

Arboricultural Implications Assessment

In accordance with
BS: 5837:2012
Revision 3

At
Twynyrodyn
Merthyr Tydfil

Dated: February 2021

On the instructions of
Of
Persimmon Homes

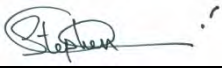


Inspected by

Mr. S J Ambler. Tech.Arbor.A, Dip.Arb. (RFS). F.ARBOR.A.
Of

Steve Ambler and Sons Tree Specialists Ltd.

Tel/Fax- 01495 310826. Mobile- 07813 310826 Email- steve@steveambler-trees.com Web- www.steveambler-trees.com

Signed Steve Ambler	
Date	8 th February 2021

CONTENTS

INTRODUCTION, SCOPE AND BACKGROUND	3
PLANNING CONDITIONS	3
LIST OF DRAWINGS SUPPLIED	3
SITE DESCRIPTION	4
ARBORICULTURAL IMPLICATIONS ASSESSMENT	4
TREE PRESERVATION ORDER AND CONSERVATION AREA PROTECTION	5
TREES - THE ABOVE AND BELOW GROUND CONSTRAINTS	5
THE PROPOSED DEVELOPMENT FOOTPRINT AND TREE LOSSES	7
INFRASTRUCTURE REQUIREMENTS AND SERVICE SUPPLIES	11
WHETHER DESIGN CAN BE MODIFIED TO ACCOMMODATE TREE RETENTION	12
WHETHER TREE LOSSES FROM THE DEVELOPMENT PROPOSAL CAN BE MITIGATED	12
THE EFFECTS THAT DEVELOPMENT PROPOSALS MAY HAVE ON THE AMENITY VALUE OF THE TREES ON AND NEAR THE SITE	15
GENERAL COMMENTS AND OBSERVATIONS	16
FURTHER ARBORICULTURAL INPUT	16
RECOMMENDATIONS	17
REPORT LIMITATIONS	18
LEGAL CONSTRAINTS	18
REFERENCES	19
APPENDICES	19
FLOW DIAGRAM – PLANNING FOR TREES IN DEVELOPMENT	20
TREE CONSTRAINTS PLAN	21

INTRODUCTION, SCOPE AND BACKGROUND

This assessment is undertaken by Stephen Ambler, a professional arboriculturalist with 42 years' experience in the arboricultural industry serving 19 of those years in local government as a principal arboricultural and woodlands officer.

This Consultancy Practice was established in 1999 and was expanded in 2006 with the launch of a specialist 'Tree Contracting Unit' under the revised name - Steve Ambler & Sons Tree Specialists Ltd. Stephen holds the relevant qualifications: -

- a) Certificate in Arboriculture (Royal Forestry Society)
- b) Professional Technician in Arboriculture (Arboricultural Association)
- c) Professional Diploma in Arboriculture (Royal Forestry Society)
- d) Associate Member of the Institute of Chartered Foresters
- e) Fellow Member of the Arboricultural Association.

This is the third Arboricultural Implications Assessment (AIA) undertaken on this site and an update to the second one made in March 2020. It is based on a revised layout as shown in Drawing SP-01 Site Plan Revision 08

An Arboricultural Implications Assessment is a desktop study to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees as a result of the current proposal. Following alterations to design layout due to coal edits, this is the second Arboricultural Implications Assessments. Both of which follow on to the initial Tree Survey, Tree Categorisation, and Tree Constraints Plan¹ in which the trees were scored and assessed for their suitability for retention within the proposed development.

The trees from the earlier Tree Survey¹ are clearly marked on the accompanying plan.

The purpose of this Report sets out to consider the physical and structural requirements of retained trees in order to maintain their good health and stability in relation to the pending construction works through identifying and reducing any conflict between them.

The boundary surrounding the proposed development site and identified by plan attached hereto, in which the trees are contained and form the contents of this Report, is hereafter referred to as 'the site'.

The provision and acceptance of this report are subject to the general terms and conditions of Steve Ambler & Sons Tree Specialists Ltd.

PLANNING CONDITIONS

None issued at the time of writing.

LIST OF DRAWINGS SUPPLIED

- Site Layout Plan Drawing Number SP-01 Revision 08 Persimmon Homes East Wales and overlaid with the Tree Constraints Plan (Ambler)

¹ Ambler SJ - Tree Survey, Tree Categorisation, and Tree Constraints Plan at Twynyrodyn, Merthyr Tydfil May 2020

SITE DESCRIPTION

The site under investigation is situated in the southeast Wales coal fields, at Merthyr Tydfil. It varies in altitude between 220 and 240 metres above sea level with a gradual downhill slope running from north to south. Walhead Road and Aneurin Crescent astride the western boundary with Elm Tree Grove/Rise to the east and Penheolferthry is located to the north. The southern boundary sits against open space in part and a large block of immature woodland cover for the remainder. It is linear in shape broadening at the southern end. It is made up of colliery spoil probably a former colliery site which has since been reclaimed through reclamation landscape works.

