# Land off High Road Whitehaven

# BS5837:2012

# Tree Survey Report

# July 2021

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# Appendices

## 1.0 Introduction

### 1.1 Preamble

This survey of the site has been carried out in line with *British Standard BS5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations* and aims to provide a baseline report to identify the arboricultural features associated with the development of the site.

### 1.2 Site Location and Setting

The site is located west of High Road, Whitehaven. The site is a reclaimed industrial site with remnant concrete bases, roads and walls which are becoming reclaimed by unimproved grassland and pioneer species of scrub.

The site is not subject to any tree preservation orders and is not within a conservation area.

### 1.3 Brief Description of the Project objectives.

The site is proposed for residential housing development with associated infrastructure.

## 2.0 Tree Survey Methodology

2.1 Methodology

The survey was undertaken in July 2021 in accordance with *British Standard 5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations*. The survey is concerned, primarily, with the assessment and survey of the trees growing within, or on the boundary of the site only, and aims to assist with the integration, where feasible, of the existing trees with the proposed development.

This survey provides quantitative data on tree species, height, stem diameter, height of first significant branch, crown spread, age class, amenity value and a brief qualitative assessment on tree condition and future potential as well as categorization into a BS5837 retention category, including an inspection with respect to decay, defects and hazards.

The topographical plan showing the approximate extent of vegetation rather than individual tree positions, due to the density of the planting.

The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first.

Tree Heights have been estimated in meters.

Number of stems includes any below 1.5m.

Stem diameter of groups has been set as an average while stem diameter of individual trees has been recorded in millimeters at 1.5m above ground level.

The height of lowest significant branch is measured from ground level in meters.

Crown Radius is recorded in meters along each cardinal point. In the case of groups the maximum peripheral spread is recorded.

The age class of the trees has been recorded as prescribed in BS 5837:2012 (e.g. young, semi mature, early mature, mature, over mature) and was estimated from visual indicators and should only be taken as a provisional guide.

The structural condition of the trees was based around an assessment taking into account variations on typical form, the presence of any obvious decay and physical defects. The trees structural condition has been categorised as good, fair, poor or dead. In the case of groups and/or woodlands the condition stated will be typical of the overall group; however, there will be exceptions to this in all instances with dead and dying trees among all groups.

The assessment of the amenity value, although subjective, aims to give an impression of the impact that the tree has in the general locale and is based around, size, form, prominence on site etc. Amenity value has been classified as high, medium and low.

Comments are made regarding the physiological state of the tree and include notes on health, vitality and any previous management. Preliminary recommendations regarding any remedial tree works that are considered necessary have also been made.

The estimated remaining contribution of the trees in years was calculated taking into account the trees age and physiological condition at the time of inspection; i.e. less than 10 years, 10-20 years, 20-40 years, more than (+) 40 years.

The retention category is allocated according to the cascade chart within BS 5837:2012 and included within Appendix D.

The Root Protection Area (RPA) has been calculated in accordance with BS5837: 2012. RPAs are shown on the Tree Constraints Survey Plan in Appendix B.

## 2.2 Survey Limitations

Locations of various groups are approximate.

## 3.0 Survey Results

3.1 Tree Categorisation

A total of one tree and 26 individual groups were identified in this survey. Full details of the survey data can be found in the Tree Survey Schedule in Appendix A. As noted elsewhere, the position of the groups is an approximation and they have been recorded for the sake of completeness.

**Category A Individual trees and groups of trees. (Trees of high quality)**

Trees of high quality and value, including visual amenity value; It is usual for such trees to be retained unless the planning merits of a particular scheme or layout dictate otherwise.

No category A trees or groups were identified as part of this survey.

**Category B Individual trees and groups of trees. (Trees of moderate quality)**

Trees of moderate quality and value, including visual amenity value; such trees should be considered for retention.

One category B trees was identified as part of this survey.

**Category C Individual trees and groups of trees. (Trees of low quality)**

This includes trees of low quality and value including lower visual amenity.

26 category C groups were identified as part of this survey.

**Category U Individual trees and groups of trees. (Trees of poor quality)**

Including trees 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.

