their crown branching in relation to new proposed structures and construction apparatus (such as scaffolding) are also closely considered.

### 7.1 – RPA (Root Protection Area) – (Below Ground Constraints)

The nominal RPA radius is taken from the centre of the tree stem, encircling the tree to give the RPA Area (example based on T1 shown below) \*\*:



\*\* Tree root systems do not necessarily show the symmetry indicated in the above example, the development of all roots is influenced by the availability of water, nutrients, oxygen and soil penetrability. As far as these conditions allow, the root system tends to develop sufficient volume and area to provide physical stability.

The following table indicates the calculated Root Protection Areas (RPA) for the trees which were assessed as part of the Arboricultural Impact Assessment (AIA).

The RPAs have been calculated using stem diameter measurements (taken at 1.5m above ground level) collected at the time of the tree survey and are detailed in Table 5.0. RPA calculations are made using formulae detailed in *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* – Section 4.6 and Table D.1.

Tree No. (Category Grading colour coded)	RPA Radius (m)	RPA Area (m <sup>2</sup> )
1	7.2	163
2	2.7	23
3	3.6	41
4	4.2	55
5	4.2	55

## **7.2 – Above Ground Constraints**

The above ground constraints caused by tree heights and the spread of branches can pose constraints to the development project in respect of demolition work, new building design, position and operational space requirements.

For example, if the lateral branch spread of a tree extends into areas where development activity is likely, there is a risk of potential direct impact from site machinery, installation of scaffolding and other construction related activities on the tree crowns, such as crane use which may cause damage to limbs and branches.

Tree stems and exposed buttress roots are also above ground constraints which need to be considered in respect of possible impact damage to them. Post development pressure is also of material consideration in respect of future tree pruning requirements and frequency following completion of the development.

Shading issues should also be considered in respect of tree size, form and position in relation to the proposed new structure and end use.

Species characteristics such as density of foliage, and whether trees are deciduous or evergreen are important factors to consider in respect of shading issues, which may affect light levels into new or extended buildings.

Any proposals for above ground service installations such as telecommunication cables should also be considered with close reference to the above ground constraints posed by the trees at the development site, their location and their crown spreads.



*N.B. Existing above ground services infrastructure must also be considered in respect of the likely site related activity occurring around them. (I.e. overhead cables and the use of skip lorry lifting gear / cranes / booms / jibs etc), particularly if access facilitation tree pruning works are likely to be required to allow certain operations to be undertaken.*

The Tree Constraints Plan (TCP) in Section 8.0 below indicates the above and below ground constraints of all relevant trees at and adjacent to the site, with comments relating to the identified constraints in Sections 8.1 and 8.2. Canopy heights (ground clearance) and crown spread measurements are recorded in the Individual Tree Data Table in Section 5.0.


**TREE NUMBER COLOUR CODING:**

- RED = CATEGORY U
- GREEN = CATEGORY A
- BLUE = CATEGORY B
- GREY = CATEGORY C

**KEY TO SYMBOLS:**

-  = Nominal Root Protection Area (RPA)
-  = Crown spread (N, E, S, W)

**RPA INCURSION CALCULATIONS**

-  = Root Protection Area (RPA) Incursion (Canopy structure - One support footing - See Foundation Plan (NOT TO SCALE) in Appendix D)

T1 RPA incursion area = 1.05m<sup>2</sup>  
 1.05m<sup>2</sup> = **0.64%** of Total RPA for T1 (163m<sup>2</sup>)



### **8.1 – Tree Constraints Plan (TCP) Notes:**

The Tree Constraints Plan (TCP) in Section 8.0 is shown to approximate 1:200 scale @ A1 based on the Proposed Block Plan (*Drawing No. 2332-MEB-XX-XX-DR-A-3-105-A*) provided by MEB Design Ltd.

The TCP is provided only to indicate the position, category and numbering of the surveyed trees and provide an indication of the identified tree constraints by showing a graphic of the calculated Root Protection Areas (RPA) and tree crown spreads. The TCP is for use to assist in the scheme design and determine the arboricultural feasibility of the proposal.

RPA measurements can be found in the RPA table in section 7.1, crown spread measurements can be found in Table 5.0 above.

Using the formula described in *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* (Section 4.6 of the standard), the calculated RPA should be shown as a nominal circle on the Tree Constraints Plan with a radius based on 12 times the stem diameter for a single stem tree.



## **8.2 – Tree Constraints Assessment**

The identified constraints shown on the Tree Constraints Plan (TCP) in Section 8.0 were established following the tree survey, using data collected at that time.

The tree constraints are to be used to assist with the final design and arboricultural feasibility of the proposal and to later assist in determining the layout and specifications of tree protection measures to create Construction Exclusion Zones (CEZ) and ground protected areas at the site.

Below is a summary of the identified tree constraints in relation to the development proposal, following the tree survey undertaken on the 22<sup>nd</sup> March 2024:

### **Below Ground – Root Protection Area (RPA) Incursion – (Single storey Modulek building, canopy structure and paved patio surface)**

- **Trees Affected:**
  - T1.
- **Arboricultural Impacts:**
  - Potential for minor, ephemeral root severance / loss of a negligible percentage of feeder roots.
  - **RPA Incursion calculation:**
  - The proposed footprint of the canopy structure shows a minor incursion at the south-western extremity of the nominal RPA calculated for T1 by **0.64%**.  
***(1.05m<sup>2</sup> = 0.64% of the Total RPA (163m<sup>2</sup>) as calculated for T1).***
- **Comments:**
  - Following an evaluation of the identified tree constraints, the scheme design has been adapted to ensure the footprint of the main Modulek building and all excavations for the proposed pad foundations to be constructed will fall outside of the nominal RPA calculated for T1. (See Tree Constraints Plan (TCP) in Section 8.0).
  - The minor incursion of the canopy structure inside the south-west extremity of the RPA is considered acceptable, with an extremely low risk of impact on major, woody roots (*over 25mm in diameter*) through excavations required for the single support foundation to be constructed in this location.
  - It is highly unlikely that major woody roots will extend to this extremity of the RPA, as shown on the Tree Constraints Plan (TCP) in Section 8.0.
  - A negligible amount of feeder roots may potentially be affected, which T1 would easily tolerate due to its semi mature life stage and good vitality.
    - *Feeder roots are ephemeral and regenerate seasonally in response to the trees' needs. Being adventitious in their development, feeder roots will naturally exploit the most preferable ground conditions where an abundance of moisture, base nutrients and oxygen are available, which are all necessary for healthy tree root development and function. In the case of T1, the expansive open ground conditions of the playing fields where the tree is growing are contiguous with the nominal RPA and provide an ideal environment for healthy root development, distribution and function.*
  - Three other support footings are to be constructed for the canopy structure, which all fall outside of the nominal RPA for T1.  
  
*(See the Foundation Plan (NOT TO SCALE) in Appendix D).*
  - The proposed footprint of the paved patio surface falls entirely outside of the nominal RPA calculated for T1.