Largescale woodland planting has occurred within compartments (prefixed with the initials WC on the attached Tree Felling and Retention Plan) around the periphery of the site whilst retaining an open expanse of grassland centrally. The woodland is at its densest along the eastern boundary where it extends almost the full length of the site. It has a mixed species composition, even aged and predominantly deciduous. The other woodland compartments occur sporadically and are of similar composition and even aged, although somewhat younger in age. These woodland compartments are in the most part contained within stockproof fencing. In general, the woodlands groups lack in structure both in age and layers although are functioning well at present. They certainly provide shelter, important screening, biodiversity and provide a wildlife refuge to the locality. Due to their relatively young age, they do not warrant an A class retention category currently although have the potential to achieve this in time, providing they receive appropriate intervention management.

Several well-worn desire lines indicate public presence probably dog walkers. A track runs along the eastern boundary before turning to dissect the lower part of the site bordered by hedgerow planting. A dense residential housing estate sits against the western boundary and a smaller one at the north eastern edge bordered by the A4060 Heads of the Valley Corridor.

ARBORICULTURAL IMPLICATIONS ASSESSMENT

The following matters are considered under this Arboricultural Implications Assessment -

- A) Tree Preservation Order and Conservation Area protection
- B) The effects that development proposals may have on the amenity value of the trees both on and near the site.
- C) The above and below ground constraints.
- D) The construction of the proposed development
- E) Whether design can be modified to accommodate tree retention
- F) Infrastructure requirements, easements for above or below ground services; highway safety and visibility splays and other infrastructure provisions such as lighting, CCTV and signage.
- G) The end use of the space
- H) Whether tree losses from the development proposal can be mitigated
- I) A realistic assessment of the probable impact of the proposed development on the trees and vice versa with due allowances for their future growth and maintenance requirements.
- J) The relationship of windows to trees which may obstruct light is considered.
- K) Large trees can sometimes cause apprehension to occupiers of nearby buildings especially during windy weather.
- L) Leaves of some species may cause problems, particularly in autumn by blocking gullies and gutters. Fruit can cause slippery patches and the accumulation of honeydew may be damaging to surfaces and vehicles.

TREE PRESERVATION ORDER AND CONSERVATION AREA PROTECTION

The Author is not aware of any Tree Preservation Orders or if the site lies within a designated Conservation Area. The client is advised to check the position regarding site designations with the Local Planning Authority. Also see Legal Constraints Item 10.0

TREES - THE ABOVE AND BELOW GROUND CONSTRAINTS

The below ground constraints of trees are equal to the RPA of all retained trees and the distance for each tree or group is provided within the Tables in both the Tree Constraints Plan and Report ¹. It is reproduced below in Figure 1 in the column highlighted in yellow and this distance given is a radial distance which should be measured from the centre of the trees stem.

The above ground tree constraints amount to the RPA or the crown spread of the tree, whichever is the greater, although these parameters can increase as the trees grow.

In the attached Tree Constraints Plan (Appendices), the RPA' s are shown as solid orange lines whilst the canopy spreads of the trees are shown as solid green, blue or grey lines (subject to their category rating).

FIGURE 1

Tree Number	Height (M)	Effectual Diameter (mm)	Branch Spread				1st Significant Branch	Canopy Clearance	Life stage	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius (M)
			N	S	E	W							
T1	18	450	6	6	9	3	3	3.5	EM	20-40	B2	91.6	5.4
T2	12	300	5	5	5	5	1.5	1.5	EM	20	C2	40.7	3.6
T3	5	130	3	3	3	3	1.7	1.7	SM	20	C2	/	/
T4	5	170	3	3	3	3	2	2	SM	40	C2	13.1	2.0
T5	4	100	3	3	3	3	2.2	2.2	SM	20-40	C2	4.5	1.2
T6	4	100	3	3	3	3	2	2	SM	10	C2	4.5	1.2
T7	4	100	3	3	3	3	0	0	SM	10	U	/	/
T8	5	150	4	4	4	4	1.2	1.2	SM	40	C2	10.2	1.8
T9	7	180	4	5	4	4	1.7	1.7	SM	20-40	C2	14.7	2.2
T10	6	180	5	4	4	4	1.7	1.7	SM	20-40	C2	14.7	2.2
T11	6	190	5	4	5	5	1.7	1.7	SM	20-40	C2	16.3	2.3
T12	6	190	4	4	4	4	1.7	1.7	SM	20	C2	16.3	2.3
G13	14	350	/	/	/	/	2	2	EM	20-40	C2	55.4	4.2
T14	6	250	4	4	4	4	1.5	2	SM	40	C2	28.3	3.0
T15	6	250	4	4	4	4	1	2	SM	40	C2	28.3	3.0
WC16	8	150 av	/	/	/	/	1	1	SM	40	B2	10.2	1.8
T17	7	200	5	5	5	5	0	0	SM	/	U	/	/
WC18	14	150 av	/	/	/	/	0	0	SM EM	40	B2	10.2	1.8
	16	100-200 Avg 150	/	/	/	/	0	0	EM	40	B2 B3	10.2	1.8
H20	4	50	/	/	/	/	0	0	SM	20-40	C2	1.1	0.6
H21	4	50-100 Avg 75	/	/	/	/	0	0	SM	20-40	C2	2.5	0.9
H22	4	50-100 Avg 75	/	/	/	/	0	0	SM	20-40	C2	2.5	0.9
WC23	10 20	100-200 Avg 150	/	/	/	/	0	0	EM	40	B2	10.2	1.8
WC24	19	300	/	/	/	/	1	1	EM	40	B2	40.7	3.6
WC25	14	100 avg	/	/	/	/	0	0	SM	40	B2	4.5	1.2
WC26	12	100 avg	/	/	/	/	0	0	SM	40	B2	4.5	1.2
WC27	10	100 avg	/	/	/	/	0	0	SM	40	B2	4.5	1.2
Scrub	2	<75	/	/	/	/	0	0	Y	/	/	2.5	0.9

THE PROPOSED DEVELOPMENT FOOTPRINT AND TREE LOSSES

The most recent site layout (SP-01 Rev 08) proposes a compact housing layout for 131 residential dwellings covering the North, East, West and central areas of the development site. The most southern extent is not compromised by the development footprint.