No category U trees were identified as part of this survey.

From an arboricultural point of view the category C trees should not influence the potential development of the site however, wherever possible Category B trees should be retained and fully protected in accordance with the details contained in Appendix E. Category A trees' retention is considered to be essential.

Trees in categories A to C are further sub-divided into one or more of three sub-categories (1, 2, 3). Sub categories 1, 2 and 3 are intended to reflect mainly arboricultural (1) mainly landscape (2) or mainly cultural (3) values, respectively.

**4.0 Arboricultural Implication Assessment**

4.1 Arboricultural Management Recommandations

- None required.

4.2 Recommendations to facilitate development –

- All groups are likely to be removed to allow development.

**5.0 Recommendations for Trees to be retained within the Development**

- All tree works should be carried out prior to equipment or materials being brought onto site. The tree works can take place prior to protective fencing being installed although care should be taken not to take heavy equipment into the RPA of retained trees. The root protection area of the individual groups is largely contained within the area of the embankments and contained by the retaining wall on the development side. The protective fencing, therefore, is suggested to be placed as far as possible from the retaining wall, but in a position which will allow full construction of the proposed development to take place without the need to relocate the fencing at any stage.; the edge of proposed footpaths or adjacent to rear boundaries of proposed properties. Due to their size, any individual tree's RPZ is going to be well within the suggested protected area.
- Retained trees may in some cases require crown lifting to a suitable height. This is to prevent damage to secondary limbs during the installation of the protective fencing. It is not considered likely that this will be required, as all protective fencing is beyond the canopy of the retained trees, but if it is, guidance must be sort from an arboriculturist first.
- All trees on site which are to be retained should be protected by barriers before materials are brought onto site or before development, demolition or stripping of soil.
- The protective fencing is required to be semi-permanent so that it is not easily moved and protection is provided to the trees throughout the development process. Examples of fencing can be seen in Appendix E.
- **Once erected, barriers and ground protection should be regarded sacrosanct, and therefore should not be removed or altered without prior consultation of an arboriculturist and approval of the local planning authority.**
- For wheeled or tracked construction traffic movements within the RPA the ground protection should be designed by an engineer to accommodate the likely loading.
- All tree works should conform to BS:3998 2010 Recommendations for Tree Works.
- The protective barrier forming the CEZ will be constructed in accordance with BS5837:2012, which can also be seen in Appendix F.

- Works Within Root Protection Zones

  Before starting the work a survey team should identify the protection zone with marker paint or pegs. This will ensure that the construction gang know the precise area where special precautions are required to avoid or minimise damage.

  The contractor should protect the trunk of each tree with substantial hoarding, supported on scaffolding, to a height of at least two metres. All protection should be as BS5837:2012. This protection should be reusable so that as work progresses, it can be transferred from tree to tree.

  Prior to the commencement of any works, an Arboricultural Approved consultant (or suitably experienced person with the approval of the Local Planning Authority) must brief site workers on the required protection measures. The same person shall also supervise the works as required to ensure adherence to the required method of working.

  If the work needs surfaces to be removed or excavated, this should be carried out as follows.

Any excavation should be kept to an absolute minimum and where unavoidable should be undertaken using **by hand only** with great care to avoid damage to as many roots as possible. There needs to be close supervision during hand-digging operations and all site staff should understand what is required. All tree roots over 25mm in diameter should ideally be worked round and retained and **the advice of the supervising arborist shall be sought**. If it is necessary to remove these roots any root cutting should be done with a sharp handsaw or secateurs and the size of the wound should be kept to a minimum. Individual roots of less than 25mm may be severed, but mats of smaller roots (including fibrous roots) should be retained. Smaller roots can easily desiccate (dry out) and die when exposed, particularly in warm or windy conditions. These should be covered and protected with damp hessian until the excavation is back filled. Where kerbs are being installed or refitted through a tree's protection zone and roots with a diameter of more than 25mm obstruct the work, the contractor should consult the forestry officer before severing the roots. Directly following excavation all exposed roots must be covered and wrapped in damp hessian until back filling is carried out