## **8.2 – Tree Constraints Assessment - Cont'd**

### **Below Ground – Root Protection Area (RPA) Incursion – (Single storey Modulek building, canopy structure and paved patio surface) – Cont'd**

- **Controls:**
  - Excavations inside the shown RPA incursion for the installation of the canopy structure footing in this area (As shown on the TCP in **CYAN**) must be undertaken using manual hand operated tools only.
  - Additionally, as a precautionary measure, all excavations for the main Modulek building pad foundations along the western elevation line are to be undertaken initially using manual hand operated tools only, to an exploratory depth of 600mm before proceeding with mechanical excavations.
  - **Should any woody roots be encountered measuring over 25mm in diameter during these ground works, they must not be severed and be wrapped in hessian cloth to prevent desiccation while exposed and the Consulting Arboriculturist contacted at the earliest opportunity.**

*N.B. The RPAs shown for retained trees are indicated on the Tree Constraints Plan (TCP) by a nominal circle around each tree. The circle is based on the RPA radius, as calculated using the stem diameter measurement for each tree, taken at 1.5m above ground level. RPA calculations for all assessed trees can be found in Section 7.1 above.*

### **Below Ground – Root Protection Area (RPA) Incursion – (Utility services – installation/alteration)**

- **Trees Affected:**
  - None.
- **Arboricultural Impacts:**
  - N/A.
- **Comments:**
  - At the time of writing, it was advised that utility service infrastructure such as for mains water, foul water drainage, gas, electricity and telecoms will be connected to existing services.
  - No excavations for installation of new or alterations to existing service infrastructure have been proposed to occur inside the RPAs of the assessed trees.
    - *(Proposed service installation routes have been indicated by the Development Team on the Proposed Block Plan Drawing No. 2332-MEB-XX-XX-DR-A-3-105-A with blue and red arrows).*
- **Controls:**
  - *(Refer also to the Tree Protection Plan (TPP) in Section 9.1 and Arboricultural Method Statement (AMS) in Section 10.1).*

## 8.2 – Tree Constraints Assessment - Cont'd

### Below Ground – Root Protection Area (RPA) Incursion - (Site access & operations)

- **Trees Affected:**
  - T1 – T5.
  
- **Arboricultural Impacts:**
  - Soil compaction inside RPAs – by plant machinery, lorries/construction vehicles and/or pedestrian movements/site operations;
  - Soil compaction inside RPAs by storing bulk building materials;
  - Soil contamination inside RPAs – contaminate waste storage, spilt contaminants (fuels, cement etc).
  
- **Comments:**
  - T1 – T5 all exhibit nominal RPA sectors which extend within the proposed development areas, including for construction related operations in the gravel car park which has been designated as the main Site Compound Area (SCA). As such, the RPAs for all trees recorded are potentially at risk of adverse impact from construction related activity as detailed above, unless suitably excluded by barrier fencing to create Construction Exclusion Zones (CEZ) and protected where necessary by Temporary Ground Protection (TGP) measures.
  
- **Controls:**
  - *(Refer also to the Tree Protection Plan (TPP) in Section 9.1 and Arboricultural Method Statement (AMS) in Section 10.1).*
  
  - Site access will be via the main school driveway from Sarratt Lane, leading directly into the gravel car park area, which is to be fully enclosed with Heras fencing to create the site compound, with vehicle and pedestrian access gates installed in the southern compound fence line.
  - Tree protection fencing is to be incorporated into the site compound fence lines as shown on the Tree Protection Plan (TPP) in Section 9.1.
  - For tree protection purposes, Heras style barrier fencing to create Construction Exclusion Zones (CEZ) are to be installed at the site and be incorporated into the site compound fencing. Temporary Ground Protection (TGP) measures are also required to be installed to the east of T1, as set out on the Tree Protection Plan (TPP) in Section 9.1.
  - The Heras style CEZ fencing has been positioned as such, to fully exclude T2 – T5 from all site related access.
  - The RPA for T1 cannot be wholly excluded by CEZ fencing alone, due to operational and access requirements to construct the new Modulek building, canopy and patio surface.
  - CEZ fencing will be installed to exclude as much as possible all site access inside the RPA for T1, with the fencing being further extended westwards to provide additional protection of the open ground rooting environment outside of the RPA.
  - Where RPA sectors for T1 cannot be wholly excluded by the CEZ fencing to the east, TGP measures are to be installed to a specification which is fit for purpose to prevent soil compaction.
  - The CEZ fencing layout will allow adequate access and operational space for the proposed construction works around the relative “pinch points”.
  - Tree protection fencing is to be installed to create the CEZs around the site based on the measurements and directions annotated on the Tree Protection Plan (TPP) in Section 9.1.
  - Temporary ground protection (TGP) measures will be laid over the RPA sectors for T1 falling outside of the CEZ fencing to safeguard against soil compaction during construction operations.
  - **CEZ fencing and TGP specifications are detailed in Section 9.2 and 9.3 respectively below.**
  - Suggested areas designated for material storage and preparation (i.e. Site Compound Areas) are indicated on the Tree Protection Plan (TPP) in Section 9.1. **NO SITE ACCESS, STORAGE/PREPARATION OF MATERIALS, OR WASTE STORAGE IS PERMITTED INSIDE THE FENCED OFF CEZ AT ANY TIME.**
  
  - All Construction Exclusion Zone (CEZ) fencing and Temporary Ground Protection (TGP) apparatus must be fully installed at the start of the project along with the site compound fencing during the site set up and prior to commencement of any development works. CEZ and TGP measures must remain undisturbed and in position throughout all development phases until completion.

## **8.2 – Tree Constraints Assessment – Cont'd**

### **Above Ground – Crown heights / Crown Spread - (New structures above ground level)**

- **Trees Affected:**
  - None.
- **Arboricultural Impacts:**
  - N/A.
- **Comments:**
  - The crown spread of T1 does not extend into the area where the new building and canopy structure are proposed to be constructed.
  - The crown spreads of T2-T5 do not extend over the CEZ fencing into the site compound area.
- **Controls:**
  - The CEZ fencing as set out around T1 and T2-T5 will ensure the crown spreads of all trees will be within the installed CEZ fence lines.
  - (See Tree Protection Plan (TPP) in Section 9.1).

### **Above Ground – Crown heights / Crown Spread - (The use of cranes, booms/jibs, skip lorries)**

- **Trees Affected:**
  - T1 – T5.
- **Arboricultural Impacts:**
  - Potential for crown/branch impact by the use of a crane or other construction vehicles utilising extending booms/jibs or lifting gear (i.e. skip lorries) which will be in operation for delivery and installation of the modular building units, material deliveries and delivery/collection of skips.
- **Comments:**
  - The on site crane will be located at the northern end of the gravel car park Site Compound Area (SCA).
  - If required, skips must not be positioned in close proximity to any trees on or off site to allow for delivery and collection by skip lorries without impacting on tree crowns.
  - Adequate space is available on the gravel car park (SCA) for skips to be sited.
  - Skips can be safely located in the gravel car park Site Compound Area (SCA) as shown on the Tree Protection Plan (TPP) in Section 9.1.
  - Skip locations must allow adequate space for lorries to operate their skip lifting gear when collecting and delivering skips without adversely impacting on tree crowns.
  - It is typical for plant such as mechanical diggers and dumpers to be in operation on most construction sites and as such; the use of plant machinery is assumed. No tree crowns will be affected by plant use around the development area, which will all be excluded behind CEZ fencing and exhibit crown ground clearance heights in excess of 4m.
- **Controls:**
  - Skips are to be positioned in a location within the Site Compound Area (SCA) which allows skip lorry lifting gear to freely operate without risk of impact on structures or tree branches. (SCA location shown on the TPP in Section 9.1).
  - All crane operations must be undertaken under supervision of a Banksman at all times to ensure the travel path of the crane boom and carried loads do not come into contact with tree branches.
  - All other vehicle operations utilising extending booms/jibs (i.e. grab lorries) must also be undertaken under supervision of a Banksman at all times to ensure the travel path of the boom/jib and carried loads do not come into contact with tree branches.

## **8.2 – Tree Constraints Assessment – Cont'd**

### **Above Ground – on/off site tree stems and buttressing - (All site activity)**

- **Trees Affected:**
  - None.
- **Arboricultural Impacts:**
  - N/A
- **Comments:**
  - **All assessed tree stems and buttressing will be wholly excluded behind the installed CEZ fencing as installed to the layout shown on the Tree Protection Plan (TPP) in Section 9.1.**
- **Arboricultural Impacts:**
  - Potential for direct impact damage to tree stems and buttressing by vehicle strike, storage of materials, equipment or tools etc. against tree stems.
- **Controls:**
  - The CEZ fencing and TGP measures must be the first apparatus installed along with the site compound fencing during the site set up and the last apparatus to be removed from the site on completion of all development work phases.
  - All tree stems and buttressing will be wholly enclosed within the fenced CEZs.