No service drawings or proposed level drawings are in existence presently so any assessment of the negative effect on the retention of the southern section is incomplete. The current proposed development footprint will result in the loss of the following trees and woodland compartments.

The following tree loss and retention with the current layout is recorded below, along with Screen Shots from the relevant sections of the proposed plan.

- Tree 1 - retained
- Tree 2 - retained
- Tree 3 - retained
- Tree 4 - retained
- Tree 5 - retained
- Tree 6 - retained
- Tree 7 - retained
- Tree 8 - retained
- Tree 9 - retained
- Tree 10 - retained
- Tree 11 - retained
- Tree 12 - retained
- Group 13 - lost to Plots 8 & 9
- Tree 14 - lost to Plot 10.
- Tree 15 – lost to access roadway.
- Woodland Compartment 16 – lost to Plots 12-22
- Tree 17 – unsuitable for retention and recommended for removal due to condition issues.
- Woodland Compartment 18 – Mostly lost to Plots 127-130 but evaluation would be needed to assess the stability of the remainder due to exposure and the probability of windthrow if left in isolation.
- Woodland Compartment 19 – mostly lost to Plots 75-126 and supporting roadway. The eastern extreme of the wooded group (some 15% of WC19) could be retained subject to an evaluation of tree stability and top height to basal stem diameter relationship versus changes in wind dynamics.
- Hedge 20 – 85% loss to Plot 62 and road supporting Plots 67 & 71. Remainder would need to be evaluated.
- Hedge 21 – 90% Retained with the remainder lost to 69, 70 & 71.
- Hedge 22 – 0.2% lost to Plot 71.
- Woodland Compartment 23 – Retained.
- Woodland Compartment 24 – Retained.
- Woodland Compartment 25 – 92% Lost to Plots 59-62 evaluation would be needed to assess the stability of the remainder due to exposure and the probability of windthrow if left in isolation.
- Woodland Compartment 26 – Lost to Plots 41 – 50.
- Woodland Compartment 27 – Lost to Plots 23-29.

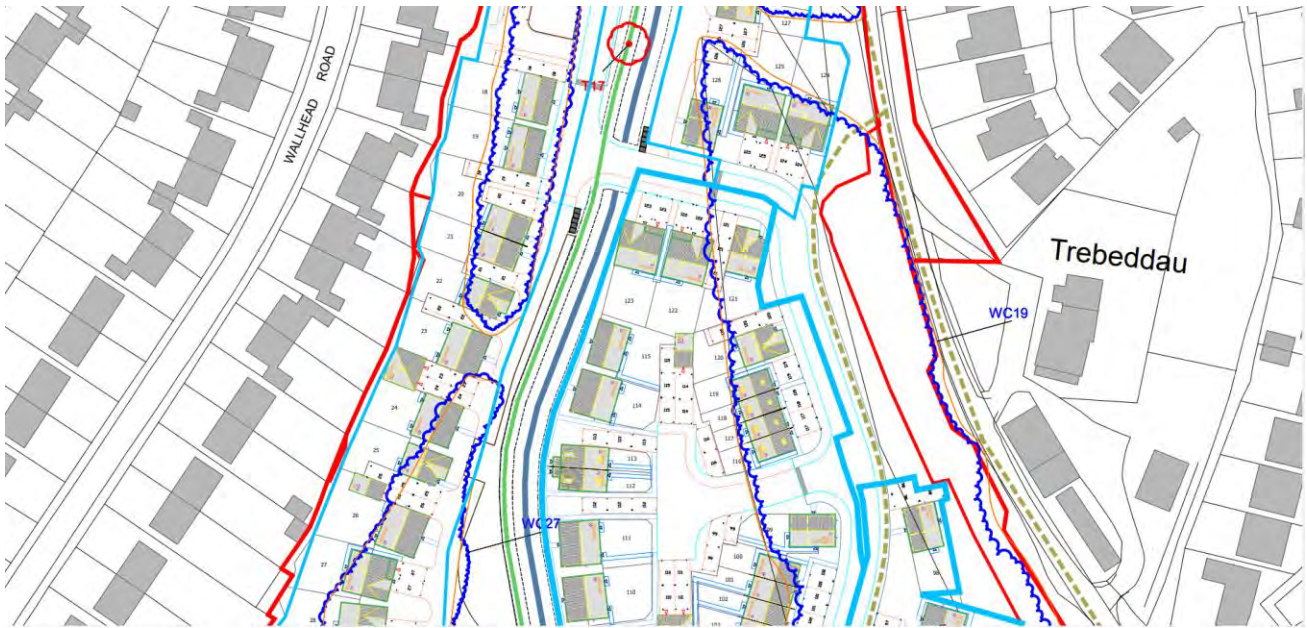
Screen Shot 1 – Trees T1 to T12 to be retained



Screen Shot 2 – Showing G13, T14, T15, W16 and WC18 lost to development



Screen Shot 3 – WC 19 lost to development.



