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Safe Solutions for Forestry & Arboriculture

BS 5837 Arboricultural Survey

Arboricultural Impact Assessment & Method Statement

Field at Neath Road

Neath Road, Cilybebyll, Rhos, Neath Port Talbot, Wales, SA8 3JB

Prepared by: Matthew Whitehead on the 24th of October 2021

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Summary

This section provides the details of the proposed Construction and instructions provided. This is general information for reference.

Client Instruction

We are instructed by Mr Omahoney to undertake an BS 5837 Arboricultural Survey at Neath Road, Cilybebyll, Rhos, Neath Port Talbot, Wales, SA8 3JB and produce our findings in a report. We are also instructed to assess the likely impact of Construction proposals on the surrounding trees. We will prepare the following information:

- a schedule of the relevant trees to include basic data and a condition assessment.
- an appraisal of the impact of the proposal on trees and any resulting impact that has on the Construction.
- a preliminary Arboricultural method statement setting out appropriate protective measures and management for trees to be retained.

Scope of the Report

This report is designed to support Construction proposals at the above worksite, enabling the protection of trees in compliance with BS 5837: 2012. We have liaised with relevant parties involved in the construction to enable us to carry out an accurate assessment of the proposals.

Documents supplied:

Architect Drawing (TAL21 24 01) via email on the 19th of October 2021

Ecological Constraints

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000, provides statutory protection to birds, bats and other species that inhabit trees. These could impose significant constraints on the use and timing of access to the site in addition to any of the tree matters considered in this report. These issues are beyond my area of expertise, and you must seek advice from an ecologist to check if any such constraints apply to this site.

Qualifications and Experience

This report is based on my site observations and the provided information, interpreted in the context of my experience. I have experience and qualifications in arboriculture and enclose a summary in [Appendix 1](#).

Site and Survey Overview

This page is largely generic. Tree officers and other persons familiar with Arboricultural reports may go straight to the following section

Site Details

Site Grid Reference (Central):	SN 74053 02008
Site Coordinates (Central):	274053, 202008
What3Word (Central):	movie.ranges.guitar
Address incl. Postcode:	Neath Road, Cilybebyll, Rhos, Neath Port Talbot, Wales, SA8 3JB

Brief Description

The survey area encompasses land surrounding the development and any single or group of trees that are impacted by development.

Vehicular access exists from via gate in northeast corner.

The Tree Constraints Plan and Tree Data Schedule (see [Appendix 2](#)) should be referred to for descriptions and locations of all trees.

Survey Extent

Our survey covered the area indicated in Figure 1.



Figure 1 Extent of the survey (image is not current).

Site Visit

I visited the site on Saturday, 16 October 2021. All my observations were from ground level without detailed investigations and I estimated all dimensions unless otherwise indicated. I did not have access to trees outside the boundaries and have confined observations of them to what was visible from within the property. The weather at the time of inspection was cloudy and still with good visibility.

Survey Details

Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full Safety Survey or Management Plan which are specifically designed to minimise risk and liability associated with responsibility for trees. Wherever possible, dimensions are obtained using diameter tapes, logger's tapes, and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees on privately owned third party are surveyed from the best available vantage point and observations relating to the condition of these trees should be treated accordingly. All height measurements should be regarded as approximate.

Time Limit

Due to the changing nature of trees and other site circumstances, this report and any recommendations made are limited to the date of inspection: Saturday, 16 October 2021. Any alteration to the site could change the current circumstances and may invalidate this report and any recommendations made.

Tree Health

Trees are dynamic structures that can never be guaranteed 100% safe: even in good condition they can suffer damage under average conditions. Regular inspections can help to identify potential problems before they arise. The inspection is undertaken from the ground and will not identify any hidden hazards, therefore regular inspection following extreme weather conditions are recommended.

Tree Data Schedule

The findings of the survey are presented in The Tree Data Schedule which is within [Appendix 2](#). The Schedule includes scaled tree images based on measurements recorded for stem diameter, crown spread, crown height and overall height. Their purpose is to indicate the relative dimensions of each tree.