| Tree Number | Species | Ht (m) | No of Stems below 1.5m | Stem Dia (mm) | Height of lowest significant branch (m) | Crown spread (N) | Crown spread (S) | Crown spread (E) | Crown spread (W) | Age Class | Structural condition | Amenity value | Comments & recommendations | Life Expectancy | BS Cat |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 1 | Willow Buddleia | Up to 4m | Multiple | Up to 250mm | Ground level | | | | | Young | F | L | A group of predominantly Willow saplings interspersed with Buddleia and occasional Grisellinia, growing within former concrete base. | 20-40 | C2 |
| Group 2 | Willow Buddleia Hawthorn | Up to 4m | Multiple | Up to 70mm | Ground level | | | | | Young | F | L | A group of predominantly Willow saplings interspersed with Buddleia and Hawthorn, growing within former concrete base. | 20-40 | C2 |
| Group 3 | Willow Hawthorn | Up to 3m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn, growing within former concrete base. | 20-40 | C2 |

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| Group 4 | Willow Hawthorn | Up to 3m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn, growing within former concrete base. | 20-40 | C2 |
| Group 5 | Willow Buddleia Hawthorn | Up to 6m | Multiple | Up to 250mm | Ground level | | | | | Young | F | L | A larger group of Willow interspersed with Hawthorn and Buddleia. Intertwined with boundary chain-link fence. | 20-40 | C2 |
| Group 6 | Willow | Up to 3m | Multiple | Up to 40mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings, growing within former concrete base. | 20-40 | C2 |
| Group 7 | Willow Hawthorn | Up to 4m | Multiple | Up to 60mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn, growing within former concrete base. | 20-40 | C2 |
| Group 8 | Willow | Up to 4m | Multiple | Up to 60mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow, growing within former concrete base. | 20-40 | C2 |

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| Group 8 | Willow Buddleia | Up to 4m | Multiple | Up to 70mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Buddleia, growing within former concrete base. | 20-40 | C2 |
| Group 9 | Willow Hawthorn Buddleia | Up to 5m | Multiple | Up to 70mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn and Buddleia, growing within former concrete base. | 20-40 | C2 |
| Group 10 | Willow | Up to 4m | Multiple | Up to 60mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow, growing within former concrete base. | 20-40 | C2 |
| Group 11 | Willow | Up to 4m | Multiple | Up to 60mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow, growing within former concrete base. | 20-40 | C2 |
| Group 12 | Willow Hawthorn Buddleia | Up to 5m | Multiple | Up to 70mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn and Buddleia. | 20-40 | C2 |
| Group 13 | Willow | Up to 3m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. | 20-40 | C2 |

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| Group 14 | Willow | Up to 3m | Multiple | Up to 30mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. | 20-40 | C2 |
| Group 15 | Willow | Up to 3m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |
| Group 16 | Willow Buddleia | Up to 3m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings with Buddleia. Growing from concrete base. | 20-40 | C2 |
| Group 17 | Willow Hawthorn Buddleia | Up to 5m | Multiple | Up to 70mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn and Buddleia. | 20-40 | C2 |
| Group 18 | Willow Hawthorn Buddleia | Up to 5m | Multiple | Up to 90mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn and Buddleia. Growing within chain-link fence. | 20-40 | C2 |
| Group 19 | Willow Hawthorn Buddleia | Up to 5m | Multiple | Up to 70mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings interspersed with Hawthorn and Buddleia. | 20-40 | C2 |

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| Group 20 | Willow | Up to 2m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |
| Group 21 | Willow | Up to 2m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |
| Group 22 | Willow | Up to 2m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |
| Group 23 | Willow | Up to 2m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |
| Group 24 | Willow | Up to 2m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |
| Group 25 | Willow | Up to 2m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |

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| Group 26 | Willow | Up to 3m | Multiple | Up to 50mm | Ground level | | | | | Young | F | L | A small group of predominantly Willow saplings. Growing from concrete base. | 20-40 | C2 |
| T1 | Willow | 6m | Single | 350mm | 0.5m | 3m | 3m | 3m | 3m | Early-mature | F | M | Freestanding self-sown tree, just beyond site's boundary but recorded for accuracy. | 20-40 | B2 |

Appendix B – Tree Constraints Plan – please refer to Dwg c-1966-01

Appendix C – Root Protection Area (RPA) measurements  - not provided due to nature of groups.