Screen Shot 4 – the remainder of WC 19 and WC 27 lost to development.

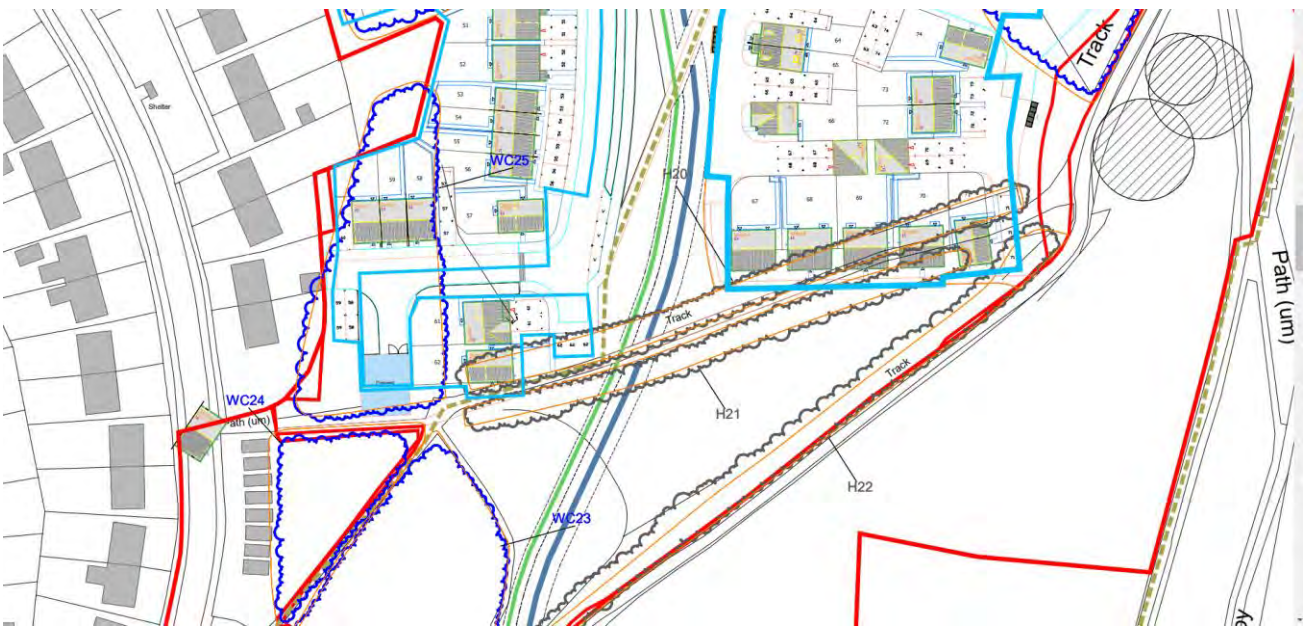




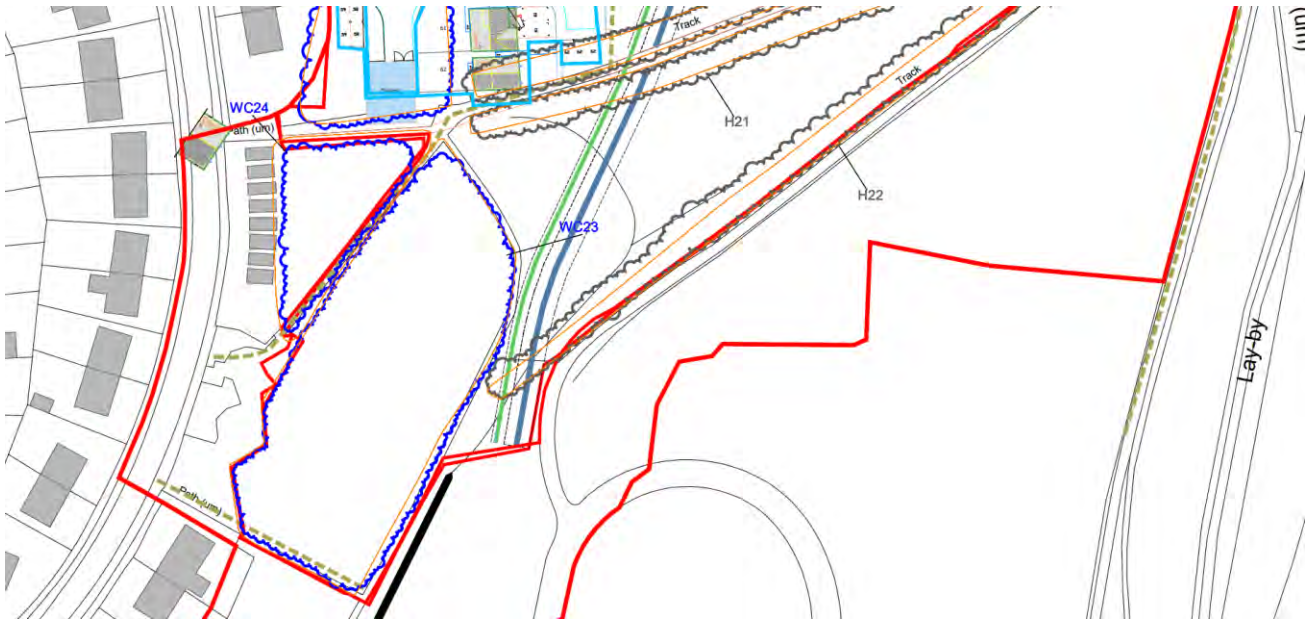
Screen Shot 5 –WC26, WC25 the remainder of WC19, and part of H20 lost to development.