Retention Categories

The Tree Data Schedule identifies the existing trees on and adjacent to the site. Data is recorded for each tree and is allocated a Retention Category according to its size, amenity value, condition, and safe useful life expectancy. The categories are allocated independently of Construction proposals. A definition of the Retention Categories can be found below:

A Category: *Trees of high quality and amenity value. Usually, mature trees with a significant life expectancy which would enhance any Construction. Retention of these trees is strongly encouraged.*

B Category: *Trees of moderate quality and amenity value. Usually these are maturing trees or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.*

C Category: *Trees of low quality or small specimens with a relatively low amenity value. These trees are not considered to be a material planning constraint and their removal will generally be acceptable to facilitate Construction.*

U Category: *Trees of such low quality that their removal is recommended regardless of Construction proposals.*

Trees of notable quality are graded as Category A or Category B. These trees are divided further into sub-categories:

Sub-category 1 = *the tree(s) has mainly Arboricultural qualities.*

Sub-category 2 = *the tree(s) has mainly landscape qualities.*

Subcategory 3 = *the tree(s) has mainly cultural qualities, including conservation.*

Trees may be allocated more than one sub-category. All sub-categories carry equal weight, with for example an A3 tree being of the same importance and priority as an A1 tree. However, Category C and U are not given subcategories.

Root Protection Area

For single stemmed trees, the Root Protection Area (aka RPA) is calculated according to the following formula:

RPA radius = 12 x stem diameter (measures at 1.5m above ground level), known as DBH

Where a tree has more than one stem, the average single-stem DBH is recorded. This is calculated by adding the up the total DBH's and divided by the stems.

The radius of the RPA is then calculated by multiplying the equivalent-stem-diameter by 12. Occasionally this method is not appropriate (e.g. for coppiced specimens where there are numerous stems). In such cases the diameter at ground level may be recorded or a stem diameter which would provide a suitable RPA calculation. The form of the tree is recorded in the notes section.

Tree Survey

This section summarises all the recommendations within the Tree Data Schedule regardless of whether trees are to be retained, felled, or pruned to facilitate the proposed Construction. It does not specify works that may be required to facilitate the Construction proposals. The protection status of the trees is also reported in this section.

Management Recommendations

The trees were all deemed to be in an acceptable condition and a few significant defects were observed. Consequently, few remedial works have been recommended. The remedial works proposed further benefit the retention of the trees and their value within the site and towards the construction works. There is the recommendation of a damaged Willow tree to ensure safety works are completed prior to construction. Following this the recommendations are to reduce the visual screen to bring into management to extend value for future years.

Future Inspection Requirements

The table below suggests a schedule of future inspections based on the condition and location of each tree:

Inspection Period	Tree Numbers
18 months	G005, G006
3 years	T002, T003, T004

The trees should be inspected sooner if there is a noticeable decline in their condition following Construction works or following extreme weather events.

Tree Protection Status

On the Saturday, 23 October 2021 we were informed by Client That the following was confirmed:

Tree Preservation Order = Not present

Conservation Area = Not present

Heavy fines exist for carrying out unauthorised works to protected trees, so we advise that further checks are made before any tree-works are undertaken.

Arboricultural Impact Assessment

The Proposal

It is proposed to construct an agricultural shed as indicated on the plans in [Appendix 3](#). The agricultural building will be built in the field with the foundations being excavated first, then frame constructed followed by installation of metal sheeting.

Tree Impact Table

The below provides a summary of the potential impact of the trees on the site to allow Construction:

Activity	Trees potentially effected		
	Sub-Category 1	Sub-Category 2	Sub-Category 3
Removal = A Category	None	None	None
Removal = B Category	G005	None	None
Removal = C Category	G006	None	T002, T003, T004
Removal = U Category	None		
Tree Pruning	G005		
RPA: New Hard Surface	G006, G005		
RPA: Soil Compaction	Trees adjacent the construction area (preventable by installing tree protection measures)		

Other potentially detrimental activities often associated with Construction sites include destruction or the negligent use of plant machinery, hazardous materials, or fires. All the above potential impacts are considered in detail throughout the [Method Statement](#).

Tree Removal

All trees to be removed are indicated on the Tree Removal Plan and are listed below:

- **C Category** = 1 Goat Willow from G006

Facilitative Pruning

G006 crown spread reduction will occur to bring group of trees into a manageable hedgerow that can act as visual screen for building.

Mitigation Planting

Consideration may be given to the planting of further Apple Cultivar trees to the south of G005 and north of Building to further expand the Orchard and bring in new trees to replace old stems that may fail to produce fruit in forthcoming years.