Appendix D – Tree removal plan – to be advised.

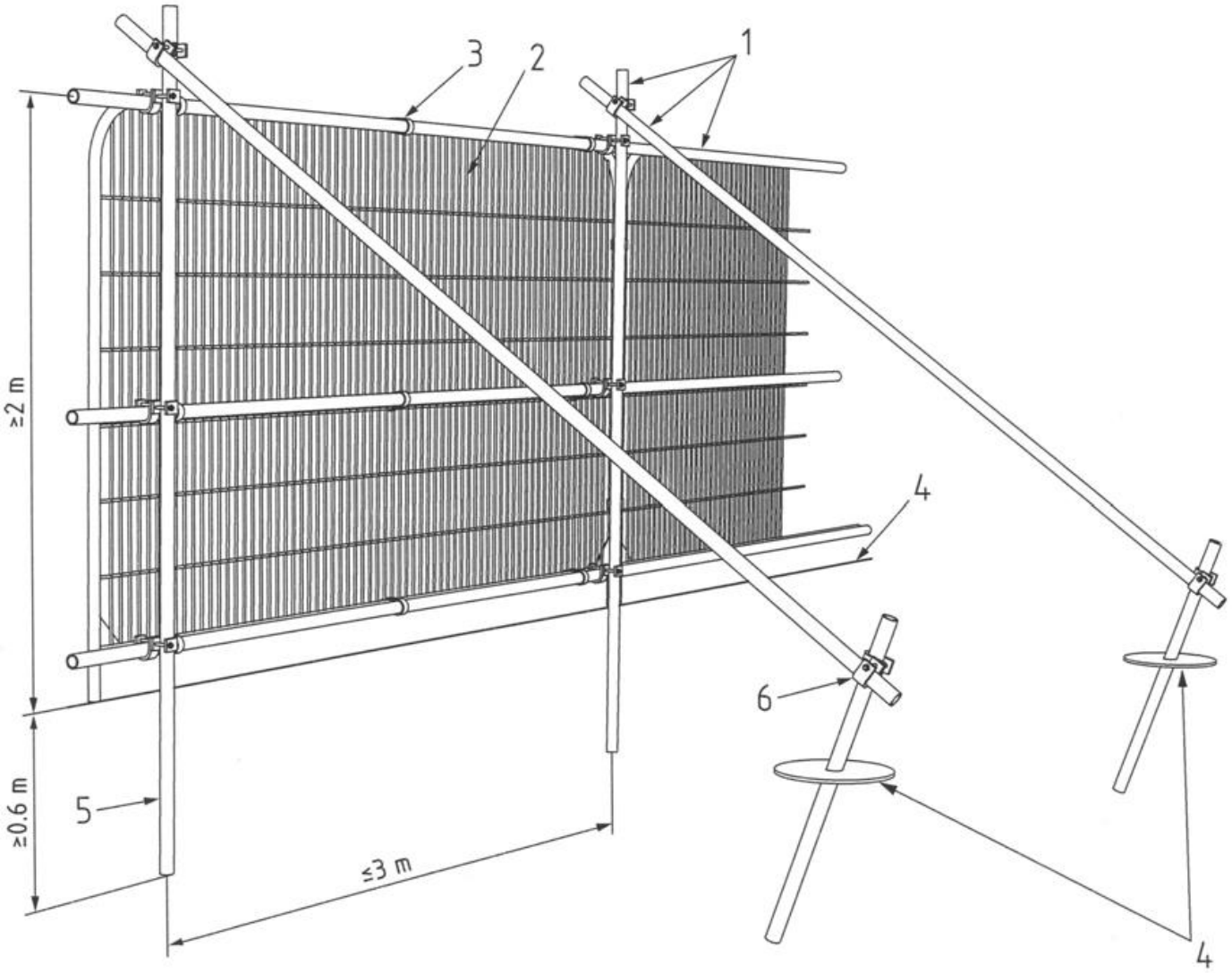
# Appendix E – BS5837:2012 Cascade Chart