Screen Shot 6 – the remainder of WC25 lost to development and the partial loss of H200 and H21.



Screen Shot 7 – WC23 and WC24 retained along with H22.



INFRASTRUCTURE REQUIREMENTS AND SERVICE SUPPLIES

Easements for above or below ground services; highway safety and visibility splays and other infrastructure provisions such as lighting, CCTV and signage.

Services

No service drawings were available at the time of writing as this project is still within the early design phase. The following general advice is provided for consideration -

Tree roots can be damaged where services are installed within the RPA of any retained tree. Also, disruption to underground services may occur if they are placed within the root-plate zone as tree roots can cause damage to them. The RPA therefore should be taken as a minimum constraint to the development with regards the installation of underground services and greater distances should be allowed where possible.

The trees crown is also a constraint to the development and should be considered when seeking to install services or when operating plant and equipment. Sometimes the crown of a tree exceeds the RPA.

The laying of services should follow the routes of proposed roadways and pavements where possible and avoiding the RPA of all retained groups. These matters must be considered in detail within the Arboricultural Method Statement.

NOTE.

The National Joint Utilities Guidance 4 (NJUG), which is a guide for utility companies when installing services, is not relevant under Planning Conditions and the more stringent protection measures under Section 7.7. of BS5837 Trees in relation to design, demolition and construction – Recommendations (2012), apply. Utility companies must be instructed accordingly and follow the above-mentioned British Standard.

Vision Splays

It does not seem necessary to removed trees under the current scheme to achieve necessary vision splays.

CCTV and Signage

CCTV and signage are unlikely to be required and is not proposed as part of this scheme.

WHETHER DESIGN CAN BE MODIFIED TO ACCOMMODATE TREE RETENTION

There is scope to alter design and reduce the number of plots to aid in the retention of wooded compartments on this site. This statement however does not take account of the financial viability of the site with this currant proposal.

The woodlands are relatively immature and in part some may be replaced with mitigation planting on this site at the southern end but not in sufficient quantities to replace like for like in terms of area. However, there may be some scope to undertake planting on Local Authority land outside of the proposed development boundary or perhaps extend woodland management of the existing groups south of the development boundary amidst the former reclamation woodland planting schemes.

WHETHER TREE LOSSES FROM THE DEVELOPMENT PROPOSAL CAN BE MITIGATED

The tree losses associated with the current design are extensive and could not be fully mitigated due to the lack of available space on site. There is scope to undertake some woodland planting of the southern section - Yellow filled polygon on Plan Extract below.

A section of land outside the development boundary further south, highlighted in blue, may be a possible location that could be identified for woodland improvement works to provide some reactional amenity to the residents of the proposed development whilst improving ecological benefits and the long-term stability of the woodland.

PLAN EXTRACT



IMPACT ASSESSMENT OF DEVELOPMENT ON TREES.

A realistic assessment of the probable impact of the proposed development on the trees and vice versa with due allowances for their future growth and maintenance requirements.

Retained Trees

The retained trees are early maturity so future growth is expected and they will increase in both height and spread. However, the retained woodland blocks and hedges appear to be of sufficient distance away from the residential properties and unlikely to cause any conflict as they develop. Management of the wooded groups has already been discussed and it is most likely they will directly benefit from long-term management. The intervention works within the groups could be targeted to remove basal growth, phototropic growth and crown lift to create views into the site to improve the relationship.

Potential Building Damage

Any potential damage to the proposed building as a consequence of the trees would consider (a) indirect damage through subsidence or heave (a matter related to geology), (b) Direct damage, physical damage caused by incremental growth, (c) The disruption to underground services, (d) Displacement, lifting or distortion, (e) The impact on branches on the super structure or (f) Structural failure of a tree.

1. **Indirect Damage.** The likelihood of damage occurring to the structure as a result of ground movement occurring through soil swelling and shrinking is dependent on local geological conditions and the presence of shrinkable clay soils beneath the foundations. This report has not considered the soil type in any detail or undertaken a laboratory soil analysis as part of this brief. The potential for direct damage should be taken into consideration throughout the design and construction process. For guidance on avoiding indirect damage by trees to structures, refer to NHBC Chapter 4.2.
2. **Direct Damage.** This can sometimes occur through the annual incremental growth of the trunk or root buttresses through a process called 'secondary thickening'. The greatest risk of direct damage occurs when trees are close to building structures and occur with the expanding growth of the main trunk and roots although any likelihood of such damage diminishes rapidly with distance. Table A.1 of BS:5837 is produced below and provides advice on minimum distances to avoid damage.
3. **Displacement, lifting or distortion.** This can occur where lightweight structures are within influencing distance of trees and annual incremental growth of roots and buttresses have the ability to disturb paving, walls, porches, and garages. Advice in Table A1 should be followed (see below) when planting new trees or controlling seedling growth.
4. **The impact of branches on the super structure.** Where development occurs close to trees and branches interfere or have the ability to interfere at a later date due to their growth, can cause the LPA problems with repeated requests for trees to be trimmed. Here, the development appears to be mainly of sufficient distance away from any retained trees. Furthermore, woodland management operations will be required regularly and during these operations, problematic trees may be selected for removal to address any minor issues.
5. **Wind Dynamics.** As far as wind dynamics are concerned, the following matters are noted. Air deflected over or around such solid structures will be locally accelerated to create turbulence. The proposed development is within influencing distance of the trees as buildings or solid structures can have an effect on leeward wind patterns for a distance in excess