Root Protection Area

All tree Root Protection Areas (aka RPA) to be impacted during Construction are indicated on the Tree Removal Plan and are listed below:

Tree No.	RPA (metres)	Impact	Notes
T002		Soil Compaction	

T003		Soil Compaction	Must consider spoil placed lower side of building causing compaction and changes in levels, proposed fence line to be maintained and no debris to pass beyond point.
T004		Soil Compaction	
G005		RPA: New Hard Surface	Potential Access route may pass between Eastern edge of G005 and western edge of G006, consider methods to reduce compaction and ensure road and works do not exceed proposed fence line.
G006		RPA: New Hard Surface	

The foundations and any new surfaces should be designed to accommodate all potential effects due to future tree rooting activity. These include potential root growth related subsidence, root growth related heave, and lifting of surfaces / light structures due to direct root pressure.

Soil Compaction

Tree roots are prominently damaged during construction by soil compaction by activities causing compression onto the soil. The compression of the soil forces air from the soil, which reduces air space (roughly around 25% in heavy soils) leading to root damage or inability to breathe. Additionally, [Forestry Commission Research](#) () has also identified “It also affects the soil water status, causing waterlogging during wetter periods and drought conditions during drier periods, which in turn limits root development. Poor rooting significantly inhibits plant growth on compacted soils and, in the case of trees, can also increase the risk of trees being blown over during storm events”.

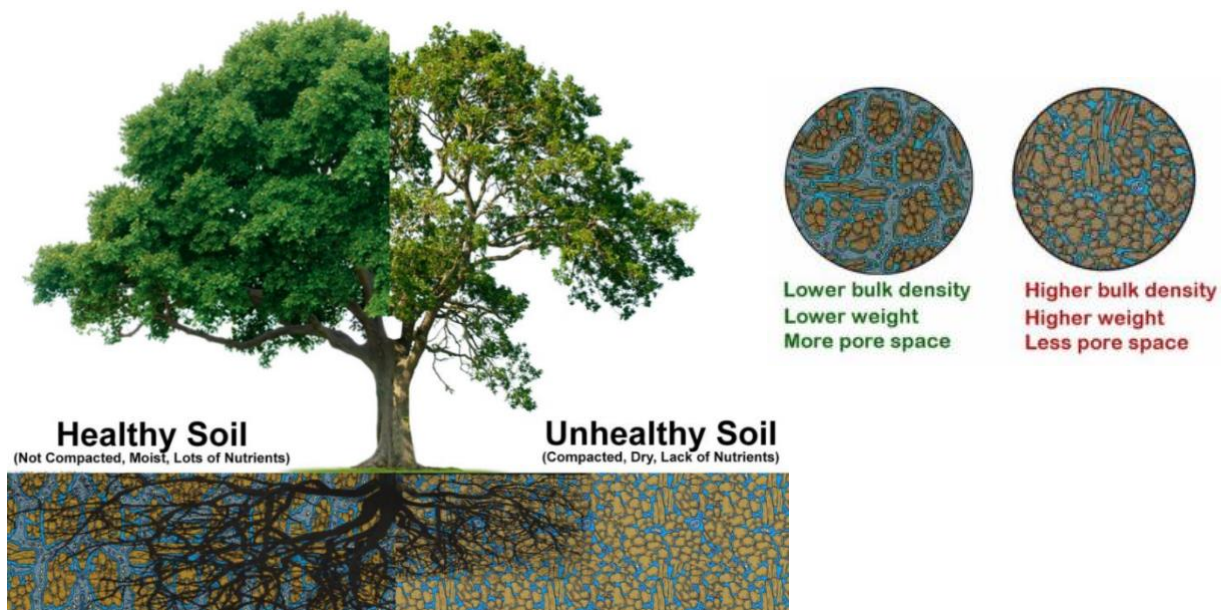


Figure 2 – Example of Soil Compaction (<https://rtectreecare.com/soil-compaction/>)

Prior to construction works installing protective fencing and ground protection measures will protect the Roots. These controls can be installed at the RPA defined in the Tree Schedule ([Appendix 2](#)) and on the site plan ([Appendix 3](#)). The BS 5837: 2012 defines control measures to follow, which are defined in the [Arboricultural Method Statement](#)

Boundary amendments

Where it is required to amend any boundary features over RPAs, the appointed arborist should be consulted and if necessary, approval obtained from the local authority. At the time of report, we are not aware of any changes are proposed to the existing boundary features that might impact on RPA.

