

10.0 Appendix 3 - Tree Survey Data Key

- **Tree ID #** - Identifies the location of individual trees (T-ID Number), Groups of trees (G-ID Number), Area of trees (A-ID Number), Hedgerow (H-ID Number), Woodland (W-ID Number), Row of trees (R-ID Number) and tree Stumps (S-ID Number) on the accompanying plan. *(Please note: A group of trees here refers to two or more standing trees that form a visual whole, whereas an area of trees refers to dispersed individual trees standing within the site)*
- **Tree Species** - Scientific names and common tree name in brackets are generally shown.
- **Age**
 - o (Y) Young – Less than 1/3 of life completed
 - o (SM) Middle Aged - 1/3 - 2/3 of life completed
 - o (EM) Early Mature – Just entering Maturity
 - o (M) Mature – more than 2/3 of life completed
 - o (OM) Over Mature - more than 3/3 of life completed and declining
 - o (V) Veteran - (v) Veteran – Veteran trees have no precise definition but are trees considered to be of biological aesthetic or ecological value because of their age
- **Stems** – Number of tree stems used to calculate the RPR/RPA
- **Stem Diam** (mm) - Diameter of tree stem measured in millimetres for single stem trees or average stem diameter calculated for multi-stemmed trees as detailed in section 4.6 & Annex C of the British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations. The height above ground level where the stem measurement was taken will be shown if not measured at 1.5 metres above ground level. *(Please note: that the stem diameter of certain trees will have to be estimated due to difficulties in taking measurements or for trees with a large number of stems)*
- **Cat** – Tree Quality Category - British Standard 5837:2012 A, B, C, U + 1, 2, 3

Based on BS5837:2012 categories A, B, C, U provides the basis of prioritising trees for retention:

- o A – Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Most desirable for retention*)
- o B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)
- o C – Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)
- o U – 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. (*Unsuitable for retention unless provides high conservation value*)

Retention Criteria Subcategories: Used for identifying subcategories

E.g. A2 = A high quality tree with a high landscape qualities (further details can be found in British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations UK; British Standards Intuition)

- o 1 – Mainly Arboricultural qualities
 - o 2 – Mainly landscape qualities
 - o 3 – Mainly cultural values, including conservation
- **Height + (Lower Branch Height)** - Tree height in metres and in brackets height in metres of the crown (tree branches) clearance at its lowest point above adjacent ground levels.
- **Nrth, Est, Sth, Wst** - Crown Spread (Metres) -Tree branch spread in metres measured in four directions (North, East, South, West) from the trunk.
- **Phys Cond** - Physiological Condition Indicating the health of the tree -
 - o (G) Good
 - o (F) Fair
 - o (P) Poor
 - o (D) Dead
- **Struc Cond** – Structural Condition indicting the structural integrity of the tree -
 - o (G) Good – No, or remediable physical defects or decay
 - o (F) Fair - Physical non-remediable defects or decay present, not presenting imminent danger but should be monitored
 - o (P) Poor - physical non-remediable defects or decay present, tree liable to imminent collapse or loss of major limbs.
 - o (D) Dead
- **Est. Remain Contrib - (<10, 10+, 20+, 40+)**

The trees estimated remaining contribution in years, recorded as:

 - o <10 – less than 10 years
 - o 10+ – at least 10 years
 - o 20+ – at least 20 years
 - o 40+ – at least 40 years
- **Comments** – Additional Comments if required
- **Preliminary Management Recommendations** – Work Recommendations, including further investigation of suspected defects that require more detailed assessment and pose potential for wildlife habitat.

- **Work Priority** - Work Priority -This gives a work priority rating of preliminary management for each tree.
 - o H - High – Urgent work to be carried out as soon as practicable due to safety reasons (Within 14 days).
 - o H/M – High - Medium – Work to be carried out within 6 months/or before construction phase begins
 - o M - Medium – Work to be carried out in 12 months
 - o L - Low – After consideration/Re-inspect in 18-24 months
 - o Blank – No work required.
- **RPR** – Root protection radius / **RPA** - Root Protection Area - Is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. RPR is a circular area measured as a radius in metres from the centre of the tree or RPA is an area in metres squared. Where required this area may be changed in shape but not reduced in area whilst providing adequate protection of the tree's rooting system.

10.0 Appendix 4 – Tree Protection Plan

Tree Protective Fencing (High Risk)

- Trees for removal to be identified from the drawing and marked by an Arboriculturist.
- No vehicles to enter the grass verge or root protection zone during the construction period.
- Fencing to be installed prior to any construction works (including demolition, material delivery, works compound installation).
- The location of the tree protective fencing is indicated only and must not be directly measured from the plan. Its true location must be ascertained accurately on site and where appropriate, marked with pegs and driven securely into the ground. Once this framework, welded mesh panels should be installed.
- Fencing to remain in place until all construction works have ceased.