| Trees unsuitable for retention | | |
|---|---|---|
| **Category** | **Definition** | **Identification on plan** |
| Category U<br>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years | • Trees that have a serious, irremediable, structural defects, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)<br>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline<br>• 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<br>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; | DARK RED |

| Trees to be considered for retention | | | | |
|---|---|---|---|---|
| **Category** | **Definition** | | | **Identification on plan** |
| | 1. Mainly arboricultural values | 2. Mainly landscape values | 3. Mainly cultural values, including conservation | |
| Category A<br>Trees of high quality with an estimated remaining life expectancy of at least 40 years contribution (a minimum of 40 | Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue) | Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) | LIGHT GREEN |
| Category B<br>Those of moderate quality With an estimated remaining life expectancy of at least 20 years | Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and storm damage) such as 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 as groups or woodlands, such that they form distinct landscape features, thereby attracting 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 | MID BLUE |
| Category C<br>Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories | Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary/transient landscape benefits | Trees with no material conservation or other cultural value | GREY |

# Appendix F – Protective Fencing detail

Figure 1: Default Specification for Protective Barrier.




KEY:

1 Standard scaffold pole

2 Heavy gauge 2m tall galvanised tube and welded mesh infill panels

3 Panels secured to uprights and cross-members with wire ties

4 Ground level

5 Uprights driven into the ground until secure (minimum depth 0.6m)

6 Standard scaffold clamps

Alternative tree protection barrier design

2 meter tall welded mesh panels standing in rubber or concrete feet joined using a minimum of two anti-tamper couplers installed so they can only be removed from inside the protected area. The fence couplers should be at spaced least 1 m apart, but uniformly across the whole barrier. These panels must be supported within the protected area with struts attached to a base plate secured by ground pins as per figure 2a.

Where the fencing is installed above retained hard surfacing and / or it is otherwise not feasible unfeasible to use ground pins (e.g. due to underlying services or structural roots), the struts can be mounted on a block tray as per figure 2b.