of 30 times their height², although the effects of the more damaging wind turbulence in respect of trees is much shorter than this with the more dramatic influence being at least twice the height of the structure. It is usually a problem where retained trees have thin stems without adequate stem taper, and which have usually resulted where they have developed at close spacing' s and under mass shelter and particularly where a number of those trees have been removed.

6. **Large trees can sometimes cause apprehension to occupiers of nearby buildings especially during windy weather.** Whilst this is true in some instances, structural failure amongst trees is most common where a specimen is diseased or structurally defective or a stand is undermanaged. Well managed trees offer little risk to residences where under routine arboricultural inspections and providing any remedial works recommended during such an inspection are carried out by a competent tree surgeon.

The recommended site designation by the LPA will afford tree protection under statute law and all perspective purchases will be advised of any TPO' s through the Land Search process. The LPA are able to consider applying further TPO' s at any time where trees are considered under threat.

Level of risks posed by Trees

The level of risk exposure (target occupancy) for these trees will increase and impose a ³duty upon landowners to manage the trees. However, this is a reasonable expectation of any perspective landowner and should not be seen as detrimental to the health or long- term future of the trees or to the outcome of the application. Appropriate tree management under the guidance of an Arboriculturalist should be beneficial; it may however suggest that management is required from time to time which up until now has been somewhat neglected.

Leaves and fruits of some species may cause problems and the accumulation of honeydew may be damaging.

This is possible to surfaces and vehicles. Here, the species of lime is noted which is associated with aphid activity and the production of honeydew excretions, although situated within the wooded area to the west and not in proximity to car parking facilities. Falling leaves are likely to impact on this development and Gutter Guards should be built into the scheme to prevent gutters from becoming blocked. There are no species found on this site that produce large fruits.

The relationship of windows to trees which may obstruct light need to be considered.

Early morning sunlight will be lost with Plots 128-130, 92 – 97, and plot 71 (partial interruption)

Evening sun will be affected partially to Plots 53-55

² Patch.D. Trees, Shelter and Energy Conservation. Arboricultural Research and Information Note 145/ARB/98

³ Failure Criteria for Solitary non-decayed trees Arboricultural Journal Volume 26 Number 1 April 2002.

BRITISH STANDARD

BS 5837:2012

Allowance needs to be made for the swaying of stem and branches during storm conditions. Branches which are liable to strike the structure need to be removed or pruned back to a suitable branching point as appropriate (see BS 3998:2010).

Table A.1 Minimum distance between young trees or new planting and structure to avoid direct damage to a structure from future tree growth

Type of structure	Minimum distance between young trees or new planting and structure, in metres (m)		
	Stem dia. <300 mm ^{A)}	Stem dia. 300 mm to 600 mm ^{A)}	Stem dia. >600 mm ^{A)}
Buildings and heavily loaded structures	—	0.5	1.2
Lightly loaded structures such as garages, porches etc.	—	0.7	1.5
Services			
<1 m deep	0.5	1.5	3.0
>1 m deep	—	1.0	2.0
Masonry boundary walls	—	1.0	2.0
In-situ concrete paths and drives	0.5	1.0	2.5
Paths and drives with flexible surfaces or paving slabs	0.7	1.5	3.0

^{A)} Diameter of stem at 1.5 m above ground level at maturity

A.1.3 Allowance for future growth

Where the installation of paths or light structures such as walls is unavoidable near to trees, the design and construction specification needs to take account of future growth.

If it is necessary to build a wall or similar structure over a root greater than 50 mm diameter, provision for future diameter growth needs to be made by surrounding the root with uncompacted sharp sand, void-formers, or other flexible fill materials, and by laying an adequately reinforced lintel or raft over the surface.

THE EFFECTS THAT DEVELOPMENT PROPOSALS MAY HAVE ON THE AMENITY VALUE OF THE TREES ON AND NEAR THE SITE

The loss of trees on site are considered in three categories, the first is the loss of immature, pioneer species which have self-set themselves in the absence of any management in open spaces on unused land. The second are trees recommended for removal due to disease and structural defects and thirdly, areas of early mature tree blocks are removed to support this scheme.

Immature pioneer species

Immature pioneer species or scrub has developed in the open areas of the site centrally although quite sparse and sporadic albeit slightly more congested along the western boundary. It contains willow predominantly. The scrub is considered insignificant and its loss is considered as having a negligible impact on amenity.

Removal due to disease and structural defects. U Category (Unsuitable)

Only 2 trees are recommended for removal in this category of unsuitable. T7 and T17. These are recommended for removal due to their poor structural condition.

Areas of early mature tree blocks are removed to support this scheme. These are listed in detail on page 6 under title Tree Losses and above and shown on the Tree Constraints Plan, a copy of which is included at the end of this Report.