*The above assessment summarises the above and below ground level tree constraints identified at the site in relation to the development proposal, with a brief summary of tree protection control measures also provided. In terms of the associated construction works and site activity, all retained trees will need to be safeguarded by the installation of tree protection measures to prevent damage to them throughout the development phases. (See Tree Protection Sections 9.0 – 10.1 below).*

*The Arboricultural Method Statement (AMS) in Section 10.1 provides details of the tree protection and control measures to be employed at the site, to ensure the trees are safeguarded above and below ground level throughout the course of the development project and in the long term.*

*N.B. A Construction Management Plan (CMP) was not available to reference at the time of writing and should be requested directly from the Development Team, if required.*

### **8.3 – Arboricultural Phasing**

The following summarises the arboricultural phases prior to and post completion of the proposed development works:

- **Pre-development:**
  - Undertaking and completion of all General Management Recommendations (GMR) tree surgery and Access Facilitation Pruning works (if required);
  - Installation of all required tree protection measures (i.e. barrier fencing to create the on site Construction Exclusion Zones (CEZ) and all Temporary Ground Protection (TGP) measures).
  - *(N.B. The CEZ fencing is to be incorporated into the Contractor's site compound fencing, as shown on the Tree Protection Plan (TPP) in Section 9.1.*

#### **Development Phases:**

- **Phase 1 – Module building (including canopy structure) construction including foundation and utility infrastructure ground works;**
- **Phase 2 – Outside landscaping (New paved patio surface.**

- **Post-development – (on completion of all Development Phases):**
  - Remove all construction tools, machinery, scaffolding, waste, materials, skips, temporary units (site huts etc.) and any other construction related apparatus from the site;
  - Dismantle and remove the Construction Exclusion Zone (CEZ) fencing and any Temporary Ground Protection (TGP) apparatus.
  - Post development visit and inspection of trees & soil by the Consulting Arboriculturist to determine requirements for any amelioration measures.
  - Client responsibility to contact and arrange on completion of the development phases. (charges applicable).

#### **8.3.1 – Tree Surgery Works**

*The following section summarises the recommended tree surgery works which should be undertaken prior to commencement of the Development Phases and installation of tree protection measures.*

- **General Management Recommendations (GMR):**
  - *T1 – Removal of hazardous deadwood from the crown.*
    - *It was noted at the time of the tree survey that some dead branches measuring over 25mm in diameter (major sized deadwood) are present in the crown framework, including dead and broken, suspended branches overhanging the playing field, where pupils tend to congregate during break times.*
    - *In the interests of good tree management and reducing reasonably foreseeable risks to an acceptable level, it is recommended that the tree undergoes a crown cleaning exercise to remove potentially hazardous deadwood from the crown in a controlled manner.*

The above GMR is made purely in respect of good tree risk management practice, following observations recorded at the time of the tree survey and is not necessarily a pre-requisite to commencement of the development.

It is recommended however, that the above GMR tree surgery works are undertaken prior to installation of the tree protection measures and prior to commencement of the development works.

## **9.0 – Construction Exclusion Zone (CEZ) – (General)**

*Retained trees on and/or in close proximity to the site must be protected by physical barriers and/or suitable ground protection measures before any materials or machinery are brought onto the site, and before any demolition or construction work commences.*

*Where all activity can be excluded from the tree's Root Protection Area (RPA), vertical barriers are to be erected to create a Construction Exclusion Zone (CEZ).*

*Where, due to site constraints construction activity cannot be fully or permanently excluded in this manner from all or part of a trees' RPA in unmade ground, suitable Temporary Ground Protection (TGP) apparatus is to be installed over exposed RPA sectors.*

*The RPA measurements of the surveyed trees (as shown in section 7.1 above) are used to help determine the Construction Exclusion Zone (CEZ) around the trees, protecting them during the construction phases to eliminate the possibility of damage above or below ground level.*

*The CEZ is created by fencing off the area and/or installing suitable ground protection apparatus that is fit for purpose, using the calculated distance of the trees' RPA Radius as shown in the table in Section 7.1 above.*

*The CEZ is required so that the calculated RPAs of trees remain undisturbed during the development process by excluding all activity from the area, or by protecting any exposed RPA sectors from pedestrian and vehicular traffic with suitable ground protection, if exposed outside of the barrier fencing. The CEZ should also be positioned to protect tree stems, buttress roots, surface roots and any low tree branches which may travel beyond the calculated RPA. In these cases, barrier fences should be extended to incorporate low hanging crown branches behind them if possible.*

*The storage of building materials also must not occur within any designated CEZ. An area for storage of materials, fuels, spoil and the mixing of cement and concrete will be determined during the planning phase to ensure the RPAs of the trees are not affected. (See Arboricultural Method Statement (AMS) 10.1 below).*

*Materials which can be considered as contaminants such as cement, concrete mixings, spoil and fuels, whose accidental spillage would cause damage to a tree, should be stored and handled well away from the outer edge of any tree RPA and in accordance with the Control of Substances Hazardous to Health Regulations 2002 (COSHH). This also includes vehicle washings and care must be taken to ensure that sloping ground will not allow for contaminants to travel into the CEZ.*

*Fires on site are not permitted. Notice boards, cables or other services must not be attached to the tree stems, limbs or branches.*

*The CEZ must be considered as sacrosanct and not removed or altered without prior consultation with a Tree Sense Arboriculturist. The fencing should also display a sign with words to the effect of "Construction Exclusion Zone – Keep Out". (See example in Appendix C).*

*Care must also be taken to ensure that any site activity involving any cranes or vehicles with booms, jibs and counterweights can operate without coming into contact with the protected tree(s). CEZ fencing should be extended to encapsulate low spreading branches if they travel beyond the calculated RPA.*

*Direct impact from vehicles with tree crowns and stems can cause irreparable damage and may make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a Banksman at all times, to ensure that adequate clearance from trees is always maintained.*

**TREE NUMBER COLOUR CODING:**

- RED = CATEGORY U
- GREEN = CATEGORY A
- BLUE = CATEGORY B
- GREY = CATEGORY C

**KEY TO SYMBOLS:**

- = Nominal Root Protection Area (RPA)
- = Crown spread (N, E, S, W)

**RPA INCURSION CALCULATIONS**

= Root Protection Area (RPA) Incursion  
(Canopy structure - One support footing - See Foundation Plan (NOT TO SCALE) in Appendix D)

T1 RPA incursion area = 1.05m<sup>2</sup>  
1.05m<sup>2</sup> = **0.64%** of Total RPA for T1 (163m<sup>2</sup>)

**KEY TO TREE PROTECTION SYMBOLS:**

- = Barrier Fencing Construction Exclusion Zone (CEZ)\*
- = Barrier Fencing Site Compound (Approx.)
- = Temporary Ground Protection (TGP)
- = Site Compound Areas (SCA) (Gravel Car Park Area) -  
For:  
Temporary site units;  
Material storage;  
Material preparation;  
Delivery lorries;  
Crane location;  
Construction vehicles/plant;  
Waste management (skips).