Hazardous Materials

All site storage areas, cement mixing and washing points for equipment and vehicles must be outside RPAs unless otherwise agreed with the council. All waste materials shall be controlled in compliance with CoSHH Regulations to ensure no detrimental damage to the tree health, caused by run off or spillages into the RPA. Where there is a risk of polluted water runoff into RPAs, heavy-duty plastic sheeting and sandbags must be used to contain spillages and prevent contamination.

Onsite Facilities

Site planning should take into consideration the RPA when identifying the location of site offices, welfare facilities or other storage units. This should be planned to avoid being installed on the RPA or causing damage to the tree crowns where being positioned within proximity. Where required to install within the RPA the appointed arborist should be consulted prior to works and local authority consent may be required.

Summary

To facilitate the proposed development works the removal of Goat Willow in G006 and crown spread reduction works will commence prior to construction works. This will allow no immediate safety issues to be present during construction works, but also allow group of trees to establish new growth for improved screen following completion of construction.

During construction the consideration should be taken that no spoil on western side of building is built up within T002/T003/T004 and ensure ground level slopes gradually down towards trees and does not pass proposed fencing. Additionally, consideration given to ensure no proposed access track or machines encroach beyond the proposed fences along boundary of eastern side of G005 and western side of G006 between pinch point shown on map.

No building foundations are proposed within Root Protection Areas.

Tree Protection During Proposed Construction Works

BS 5837 recommends an Arboricultural Method Statement which shall ensure that trees are protected during the construction. This will detail all tree protection measures and limitations on construction activity. All the issues raised within this Impact Assessment will be covered by the Method Statement. So long as the protection measures are well specified and carefully implemented, there shall be no long-term detrimental impact on the health of the adjacent trees.

Arboricultural Method Statement

Adequate tree protection methods should be specified in an Arboricultural Method Statement, and approved by the local authority, before Construction takes place. Areas should be designated for the storage of debris to avoid disturbance to the RPA.

Tree Works

Tree works should be undertaken prior to construction works or installation of tree protection measures. The following details the proposed tree works required in accordance with *BS 3998: 2010 Tree Works - Recommendations*

Tree No.	Species	Schedule of works
G006	Mixed Species	1. Remove damaged Goat Willow in Southern edge 2. Reduce crown spread of Mature Hazels

The Following works have been identified to be undertaken on completion of construction works, this will be in accordance with *BS 3998: 2010 Tree Works – Recommendations*

Tree No.	Species	Schedule of works
G006	Mixed Species	1. Re-coppice mature Hazel Stems
G005	Apple Cultivar	1. Planting of apple cultivar trees south of Group and north of Building

Tree Protection Barrier during Construction

BS 5837: 2012 Clearly defines the requirements for protective barriers during construction to reduce damage to trees and their root systems. This is installed at the defined RPA as noted in [Root Protection Area](#) prior to any constructions works commencing. Once barriers are installed no movement of these shall occur or breaching of RPA without consultation with Arboricultural Advisor and Local Authority.

The barriers must comply with the BS 5837: 2012 specification defined below:

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 tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

6.2.2.2 The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in Figure 2. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

6.2.2.3 Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority. For example, 2 m tall, welded mesh panels on rubber or concrete feet might provide an adequate level of protection from cars, vans, pedestrians and manually operated plant. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1 m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins

(Figure 3a). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

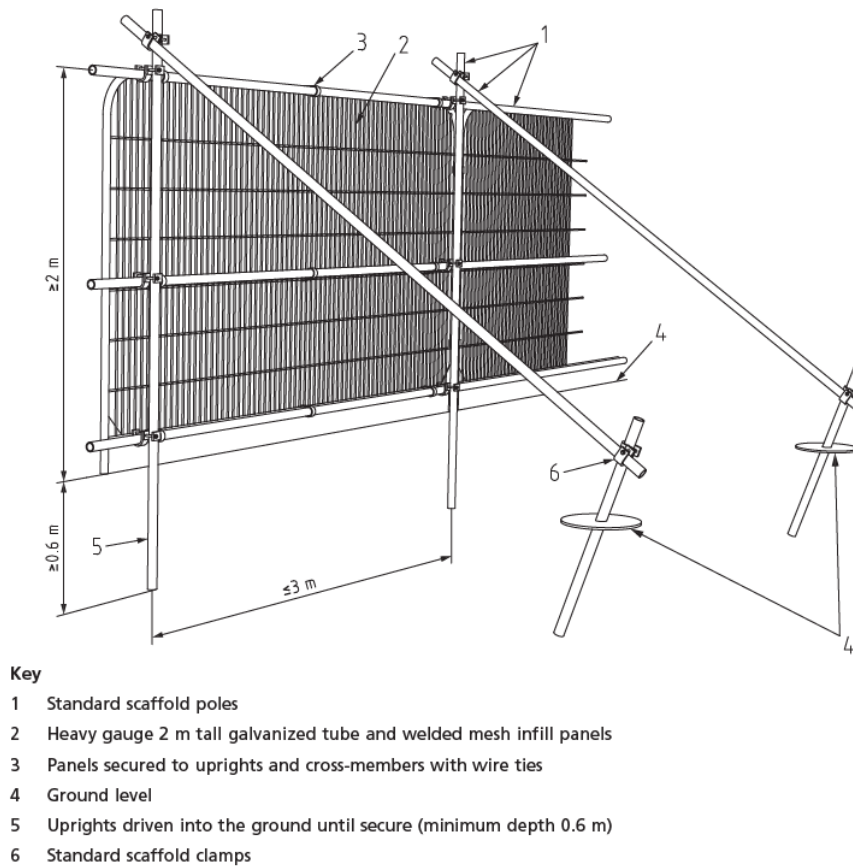


Figure 2: Default Specification Barrier

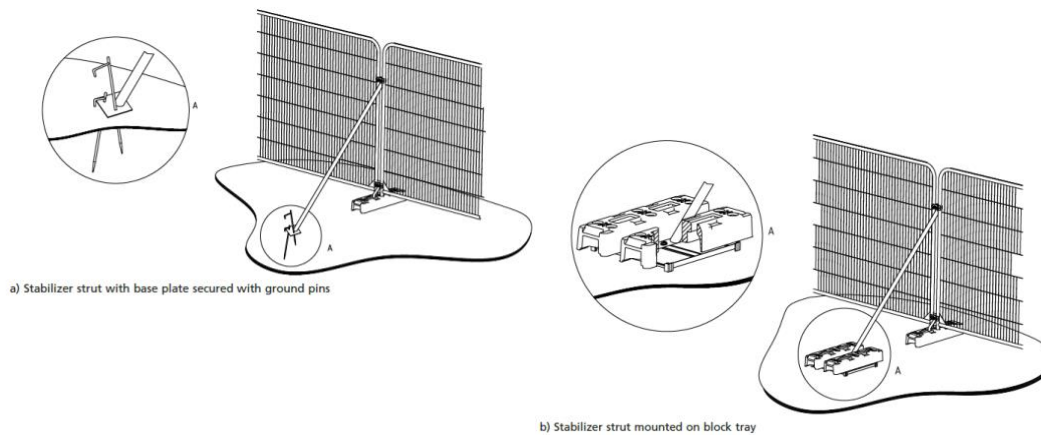


Figure 3: Examples of above-ground stabilizing systems

Root pruning Considerations

Excavation must only take place within the RPA of a retained tree with the prior agreement of the appointed Arboricultural Consultant. All excavation must be undertaken using hand tools or compressed air (such as an air spade). The following general principles will apply:

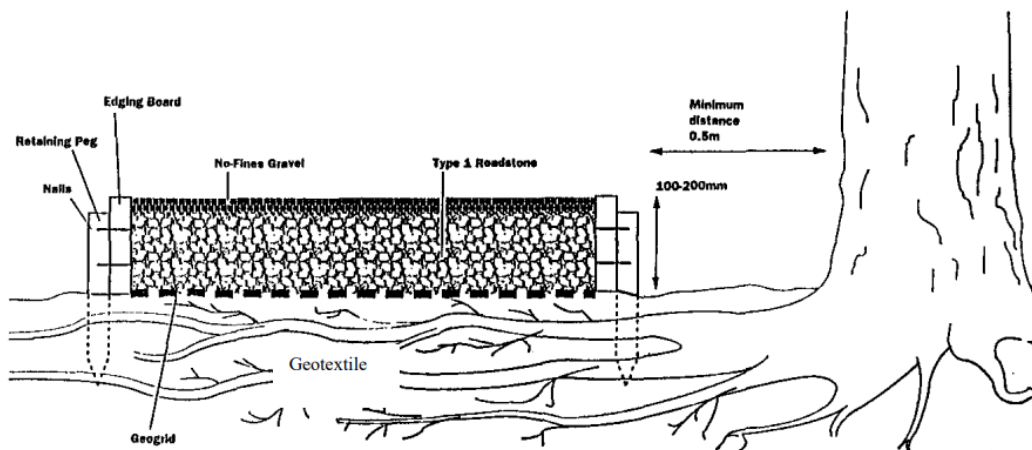
- Individual or small groups of roots less than 25mm in diameter will be retained where possible but can be severed with a sharp tool such as secateurs or pruning saws to leave a clean-cut end (ideally

100mm back from the face of the excavation to account for future regrowth) where they pose an obstruction.