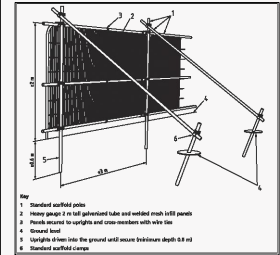
BS5837: 2012 Recommendations (extract)

6.2.2.1 - Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. Barriers should be maintained to ensure that they remain rigid and capable.

6.2.2.2 - The default specification should consist of a vertical and horizontal scaffold framework, well secured to surrounding structures, as illustrated in Figure 6.2.2.2. The framework should be constructed from a minimum of 30mm x 30mm x 3mm steel section and should be secured to the ground by the use of steel anchors. The framework should be secured to the ground by the use of steel anchors. The framework should be secured to the ground by the use of steel anchors.

Fencing Specification

The fencing will comprise of standard G37/Hesse styled steel sheet piling, secured together by means of a 10mm x 10mm x 10mm steel plate. The sheet piling will be secured together by means of a 10mm x 10mm x 10mm steel plate. The sheet piling will be secured together by means of a 10mm x 10mm x 10mm steel plate.



Why is Fencing Erected Around Trees?

- The major reason for damage to trees in construction sites is due to soil compaction.
- Roots take the spaces between soil particles to obtain Oxygen, Water and Nutrients.
- Heavy plant and machinery compaction (compacts) the soil, squeezing out the air spaces and preventing root function.
- A compacted soil structure will stop compaction.
- Consequently the tree suffers and will show signs of stress, die-back.
- Symptoms such as die-back may take several years to appear.
- Soil compaction over roots can be prevented by maintaining a fenced exclusion zone over the tree roots.
- Protective Fencing is installed around the retained area.
- Protective Fencing is a condition of planning approval. If it is removed or repositioned the construction firm is in breach of a condition and may be subjected to legal action.

Tree Protective Fencing (Low Risk)

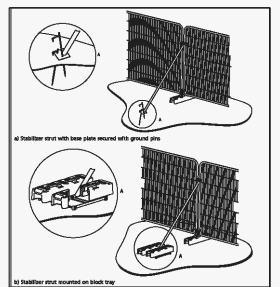
- Trees for removal to be identified from the drawing and marked by an Arboriculturist.
- No vehicles to enter the grass verge or root protection zone during the construction period.
- Fencing to be installed prior to any construction works (including demolition, material delivery, works compound installation).
- The location of the tree protective fencing is indicated only and must not be directly measured from the plan. Its true location must be ascertained accurately on site and where appropriate, marked with pegs and driven securely into the ground. Once this framework, welded mesh panels should be installed.
- Fencing to remain in place until all construction works have ceased.

BS5837: 2012 Recommendations (extract)

6.2.2.3 Where the site circumstances and associated risk of damaging construction site trees is high, it is recommended the actual level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority.

Fencing Specification

For example, double (or welded mesh panels on timber or concrete feet might provide an adequate level of protection from cars, vans, pedestrians and generally protected plant. In such cases, the fence panels should be joined together using a minimum of three steel straps. The straps should be secured to the fence by means of a minimum of three steel straps. The straps should be secured to the fence by means of a minimum of three steel straps.



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1) TPP - Footpath to be constructed using minimal dig and permeable surfacing. Position and form of footpath to be supervised by Arboriculturist during the Landscaping Phase.

2) Tree Removal - Small trees to be removed to construct footpath.

3) TPP - Footpath to be constructed using minimal dig and permeable surfacing. Position and form of footpath to be supervised by Arboriculturist during the Landscaping Phase.

4) Tree Surgery Works - Prune lower branches over footpath to give 2.5 metres clearance over ground level.

5) Tree Surgery Works - Prune back branches over footpath to give suitable clearance.



Tree Protection Plan

Site - Land at Trefechan

Project Ref - 580.5

Scale 1:750 @ A2

Key: BS 5837:2012 Tree Quality (Colour Coded)

Category A (High) - Highly desirable for retention

Category B (Moderate) - Desirable for retention

Category C (Low) - Optional for retention

Category U (Poor) - Unsuitable for retention

Tree Key - Individual Trees

Branch Spread - Branch spread of tree

Tree Species - Common tree name

Tree ID# (1 - Individual Tree)

Root Protection Area (RPA) - A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority

Tree Key - Group/Area/Woodland/Hedgerow

Tree ID# (G - Tree Group, A - Tree Area, W - Woodland, H - Hedgerow)

Tree Species - Common tree name

BS 5837:2012 Tree Quality (Colour Coded by tree)

Average Branch Spread

Shade Pattern - shade pattern not shown on plan (early morning shade pattern with wind through to evening shade to the east)

Definitions of BS5837:2012 Categories for Trees, Woodlands and Hedgerows (Colour Coded):

A - Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Highly desirable for retention*)

B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)

C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)

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10.0 Appendix 5 – Tree Photographs

Tree ID#T931 + T932



Tree ID#H1 + H2



Tree ID#T933



Tree ID#G2



Tree ID#G3



Tree ID#T937, T936 + G7



Tree ID#T T937, T936



Tree ID#G4



Tree ID#G5



Tree ID#G6