**Product Details**

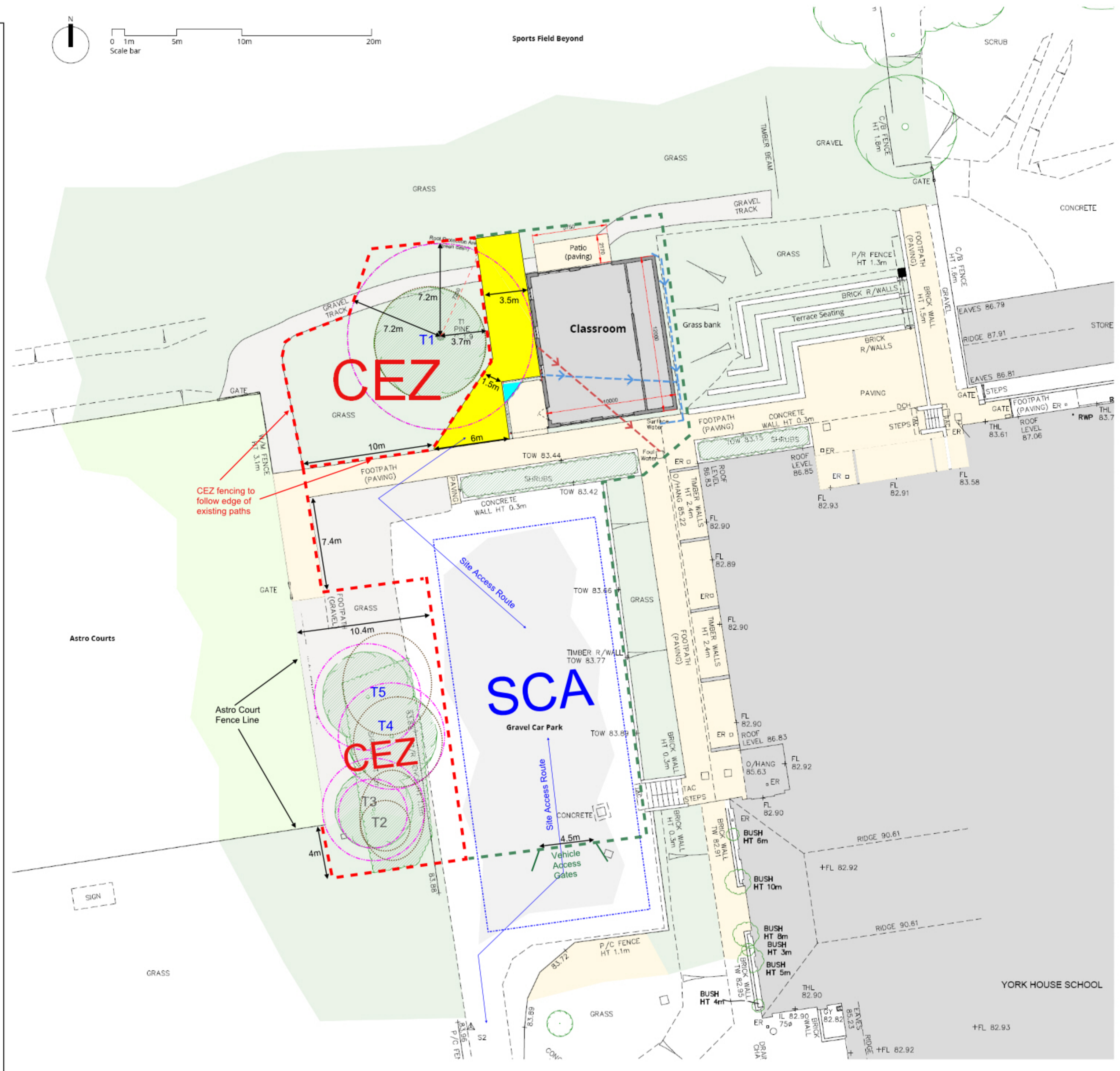
- 
- Overall Size: 2.44m x 1.22m x 13mm
- Surface Area: 2.98m<sup>2</sup>
- Weight: 39kg
- Pallet Quantity: 25
- Material: 100% Recycled HDPE
- Slip Testing: BS7976 part 2
- Comfortable Weight Loading: 30t
- With Caution Weight Loading: 60t
- Connectors: Joiner clips



**(Temporary Ground Protection):**

Ground Guards - Multi Track Product, laid over a compressible layer of seasoned woodchip (150mm depth) and a geotextile membrane.

\* = See Section 9.2 for CEZ fencing specifications





### **9.1.1 – Tree Protection Plan (TPP) Notes**

The Tree Protection Plan (TPP) in Section 9.1 is shown to approximate 1:200 scale @ A1 based on the Proposed Block Plan (*Drawing No. 2332-MEB-XX-XX-DR-A-3-105-A*) provided by MEB Design Ltd.

The TPP is provided only to indicate the position, category and numbering of the surveyed trees and provide an indication of the identified tree constraints by showing a graphic of the calculated Root Protection Areas (RPA) and relevant tree crown spreads.

Positions of barrier fencing and temporary ground protection measures are shown on the plan and are to conform to the specifications detailed in Section 9.2 and 9.3 respectively. Approximate location for the contractor's site compound outside of the CEZs is also indicated.

**Do not scale from this drawing, all tree dimensions to be checked on site using details provided in Sections 5.0 and 7.1.**

**Measurements and directions annotated on the TPP (which are based primarily on RPA calculations detailed in Section 7.1) are to be used to measure out and determine the positioning and installation of the Construction Exclusion Zone (CEZ) fencing at the site, unless otherwise detailed or advised.**

The indicated barrier lines to create the CEZs and Temporary Ground Protection (TGP) areas are suggested as the simplest and most effective layout to exclude all construction activity from the retained trees above and below ground level, and afford the trees maximum protection throughout all development phases to completion.

All required tree protection measures are to be installed before any development work begins and after any Preliminary or General Management Recommendations have been completed.

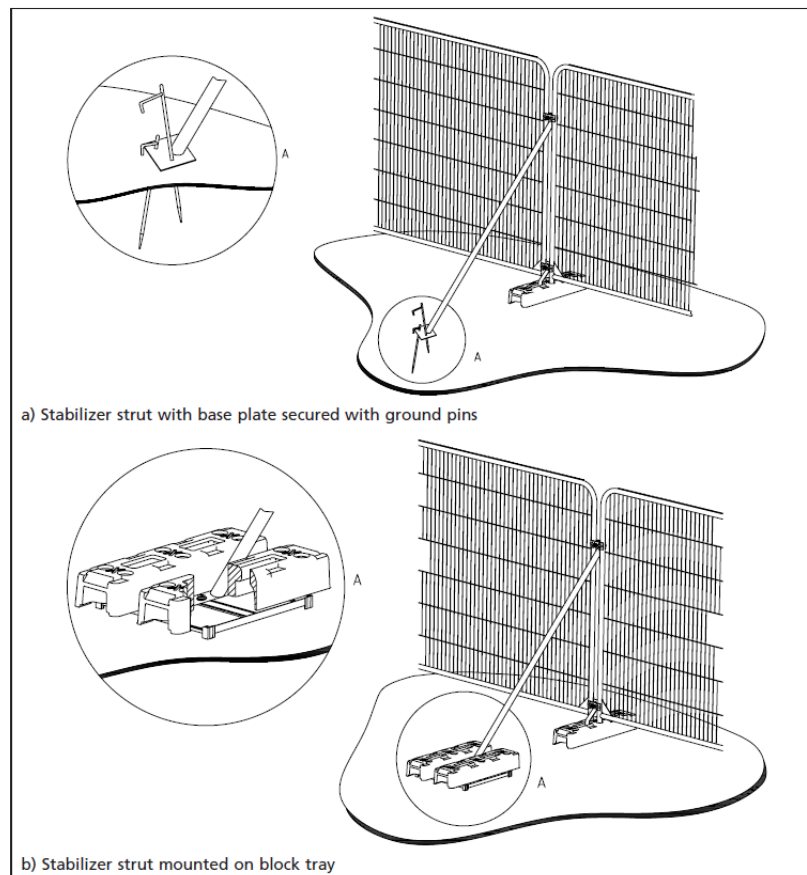
All tree protection measures are to remain in place and undisturbed throughout all development phases until completion and must be the last apparatus to be removed from the site.