- Where roots are encountered which are larger than 25mm in diameter or where significant groups of smaller roots are found, the advice of an Arboricultural Consultant must be sought to decide an appropriate course of action.
- Roots must only be exposed for the minimum period possible. In the interim period any exposed roots must be completely covered with dampened hessian sacking (which may require ongoing re wetting) to avoid drying out and exposure to light (which can result in the death of roots). Backfill for excavations should utilise the parent material and must not be significantly compacted.

Access Road - The No Dig Method

This involves construction of a surface with no excavation, soil stripping or site grading. All construction takes place above ground level. Preparation is as follows: Ground vegetation is killed using a suitable herbicide. Care must be taken to select a herbicide which does not damage the tree roots within the treated area. Once the vegetation has died, the dead organic matter should be removed. This helps prevent the future build-up of anaerobic conditions or settlement due to decomposition.



Excavations and Services

Drainage and utilities are to be directed away from G006 and G005 passing through open space or around northern edge of G006 to avoid effecting the RPA. Where possible the provision of electricity and phone cables should be installed overhead with poles remaining alongside public road. Where connection of utilities is required through the RPA of and trees the Arboricultural consultant will be informed and undertake an assessment of impacts prior to works.

Location of the Site Compound

It is vital that the site compound that typically includes the site office, mess facilities, toilets, storage of materials and parking, is located away from trees. Care must also be taken to prevent contamination with chemical spillages, including petrol, diesel, and oils. Cement mixers and toxic materials should not be permitted close to western side to avoid run off down slope towards T002, T003 and T004.

Site Supervision

The works detailed in [Arboricultural Method Statement](#) should be supervised by an Arboriculturist.

Completion Meeting

Upon completion of the works as specified in the [Arboricultural Method Statement](#), a developer's representative will invite the Local Planning Authority representative to meet with them on site to agree on any remedial works required. Any necessary remedial works will be confirmed in writing and must be carried out in accordance with BS 3998: 2010 - Recommendations for tree work. Due to the large potential penalties for illegally carrying out work to protected trees, I recommend that a further check is carried out prior to any works being undertaken post development.

Appendix 1 - Experience

Formal Qualifications

Matthew Whitehead completed a FDS in Arboriculture in 2007 and Level 3 in Tree Survey & Inspect by City & Guilds the same year. Additionally, he holds his Chainsaw operational and Tree Climbing NPTC Units with City & Guilds. Matthew obtained a Foundation Degree in Arboriculture at Myerscough College in 2004 which he passed with merit. Matthew is a member of the Arboricultural Association, the Institute of Chartered Foresters and the Royal Forestry Society and regularly attends industry related seminars to keep abreast of industry best practice.