With this proposal, there is a loss of amenity provided through potential screening particularly with the removal of the groups on the western boundary. However, these woodland groups are very young presently and individual trees often with poor overall form due to a lack of management.

GENERAL COMMENTS AND OBSERVATIONS

This AIA is incomplete as the following information was not available at the time of writing-

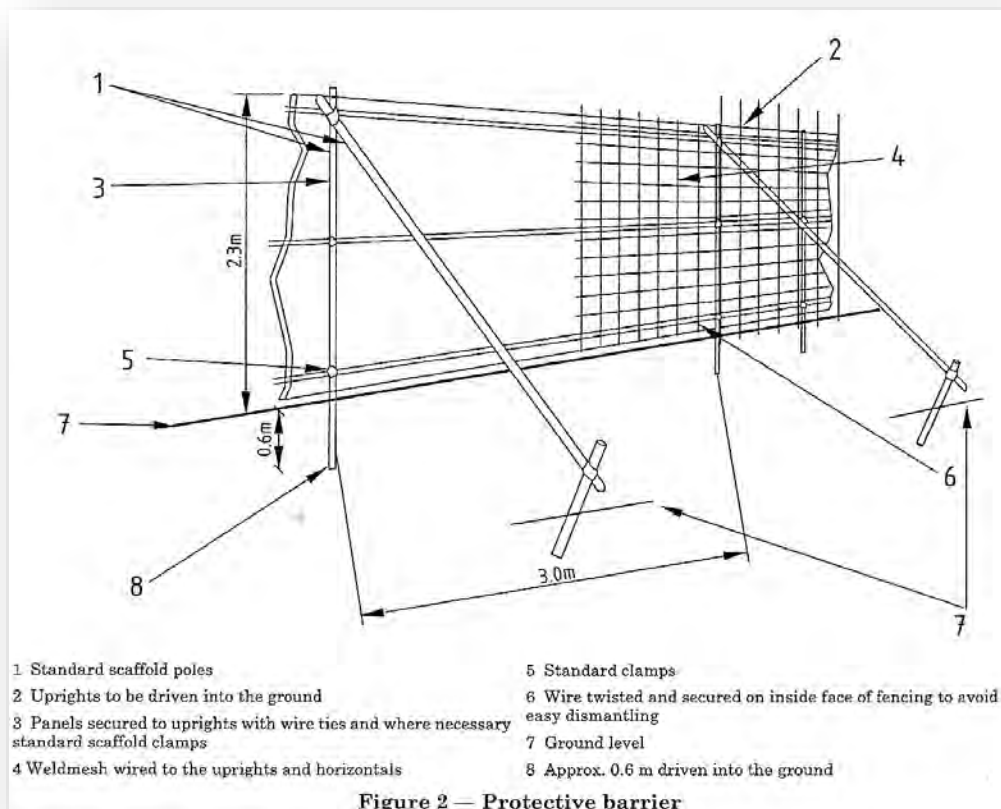
- Proposed site levels
- Services drawings
- Engineering drawing
- Landscape plan

FURTHER ARBORICULTURAL INPUT

During the planning and development process, further information will be required as recommended within ¹ and as listed below.

- (1) Tree Protection Plan (TPP) which **must** be followed rigorously during construction. It is strongly recommended that
- (2) An Arboricultural Method Statement (AMS) will be necessary to help guide tree friendly techniques and along with a
- (3) The engagement of a 'Project Arborist' for the duration of the construction period to oversee tree protection matters, be on hand to provide any arboricultural advice and maintain a level of communications between the client and Local Planning Authority's Tree Officer through submission of monthly progress reports.

Figure 2



RECOMMENDATIONS

- When available, review the following documents –
 - (1) Services Drawing
 - (2) Engineering Drawing
 - (3) Landscape Plan
 - (4) Existing and Proposed Levels Drawing
- Commission an Arboricultural Method Statement to advise on precautions to safeguard the health and stability of any retained trees during the construction phase.
- Appoint a Project Arborist for the duration of the development to monitor and advise on tree protection and liaise with the Local Planning Authority where required.
- Enter the trees into annual routine tree inspections once the scheme is complete or when target occupancy increases.

REPORT LIMITATIONS

It must be stressed that this arboricultural impact assessment is not a risk assessment or a detailed report on the health and condition of the trees. It has been produced as a desktop review.

Every attempt has been made to provide a realistic and accurate assessment of the impact of the development on the trees. No liability can be accepted for any tree related issue or tree and building interactions in the absence of information or where information is unclear or misleading.

This report is based on the tree circumstances and condition at the time of the original tree survey. It must be recognised that the circumstances may be altered radically over the course of time and any development process and that such changes cannot be accurately predicted. The report does not provide any specific long-term tree management recommendations.

The effect this new development may have on localised wind turbulence has not been assessed during this inspection. As trees grow, they respond and mechanically adapt to their surroundings and exposure limits. With the erection of dwellings in close proximity to existing trees, new turbulence is created. The author accepts no liabilities to any failure subsequent upon such new imposed, artificial conditions.

This report does not consider **indirect** damage resulting from the extraction of moisture from shrinkable clay soils by tree roots causing **subsidence** or by **heave** occurring through soil rewetting following removal of trees on this site. Such problems are almost entirely restricted to areas of shrinkable clay soils and as I have **not** considered a soil analysis as part of my present brief, this aspect is **not** addressed at this time.