The following sections detail the Construction Exclusion Zone fencing and ground protection specifications as detailed in BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

## 9.2 – Protective Barrier Specification

*N.B - Barrier fencing should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work being undertaken around them.*

Figure 3 Examples of above-ground stabilizing systems



In the case of the new art classroom development project at York House School, with consideration paid to the different prevailing ground conditions at the site, barrier fencing to the specifications shown in Figures 3a and 3b will be the most suitable to create the fenced off Construction Exclusion Zones (CEZ).

Steel mesh “Heras” type fencing (minimum 2m height) with stabilizer struts and base plates secured with ground pins (as shown in Figure 3a above), will be used where soft landscaped ground conditions are present (i.e. on grass areas around T1).

Steel mesh “Heras” type fencing (minimum 2m height) with stabilizer struts mounted on block trays (as shown in Figure 3b above), will be used where hard landscaped ground conditions are present (i.e. on pathways and the gravel car park surface).

The CEZ fencing is to be installed during the initial site setup and incorporated into the Contractor's Site Compound fencing, to the layout as shown on the Tree Protection Plan (TPP) in Section 9.1 and positioned based on measurements and directions annotated on the TPP.

The CEZ fencing set out as detailed will exclude all site related access from and protect the retained trees above and below ground level, whilst ensuring adequate access and operational space around the work area.

Where the fencing is to be set back on the east side of T1 to allow access and operational space, Temporary Ground Protection (TGP) measures are required over the RPA sectors shown to feature outside of the fenced CEZ. (See Tree Protection Plan (TPP) in Section 9.1 and ground protection specification details in Section 9.3 below).

No site related access is permitted beyond the fence lines or inside the CEZs once installed, throughout all development phases.

The CEZ fencing must be installed prior to any site works commencing and must be the last apparatus to be removed from the site on completion, along with the temporary ground protection.

### **9.3 – Ground Protection Specification**

*Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier.*

*In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed.*

*Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.*

*New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.*

*In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.*

*For wheeled or tracked movements, within a tree RPA, the ground protection should be designed to accommodate the likely loading. A “no dig” solution must be used to avoid root loss due to excavation. In addition the structure of the hard surface should be designed to avoid localized soil compaction.*

**Due to operational and access restrictions; the calculated RPA for T1 cannot be wholly excluded by CEZ fencing alone.**

**CEZ fencing at the site will need to be set out to allow access and operational space around the work area and the eastern RPA sector of T1 exposed outside of the CEZ fencing must be afforded adequate protection against soil compaction.**

**Tracked plant machinery will be in operation at the site and in areas where ground protection measures are necessary. As such, we recommend the use of:**

**Ground Guards – Multitrack, 2.4m x 1.22m x 13mm heavy duty recycled HDPE mats, which can comfortably support loads up to 30t.**

**The upper layer mats are to be laid over a geotextile membrane, a lower mat layer and a compressible layer of 150mm depth of seasoned woodchip. (See example diagram below).**

**Ground Guards web link:**

**<https://www.ground-guards.co.uk/sectors/tree-root-protection>**

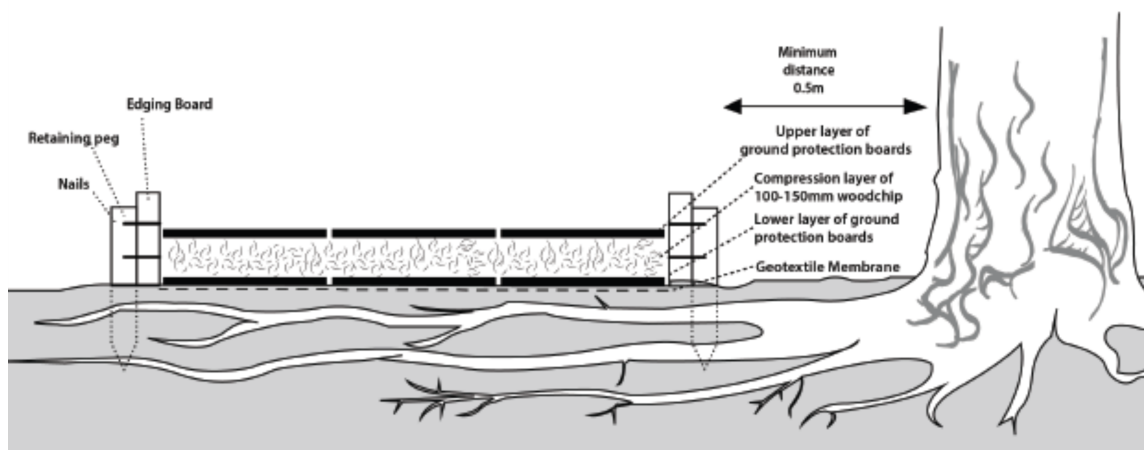
**N.B. These products must be installed and used in full accordance with the manufacturers specifications/instructions to provide adequate protection against soil compaction in the exposed RPA sectors. The correct specification for the likely loading of all plant machinery to be in operation at the site must be used.**

***Should another manufacture/supplier of ground protection apparatus be preferred by the Development Team, the same anti soil compaction properties of the product and installation methodology must apply and be fit for purpose in supporting the expected weight loads of plant machinery to be in operation over the ground protected areas.***

### 9.3 – Ground Protection Specification - Cont'd

#### Example diagram:

Diagram of a 'no-dig' method for constructing temporary access trackways near to trees in order to minimise damage to tree roots. (Not to scale)



All TGP measures must be installed prior to commencement of development work phases at the site along with the Construction Exclusion Zone (CEZ) and the site compound fencing.

Temporary ground protection measures are necessary at the site, as due to operational and access restrictions; the calculated RPA for T1 cannot be wholly excluded by CEZ fencing alone.

CEZ fencing on the eastern side of T1 will be adjusted to allow up to 3.5m of access and operational space and as such, the RPA sector to the east of T1 will be exposed outside of the CEZ fencing and must be afforded adequate protection against soil compaction.

**All required tree protection apparatus must be fully installed prior to any tools, equipment, machinery, temporary site units and materials are brought onto site and before commencement of any development work phases.**

### 10.0 – Arboricultural Implications

The potential direct and indirect impacts on trees which may arise from the proposed development and related construction activity, (identified following the tree constraints assessment) are as follows:

- **Root severance / loss of ephemeral feeder roots;**
- **Soil compaction in tree Root Protection Areas (RPA);**
- **Soil contamination;**
- **Direct damage to trees above ground level (stems and crowns);**

Site specific controls relating to mitigation measures to be implemented in respect of these implications can be found in the Arboricultural Method Statement 10.1 below.

## **10.1 – Arboricultural Method Statement (AMS)**

*Arboricultural Method Statement for tree protection throughout the duration of the proposed development works.*

*This Method Statement specifies the general principles to be adopted during proposed development works, based on information and details available to the Consulting Arboriculturist at the time of writing. Often additional input is required from Engineers to confirm the exact locations of services or technical specifications which are beyond the scope of a Consulting Arboriculturist. This is usually provided at the reserved matters stage or via planning conditions.*

*Control measures must be implemented as detailed below to safeguard all assessed retained trees above and below ground level against the potentially damaging effects of construction works and related site activity.*

The Arboricultural Method Statement (AMS) below is to be read and implemented with reference to the Tree Protection Plan (TPP) in Section 9.1, to identify:

- Trees to be retained – identified by a circle showing the stem position and individually numbered on the plan;
- Protective fence positions - (Therefore, the designated Construction Exclusion Zones);
- Areas where Temporary Ground Protection (TGP) measures are to be installed.