Practical Experience

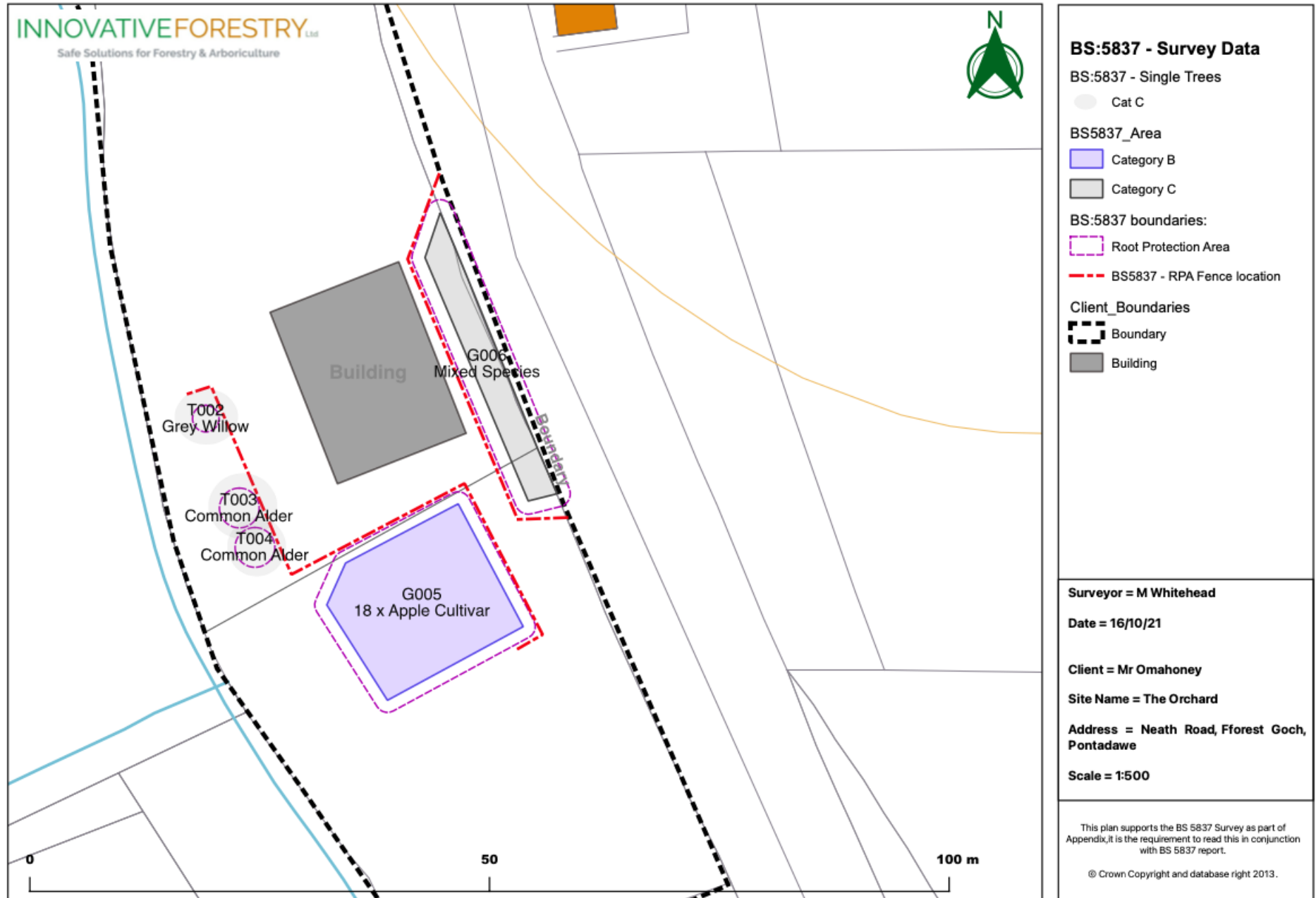
I was brought up in grounds maintenance business which was family run and have been closely associated with trees all my life. In 2007, I joined the Forestry Commission as a woodland manager and, in 2014, I began my private consultancy business. Since then, I have been providing a tree advisory service dealing with most aspects of tree and woodland management along with holding a role within the Forestry sector. I have worked in both government at Forestry Commission then into Natural Resources Wales and with Euroforest Ltd (Timber Purchasing) and Pontrilas Sawmills as a Timber Buyer.

I have undertaken numerous surveys and produced numerous reports for the purpose of planning (BS 5837), tree condition surveys, subsidence risk assessments, root surveys and decay detection investigations.