Figure 2a: Stabilizer Strut with Base Plate Secured with Ground Pins

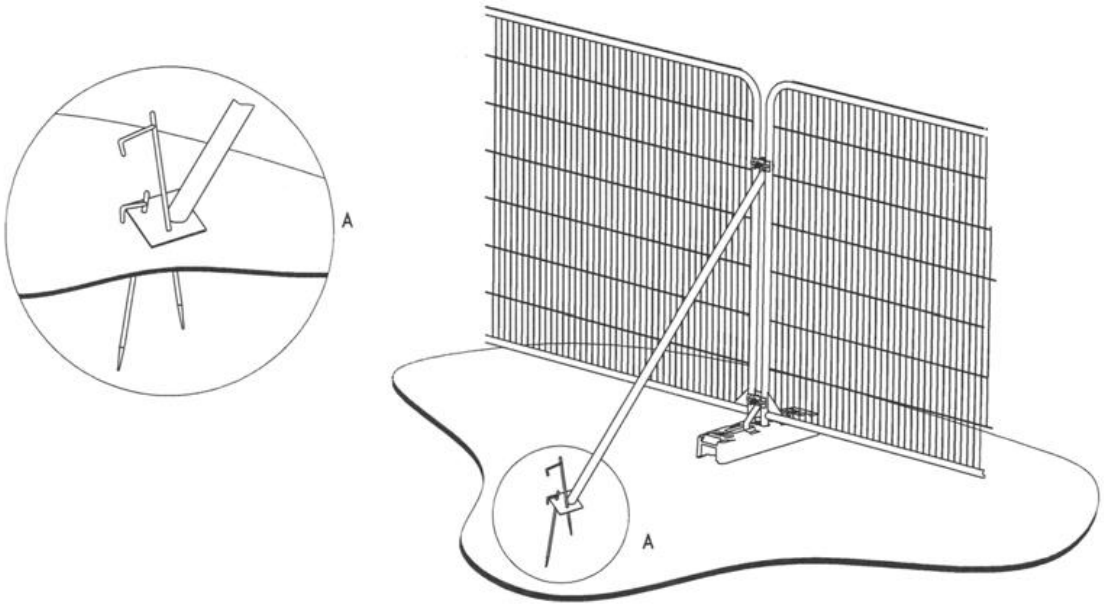
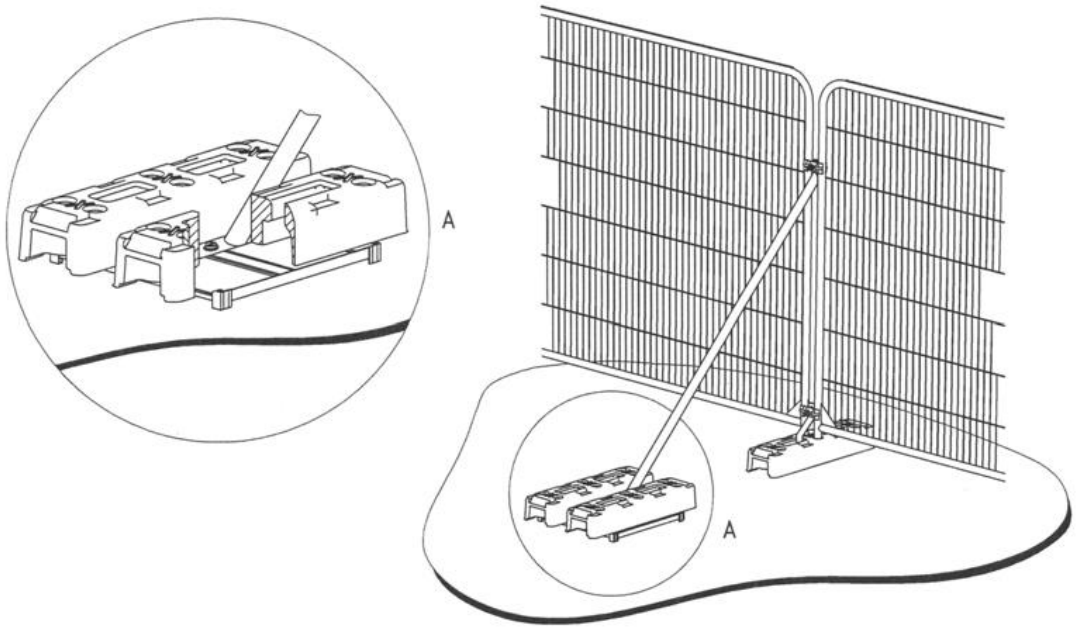



Figure 2b: Stabilizer Strut Mounted on Block Tray



Appendix G - Tree Protection Site Notice


# Appendix H – Legal Restrictions

- Trees in any location may be protected by legislation. Where development is proposed, additional legal protection may be appropriate and can be enforced by the local authority. Attention is drawn to legal controls and liabilities under common law for consideration at the earliest stages of potential site development.
- The Town and Country Planning Act 1990 requires that, except in certain circumstances, “no work shall be carried out which will affect trees over a certain size which are situated in Conservation Areas”. Six weeks’ notice of intent has to be given to the local authority before the work is carried out. This provides an opportunity for the local authority to make a Tree Preservation Order (TPO) under this Act to protect the trees.
- Tree Preservation Orders allow for trees to be protected either as individuals, groups, areas or woodlands. The orders have the effect of preventing the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of trees, except in certain circumstances, other than with consent of the local authority.
- Even when no specific legal protection exists, it may be necessary to obtain a felling licence. These apply if the volume of timber exceeds specified amounts; site clearance, even of small areas, before detailed planning permission has been granted could exceed the felling licence quota. The Forestry Commission, under the Forestry Act 1967, administers felling licences.
- Before carrying out any arboricultural or forestry operations, consideration should be given to the following legislation for protected species of flora and fauna: The Wildlife and Countryside Act 1981 (as amended), the Conservation (Natural Habitats & c.) Regulations 1994 (as amended), and the Countryside Rights of Way Act 2000 protected species of flora and fauna. This will prevent any harm or damage to protected species.
- Substantial penalties and or prison sentences can be incurred for contravention of legislation relating to protected species.
- PDP Associates has not been requested to make any checks for protected species on this site.