**A copy of this AMS and the Tree Protection Plan (TPP) shall be maintained on site at all times and must be made available to all site personnel to read and acknowledge.**

**A Site Personnel Induction Form (Template provided in Appendix B) must be completed and kept on file for all individual operatives working at the site, including sub contractors.**

### **Construction Exclusion Zone (CEZ)**

- No site related access, material storage, waste storage, or construction works of any kind are to be undertaken inside any designated Construction Exclusion Zone (CEZ) at the site. The Construction Exclusion Zones (CEZ) are to be afforded protection at all times and will be dictated by barrier fencing to the correct specifications as detailed in Section 9.2.
- Fenced CEZs are to be considered sacrosanct and no access inside the CEZs is permissible at any time throughout any of the development phases.
- The protective fencing is required to be sited in accordance with the Tree Protection Plan (TPP) in Section 9.1, based on measurements and/or instructions annotated on the plan, to ensure CEZ fencing is installed in the correct locations to offer effective protection.
- The CEZ fencing around T1 is to be set out to allow up to 3.5m access and operational space around the work area “pinch points” to the east of the tree, with Temporary Ground Protection (TGP) measures installed over the eastern RPA sector for T1 outside of the fenced CEZ. (See Tree Protection Plan (TPP) in Section 9.1).
- The CEZ fencing installed to exclude T2 – T5 will wholly encapsulate the RPAs calculated for these trees.
- The CEZ fencing installed as detailed will allow adequate access and operational space around the work area without restriction and will be incorporated into the Contractor's site compound fencing.
- All protective fencing shall be erected and TGP measures fully installed prior to the commencement of any site works. (e.g. before any construction materials, tools, or machinery are brought on site).

## **10.1 – Arboricultural Method Statement (AMS) – Cont'd**

### **Construction Exclusion Zone (CEZ) - Cont'd**

- **Construction Exclusion Zone (CEZ) fencing specification, as detailed in Section 9.2:**
  - *Steel mesh “Heras” type fencing (minimum 2m height) with stabilizer struts and base plates secured with ground pins (as shown in Figure 3a in Section 9.3), will be used where soft landscaped ground conditions are present (i.e. on the grass areas around T1).*
  - *Steel mesh “Heras” type fencing (minimum 2m height) with stabilizer struts mounted on block trays (as shown in Figure 3b in Section 9.3), will be used where any hard landscaped ground conditions are present (i.e. existing footpaths and the gravel car park area around T2-T5).*
- The CEZ fencing must have weatherproof signs attached at 5m intervals stating: “TREE PROTECTION AREA – ALL ACCESS IS PROHIBITED.”
  - *(Example of Tree Protection signage is provided in Appendix C).*
- Once installed, all CEZ fencing and signs must remain in place and undisturbed until completion of all development phases.
- Temporary Ground Protection (TGP) measures must be installed over the eastern sector of the RPA for T1 as detailed on the Tree Protection Plan (TPP) in Section 9.1, to the specification detailed in Section 9.3, without deviation:
- **Temporary Ground Protection (TGP) specification, as detailed in Section 9.3:**
  - Ground Guards, Multitrack, 2.4m x 1.22m x 13mm heavy duty recycled HDPE mats, which can comfortably support loads up to 30t.
  - The upper layer mats are to be laid over a geotextile membrane, a lower mat layer and a compressible layer of 150mm depth of seasoned woodchip. (See example diagram below).
  - The specification of TGP advised is designed to provide anti soil compaction properties and is suitable for pedestrian and wheeled/tracked plant use, comfortably supporting weight loads up to 30t.
  - *N.B. These products must be installed and used in full accordance with the manufacturers specifications/instructions to provide adequate protection against soil compaction. The correct specification for the likely loading of all plant machinery to be in operation at the site must be used.*
  - *Should another manufacture/supplier of ground protection apparatus be preferred by the Development Team, the same anti soil compaction properties of the product and installation methodology must apply and the apparatus be fit for purpose in supporting the expected weight loads of plant machinery to be in operation over the ground protected areas.*
- All physical tree protection apparatus (CEZ fencing and TGP measures) must be fully installed during the initial site setup along with the CEZ fencing and Contractor's site compound fencing.
- All tree protection apparatus must be fully installed prior to any tools, equipment, machinery, temporary site units and materials are brought onto site and before commencement of any development work phases.
- Post completion of all development work phases, the physical tree protection apparatus (CEZ fencing and TGP measures) must be the last apparatus to be dismantled and removed, following the complete removal of all construction related equipment, tools, machinery, temporary site units, materials and waste from the site.

## **10.1 – Arboricultural Method Statement (AMS) – Cont'd**

### **Access Details**

- No personnel or plant/vehicle access is permitted beyond any of the installed CEZ fencing at any time throughout the course of the development phases for any purpose.
- The purpose of the CEZ is to prevent all site access and operations from occurring inside tree RPAs or near trees above ground level.
- Fenced CEZs are to be considered sacrosanct and no access inside the CEZs is permissible at any time throughout any of the development phases.
- As operational access would be unacceptably restricted by CEZ fencing wholly excluding the RPA calculated for T1, the eastern fencing is to be set back to allow adequate access and operational space around the building work site and TGP measures will be installed, over the exposed RPA sector as detailed above.
- All access to the Site Compound Area (SCA) will be via the main school entrance driveway which leads directly into the gravel car park area, as designated for the SCA. The SCA will be enclosed by the Contractor's site compound fencing with vehicle access gates allowing a 4.5m opening to be installed in the southernmost fence line.
- (See Tree Protection Plan (TPP) in Section 9.1).

### **Contractors car parking**

- The site at York House School offers numerous car parking spaces for Contractor's and any other third parties visiting the site in relation to the development project.
- Car parks are available to the north of the main entrance and space will also be available in the gravel car park area.

### **Site Welfare Facilities**

- All temporary site welfare facilities, and site office units are to be located in the designated Site Compound Area (SCA) within the gravel car park.
- The Site Compound Area (SCA) is shown with a [blue hashed line](#) on the TPP in Section 9.1.

## **10.1 – Arboricultural Method Statement (AMS) – Cont'd**

### **Storage Space & Waste Management**

- No storage of bulk construction materials, plant machinery, tools, equipment, waste or otherwise is permitted beyond the installed CEZ fencing at any time.
- Fenced CEZs are to be considered sacrosanct and no access inside the CEZs is permissible at any time throughout any of the development phases.
- The gravel car park SCA has been designated for all material storage and material preparation.
- The Site Compound Area (SCA) is shown with a **blue hashed line** on the TPP in Section 9.1.
- No dry or liquid waste is to be stored or discarded inside the installed CEZ fencing at any time.
- Contaminate materials such as oils, fuel, chemicals and gases will be stored and handled away from the CEZs and must be stored and handled in accordance with the *Control of Substances Hazardous to Health Regulations 2002 (COSHH)*.
  - *This includes the storage of all contaminate or hazardous materials within a bunded container or cabinet, which minimises exposure and risk. There should be specific storage spaces for all COSHH substances. Access to these areas should be restricted to authorised personnel only and stringent security measures must be implemented.*
- The designated area for the bunded cabinet and storage of contaminate materials will be in the designated Site Compound Area (SCA), as shown on the Tree Protection Plan (TPP) in Section 9.1 and as detailed in the Arboricultural Method Statement (AMS) in Section 10.1.
- No excavated soil, or any other waste materials will be stored beyond the CEZ fencing, within the RPAs (*including over Temporary Ground Protected areas*) or under canopies of the retained trees, whichever is the greater. All construction related waste is to be removed from the site at the earliest opportunity.
- A Construction Management Plan (CMP) detailing the frequency of visits for material deliveries, waste management etc. was not available at the time of writing and should be requested directly from the applicant, if required.

### **Demolition works**

- No demolition of existing structures are proposed.