Appendix 2 – Tree Data Schedule

Tree No	Species	TH (m)	CH (M)	D B H	R P A	N O R T H	E A S T	S O U T H	W E S T	Life Stage	Tree Condition	General Observations	Recommendations	Remaining Contribution	BS 5837 Category	Photos
1002	Goat Willow	7.3	1.2	1 2	1 4 4	3 4 6	3 6 6	2 6 6	3 2	Early Mature	Fair	splits into multi stem 6m of ground	retain	C	2 - Landscape	https://drive.google.com/uc?id=1YRBlDcjGoHIZ89KnEA-kcs7jASJHXZi1
1003	Common Alder	10.3	1.5	1 8	2 1 6	4 6	4 1	3 8	2	Semi Mature	Fair	3 stems forming from base, existing wound present on stem.	retain where possible	C	2 - Landscape	https://drive.google.com/uc?id=1dUN-RCAEDGB3UX1vBC5g-rbZT9XWo1rd
1004	Common Alder	10.4	1.5	8	0 9 6	3 3 6	3 6 1	3 7	2	Semi Mature	Fair	3 stems forming from base, no major defects	retain where possible	C	2 - Landscape	https://drive.google.com/uc?id=1KuxEtS1hlfU-vDKOke2-syEog1m6TnQL
1005	Apple Cultivar	5.8	1.4	1 1	1 3 2					Mature	Fair	Old Apple orchard, collection of 18 trees, reaching maturity but still fruiting	retain orchard	B	2 - Landscape	https://drive.google.com/uc?id=16q5Ni62UTXjwhxOYKlV9ux5hIMHDbf2
1006	Hazel X 6, Willow X 2, Silver Birch X 1, Franchets cotoneaster X 3	10.1	1.2	1 2	1 4 4					Semi Mature , Mature	Fair	Hazel coppices are mature and single goat willow suffered broken limb on southern edge of group	reduce crown spread on western side to minimise impact	C	2 - Landscape	https://drive.google.com/uc?id=1-SQuQsv5q_N1mqIcFR3lvPBI7I2PjTiQ

Appendix 3 – Site Plan



Appendix 4 – Further information

Building Near Trees – General

National Joint Utilities Group publication # 10 (1995), Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees. Downloadable at www.njug.demon.co.uk/pdf/NJUG%20Publication10.pdf

NHBC Standards Chapter 4.2., Trees and Buildings.

Horticulture LINK project 212. (University of Cambridge, 2004), Controlling Water Use of Trees to Alleviate Subsidence Risk.

Tree Planting and aftercare

See www.trees.org.uk/leaflets.php# for downloadable leaflets on selecting a garden tree, planting, aftercare, and veteran tree management.

British Standards

BS 5837: 2012. Trees in Relation to Design, Demolition and Construction – Recommendations.

Bs 3998: 2010. Recommendations for Tree Work.

BS 3936: 1992. Nursery Stock. Part 1: Specification for Trees and Shrubs.

BS 3936: 1992. Nursery Stock. Part 10: Specification for Groundcover Plants.

BS 4043: 1989. Transplanting Root-balled Trees.

BS 8004: 1986. Foundations.

BS 8103: 1995. Structural design of Low-Rise Buildings.

BS 8206: 1992. Lighting for Buildings.

BS 8545:2014. Trees: From nursery to independence in the landscape – Recommendations

BS 3882: 2007. Topsoil.

BS 4428: 1989. General Landscaping Operations (excluding hard surfaces).

Permission to do Works to Protected Trees / Tree Law

Forestry Commission (Edinburgh, 2003), Tree Felling – Getting Permission. Country Services Division - Forestry Commission. Downloadable at [www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/\\$FILE/wgsfell.pdf](http://www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/$FILE/wgsfell.pdf)

Transport and the Regions (Department of the Environment, 2000), Tree Preservation Orders, A Guide to the Law and Good Practice. Downloadable at www.communities.gov.uk/publications/planningandbuilding/tposguide

C. Mynors, The Law of Trees, Forests and Hedgerows (Sweet and Maxwell, London, 2002)

Communities and Local Government website with numerous downloadable documents, from: <http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>

Lighting Levels

P.J. Littlefair, B.R.E. 209: Site layout planning for daylight and sunlight A guide to good practice. B.R.E. Bookshop, London.

British Standards Institution. Code of practice for day lighting. British Standard BS 8206: Part 2 (1992).

Chartered Institution of Building Services Engineers. Applications manual: Window Design (London, 1987).

NBA Tectonics. A study of passive solar housing estate layout. ETSU Report S-1126. Harwell, Energy Technology Support Unit (1988).

I.P. Duncan; D. Hawkes, Passive solar design in non-domestic buildings. ETSU Report S-1110. Harwell, Energy Technology.

P. J. Littlefair, Measuring Daylight, BRE Information Paper 23/93 f3.50. (Advises on measuring daylight under the real sky or an artificial sky, allowing for the changing nature of sky light).

High Hedges

Communities and Local Government website with numerous downloadable documents, from: <http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>

Tree Specific Websites

www.trees.org.uk - Arboricultural Association

www.rfs.co.uk - Royal Forestry Society of England, Wales, and N. Ireland

www.treehelp.info - The Tree Advice Trust

www.woodland-trust.org.uk - The Woodland Trust

www.treecouncil.org.uk - The Tree Council