## 10.1 – Arboricultural Method Statement (AMS) – Cont'd

### Construction within RPAs of retained trees

- **Canopy Structure Incursion:**

- The proposed footprint of the new canopy structure to feature off of the west side elevation at the southern end of the art classroom building shows a negligible incursion inside the south-western extremity of the RPA for T1.
- **RPA incursion calculation:**
  - **0.64%. (1.05m<sup>2</sup> = 0.64% of the Total RPA (163m<sup>2</sup>) calculated for T1).**
  - The RPA incursion as calculated above is considered acceptable for the installation of single support post and foundation, as detailed in the Tree Constraints Assessment Section 8.2.
  - The minor incursion of the canopy structure inside the south-west extremity of the RPA is considered negligible, with an extremely low risk of discovering major, woody roots (*over 25mm in diameter*) through excavations required for the single support foundation to be constructed in this location.
  - The proposed foundations for the canopy structure as advised by the Development Team will be 600mm x 600mm mass filled C30 concrete footings. (*See Foundation Plan (NOT TO SCALE) in Appendix D*).
  - Excavations inside the RPA sector for T1 as shown in **CYAN** on the Tree Constraints Plan (TCP) in Section 8.0 and on the Tree Protection Plan (TPP) in Section 9.1 must be undertaken using manual hand operated tools only, including the use of typical garden forks\* initially to a depth of 600mm.
  - The remaining excavations to the desired depth can be undertaken using spades/shovels, but mechanical excavation is not permitted inside the RPA sector.

*\* To avoid cutting through tree roots; such as would happen if spades were to be used.*

- **Main Art Classroom - (Modulek building):**

- The proposed foundations for the Modulek building as advised by the Development Team will be 800mm x 800mm mass filled C30 concrete footings. (*See Foundation Plan (NOT TO SCALE) in Appendix D*).
- As an additional precautionary control measure, all excavations for the main Modulek building pad foundations along the western elevation line are to be undertaken initially using manual hand operated tools only, to an exploratory depth of 600mm including the use of typical garden forks\* initially before proceeding with mechanical excavations.

*\* To avoid cutting through tree roots; such as would happen if spades were to be used.*

*(N.B. This precautionary control measure is made due to the main building footprint falling just beyond the eastern extremity of the nominal RPA as calculated for T1 and with adventitious root distribution considered, exploratory digging with hand tools is required to ensure that no rogue major roots are present, prior to mechanical excavations).*

- **Should any woody roots measuring over 25mm in diameter be encountered during any excavation works (by hand or otherwise), they must not be severed without prior consultation with the Consulting Arboriculturist.**
- **Any exposed roots must be wrapped in hessian cloth to prevent desiccation and contact made with the Consulting Arboriculturist at the earliest opportunity (Contact details are on the Front Title Page).**
- *The Foundation Plan (NOT TO SCALE) in Appendix D is provided as an informative illustration only.*
- *Full specifications and installation methodology of the building and canopy foundations can be requested directly from the Development Team, if required.*

## **10.1 – Arboricultural Method Statement (AMS) – Cont'd**

### **Proposed new outside hard surfaces**

- The footprint of the new patio surface proposed to be constructed off of the north elevation of the art classroom building does not incur inside the RPA of any trees.

### **Underground Utility Services**

- At the time of writing, new trenches have not been proposed by the Development Team to be excavated inside the RPA of T1 or any other trees for the installation of new below ground utility infrastructure, or for alterations to the existing services.
- Utility infrastructure required to service the new art classroom building will connect to existing services, with the proposed service runs shown to feature within the footprint of the new building, outside of all tree RPAs. *(As shown with blue and red arrows on the provided Proposed Block Plan Drawing No. 2332-MEB-XX-XX-DR-A-3-105-A, which has been used to create the Tree Constraints and Tree Protection Plans in Sections 8.0 and 9.1 respectively.*
- Should any design changes be made to utility service proposals, details of all new services or changes to existing below ground infrastructure, including trenching will need to be provided to allow evaluation of the potential adverse impacts on retained trees.
- It will be necessary to ensure that any trenching or excavations required for installing or altering utility infrastructure will not occur within the shown RPAs for retained trees.
- *A Construction Management Plan (CMP) providing details of any proposed new utility infrastructure, or alterations to existing services was not available for consideration at the time of writing and should be requested directly from the applicant.*

## 10.1 – Arboricultural Method Statement (AMS) – Cont'd

### Additional Precautions

- All Preliminary / General Management Recommendations for tree surgery works should ideally be undertaken prior to the installation of the Construction Exclusion Zone (CEZ) fencing and Temporary Ground Protection (TGP) apparatus.
- All Access Facilitation tree surgery works must be completed prior to the installation of Construction Exclusion Zone (CEZ) fencing and Temporary Ground Protection (TGP) apparatus and be completed prior to commencement of any development phases.
- Fires at the site are not permitted at any time.
- No notice boards, cables or other services will be attached to any tree stem, limb or branch.
- **Should any woody tree roots over 25mm in diameter be exposed during the course of any existing hard surface removals or excavation works (manual or mechanical), they must be immediately wrapped or covered in hessian cloth to prevent desiccation and protect from temperature changes whilst exposed and the Consulting Arboriculturist advised immediately.**
- **Any roots exposed over 25mm in diameter must not be severed without prior consultation with the Consulting Arboriculturist.**
- **Consideration will be given at all times to ensure that sloping ground will not allow for any contaminating substances to travel into areas where tree RPAs may be affected, including vehicle washings.**
- **Should spillages of contaminants occur, water is readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots. At the time of any spillage the main contractor will immediately contact the Consulting Arboriculturist for advice.**
- Any significant build up of dust or particulate material on tree foliage should be hosed down to prevent clogging of stomata in the leaves.
- Cranes must be sited within the Site Compound Area (SCA) in a location to ensure they can operate safely without the travel path of the boom or carried loads coming into contact with tree branches.
- **All crane operations and/or operations involving vehicles with extending jibs/booms (i.e. grab lorries) or lifting gear (skip lorries) must be undertaken under supervision of a Banksman at all times.**
- Skips must be positioned where skip lorry lifting gear can operate safely without coming into contact with tree crowns/branches.
- Skips will be located within the designated Site Compound Area (SCA) in the gravel car park, as shown on the Tree Protection Plan (TPP) in Section 9.1. The SCA will be outside of all fenced CEZs with crown branches of all trees behind the fence lines, allowing for safe skip delivery and collection without adversely impacting tree crowns/branches.

## **10.2 – Responsibilities**

- It will be the responsibility of the main contractor to ensure that the planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.
- The main contractor must further assign tree protection monitoring duties to one or more individuals working at the site, who will be responsible for regular tree protection monitoring and supervision.
- **The individual(s) assigned tree protection monitoring duties must:**
- Be present on site for the majority of the time throughout the development phases;
- Be aware of (a) the Tree Protection Plan and (b) the tree protection measures to be installed and maintained throughout the build;
- Be responsible for ensuring all tree protection control measures are adhered to as detailed in the Arboricultural Impact Assessment (AIA) report and Arboricultural Method Statement (AMS);
- Ensure all site operatives without exception read and understand the tree protection and control measures detailed in the AIA and AMS;
- Keep on file all individual Site Personnel Induction forms (*see Appendix B*) which must be completed and signed by all site operatives indicating they have read and understood the control measures detailed in the AIA report and AMS;
- Maintain a written record of regular Tree Protection / Construction Exclusion Zone inspections (*see Appendix A*), to be kept up to date by the person(s) who have been designated the inspection and monitoring duties;
- Have the authority to stop any work that is causing, or has the potential to cause, harm to any retention trees;
- Be responsible for ensuring that all site operatives including sub contractors are aware of their responsibilities toward on/off site trees and the consequences of the failure to observe these responsibilities;
- Make immediate contact with the Consulting Arboriculturist in the event of any tree related problems occurring, whether actual or potential. (*Contact details including telephone number and email address is listed on the Title Page*);
- The Construction Exclusion Zone (CEZ) fencing, Temporary Ground Protection (TGP) apparatus and all signs must be maintained in position at all times and checked on a regular basis by the on site person(s) who have been designated that responsibility.
- The main contractor will be responsible for contacting the Local Planning Authority and the Consulting Arboriculturist at any time issues are raised relating to the trees on site, either actual or potential.
- If at any time pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with *BS 3998:2010 Tree Work – Recommendations* (As updated).
- The main contractor will ensure the build sequence and phasing is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective CEZ fences and Temporary Ground Protection (TGP) apparatus will remain in position and undisturbed until completion of ALL development works on the site.
- The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

### **10.3 – Tree Work Standards**

All recommendations for tree surgery works made within this report have been done so in the interests of sound arboricultural management and to ensure tree surgery works are performed to a professional standard in accordance with *BS 3998:2010 Tree work – Recommendations*. (As updated).

All remedial tree surgery work which is suggested in this report must be undertaken to conform to standards and procedures set out in *BS 3998:2010 Tree work – Recommendations*. (As updated)

- Tree Sense Arboricultural Consultants are happy to recommend a trusted tree surgery contractor if required, to ensure that all recommended tree surgery work is performed to a high standard.
- Tree Sense Arboricultural Consultants only recommend contractors who are approved by The Arboricultural Association to ensure that the highest standards of tree surgery work are met at all times.

## **11.0 – Report Summary**

This Arboricultural Impact Assessment (AIA) report has been produced following a tree survey conducted in accordance with BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*.

The information produced within the AIA report follows an initial tree survey conducted on the 22<sup>nd</sup> March 2024.

The AIA report provides an assessment of the trees associated with the proposed development, based on available information supplied by the Development Team at the time of writing and observations recorded at the time of the tree survey.

The AIA report is published to detail the findings from an arboricultural viewpoint within the context of the proposed development scheme and to detail the necessary tree protection controls and methodologies required to safeguard trees in the short and long term.

The AIA concludes, that if the recommendations made within this report are duly followed, the development is achievable in arboricultural terms and should be acceptable to the Local Planning Authority (LPA). It must be understood however, that the provision of this AIA report does not provide any guarantees that the associated Local Planning Authority (LPA) will agree with the opinion of the Consulting Arboriculturist, or grant planning consent based on the content, findings and recommendations made in the AIA report.

If any design changes are made to any aspect of the proposed development project due to the identified tree constraints, operational restrictions, geotechnical concerns or otherwise, revisions or additions to tree protection, damage mitigation measures and site layouts will need to be made and a revised AIA report produced.

This is a Development Control, not a Building Control focused document. In regard to the latter, this deals with foundation depth and design in relation to trees using NHBC/Zurich national guidance. For advice, consult with the local council Building Control Officer or an approved NHBC inspector in order to gain Full Plans Approval or a Completion Certificate. The latter are governed by the Building Act 1984 and Building Regulations 2010. As such the above Building Control issues are outside the remit of a Consulting Arborist.

Full detailed specifications of the development project and engineering methods etc. will be supplied by the Development Team separately on request.

Detailed information regarding the site setup, plant use, waste management and construction methodology was not available at the time of writing and should be requested separately from the Development Team in a Construction Management Plan (CMP), as required.

The CMP must take fully into consideration and adhere to all required tree protection control measures, as detailed in the AIA report.

If necessary, referral back to the Consulting Arboriculturist will be required to evaluate any potential tree related impacts which have not already been considered using information made available by the Development Team at the time of publication of this AIA report and a revised AIA report produced. *(i.e. for any changes to new or altered utility service proposals, crane use, or any other scheme design or site changes which may be relevant, in respect of potential adverse impact to trees).*

## **12.0 – Legal and Planning Consents**

- Appropriate legal and planning consent should be gained before undertaking any tree work; for example if the tree(s) are subject to a Tree Preservation Order (TPO), permission must first be obtained from the Local Authority. Permission is not required for emergency tree work on dead, dying or dangerous TPO trees; however the Local Authority should still be advised.
- Six weeks notice is required to be given to the local authority via a Section 211 Notice for any proposed tree surgery work on trees situated within a designated Conservation Area. Permission is not required for emergency tree work on dead, dying or dangerous trees situated within a Conservation Area; however the Local Authority should still be advised.
- Tree owners have a responsibility as a common law duty of care, as well as responsibilities under statutory law, to ensure that trees growing within the boundaries of their property are maintained to reduce to an acceptable level the risk of potential harm befalling other people or property.
- In the course of undertaking any tree work, the client is advised to ensure that operational assessments and procedures are in place, and to take due consideration of the legal requirements.
- Key legislation includes (but is not restricted to):
  - The Wildlife and Countryside Act (1981)
  - Occupiers Liability Act (1957/84)
  - Highways Act (1980/86)
  - Town and Country Planning Act (1990/Regulations 1999/Amendment 2008/09)
  - Anti-Social Behaviour Act (2003) – Part 8 (High Hedges)
  - The Countryside Rights of Way Act (2000)
  - The Conservation (Natural Habitats etc.) Regulations (1994)
  - The Badgers Act (1992)

## **13.0 – Publications**

- Other publications which are relevant to the development proposal to which further reference is advised includes but is not restricted to:
  - National House Building Council (N.H.B.C) Chapter 4.2 – (Building near trees);
  - National Joint Utilities Group (NJUG) Volume 4 – (Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees).

Chris Wallis *Tech Cert (ArborA), AHort II (Arb.)*  
Tree Sense Arboricultural Consultants

**Appendix A – Construction Exclusion Zone Inspection Form**

**Construction Exclusion Zone Inspection Form**

**Site Address:** York House School, Sarratt Lane, Croxley Green, Rickmansworth, Herts, WD3 4LW

**Client Name:** York House School

**Inspected By** \_\_\_\_\_

**Inspection Date & Time:** \_\_\_\_\_

**Construction Exclusion Zone – Barrier Fencing**

**Comments:**

**Action:**

**Construction Exclusion Zone – Temporary Ground Protection**

**Comments:**

**Action:**

**General Observations and Comments**



**Appendix B – Site Personnel Induction Form**

**Name:** \_\_\_\_\_

**Company:** \_\_\_\_\_

**Site Address:** York House School, Sarratt Lane, Croxley Green, Rickmansworth, Herts, WD3 4LW

**Date:** \_\_\_\_\_

Declaration	Tick to Confirm
<i>I have read and understand the Tree Protection Plan and the Arboricultural Method Statement and the requirements to be employed / actioned at the site regarding tree protection.</i>	
<i>I understand that all tree protection measures (fencing and ground protection) must not be moved or disturbed throughout the development project without prior agreement with the Consulting Arboriculturist.</i>	
<i>I understand that where advised, certain operations may only be undertaken under supervision of the Consulting Arboriculturist and/or must not be undertaken without their approval.</i>	
<i>I acknowledge that any concerns I have regarding the protection of trees at and adjacent to the development site will be brought to the attention of the Site Manager/Supervisor.</i>	
<i>I acknowledge that I must not cause direct or indirect damage to any on site or neighbouring tree, either above or below ground level during the course of my daily operational duties.</i>	

**SIGNATURE:** \_\_\_\_\_

**Appendix C – Construction Exclusion Zone (CEZ) – Sign Format**

*Below is a suggested format for weatherproof warning signs to be attached to the barrier fencing which create the Construction Exclusion Zones (CEZ) at the site:*



**TREE PROTECTION AREA  
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)  
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY  
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A  
TREE PRESERVATION ORDER.**

**CONTRAVENTION OF A TREE PRESERVATION ORDER MAY  
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE  
WITH THE WRITTEN PERMISSION OF THE PROJECT  
ARBORICULTURIST**

**Appendix D – Foundation Plan (NOT TO SCALE)**

The following Foundation Plan image is provided as an informative illustration only and is not shown to scale.

Detailed foundation plans, specifications and construction methodologies should be requested directly from the Development Team if required.