LEGAL CONSTRAINTS

The legal constraints of any site should be considered in early planning and well before any work commences on site. Such legal constraints should be fully considered from the outset to avoid time delays. The legal constraints referred to here are general constraints relating to arboriculture only and not any other legal matter that may arise.

Tree Preservation Orders and Conservation Area Status

The law on TPOs is in **Part V111 of the Town and Country Planning Act 1990 Town and Country Planning (Trees) Regulations 1999**. When any tree/s are protected by a TPO or are situated within a Conservation Area, it is an offence (1) cut down (2) uproot (3) top (4) lop (5) wilfully damage or (6) wilfully destruct a tree without the express written permission from the Local Planning Authority (LPA), there are exceptions. A LPA may grant permission if considered reasonable following the submission of an application for consent to undertake the works or where in accordance with an Approved Planning Application or under the exemptions within the Town and Country Planning Act 1990 of dead, dying, or dangerous. It is advisable to consult the LPA and an Arborist prior to conducting any tree works under these exemptions.

Statute and Common Law.

A landowner or land manager should be aware that both statute and common law dictates regular inspections of trees on land in their control are necessary where such trees could cause injury or damage in the event they should fall or shed any parts. A person suitably qualified in arboriculture should undertake such routine inspections and any remedial tree works recommended should be carried out within the time constraints specified, to prevent injury or damage occurring. A landowner should retain records of all inspections and any remedial tree works that have resulted from such inspections. The **Arboricultural Association** at Ampfield House, Ampfield, near Romsey, Hampshire. Telephone 01794 368717 are able to provide advice on suitably qualified persons or indeed suitable qualifications a person should hold to undertake qualified inspections.

GLOSSARY OF TERMS

Adventitious; Latent or dormant bud on stem or root often invisible until stimulated into growth which occurs from an unusual place i.e. not a twig, leaf or bud.

Arboriculture: the culture and management of trees as groups and individuals, primarily for amenity and other non-forestry purposes.

Arboriculturalist; person who has, through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Architecture: in a tree, a term describing the pattern of branching of the crown or root system.

Arboricultural Implication Assessment (AIA) study, undertaken by an arboriculturalist, to identify, evaluate and possibly mitigate the extent of direct and indirect impact on existing trees that may arise as a result of the implementation of the site layout.

Arboricultural Method Statement; methodology for the implementation of any aspects of development that has the potential to result in loss of or damage to a tree.

Assessment: in relation to tree hazards, the process of estimating the risk which a tree or group of trees poses to persons or property (THIS INVOLVES A VISUAL INSPECTION FOR DEFECTS AND CONTRIBUTORY SITE FACTORS, AND SOMETIMES ALSO A DETAILED INVESTIGATION OF SUSPECTED DEFECTS)

Bole; (trunk) the main stem of a tree below its first major branch

Branch: a limb extending from the main stem or parent branch of a tree

Buttress zone: the region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper sides of the junctions

Canopy: the topmost layer of twigs and foliage in a woodland, tree or group of trees

Construction Exclusion Zone; this is an area established where construction is not permitted and usually correlates to the Root Protection Area.

Crown: in arboriculture the main foliage-bearing portion of a tree

Defect: in relation to tree hazards, any feature of a tree that detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.

Diameter (DBH) The diameter for each tree is in millimetres based on the diameter or circumference of the trunk measured at a height of approximately 1.5 metres above ground level, unless otherwise stated. All measurements are approximate

Dysfunction: in woody tissues, the loss of physiological function, especially water conduction.

Energy: the capacity to do work (THROUGH PHOTOSYNTHESIS, GREEN PLANTS ABSORB ENERGY FROM SUNLIGHT AND STORE IT IN THE FORM OF CHEMICAL COMPOUNDS WHICH ARE USED IN ENERGY-DEPENDANT PROCESSES SUCH AS GROWTH)

Failure: in connection with tree hazards, a partial or total fracture within woody tissues or loss of cohesion between roots and soil. (IN TOTAL FAILURE THE AFFECTED PART SNAPS OR TEARS AWAY COMPLETELY. IN PARTIAL FAILURE, THERE IS A CRACK OR DEFORMATION WHICH RESULTS IN AN ALTERED DISTRIBUTION OF MECHANICAL STRESS)

Group: the term 'group' is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally including for biodiversity (e.g. parkland or wood pasture).

Heave: in relation to a shrinkable clay soil, expansion due to re-wetting, sometimes after the felling or root severance of a tree which was previously extracting moisture from the deeper layers; also, in relation to root growth, the lifting of pavements and other structures by radial expansion; also, in relation to tree stability, the lifting of one side of a wind-rocked root plate.

Leader: in a tree, a topmost shoot that has apical dominance.

Preventive action: in a tree hazard management, action that helps to prevent injury to persons or damage to property.

Pruning: the removal or cutting back of twigs, branches or roots; in some contexts, applying only to twigs or small branches only, but more often used to describe all kinds of work involving cutting.

Retained Tree: a tree that has been considered suitable by an Arborist for retention and which during the design stage is selected for retention and incorporated within the development.

Risk: the likelihood of the potential harm from a particular hazard becoming actual harm.

Root Protection Area: this is a protection area established around the base of each tree to prevent physical, chemical or compaction damage occurring. Protection to the RPA is achieved through the erection of fencing or another suitable barrier.

Soil heave: see heave

Special Precaution Area: this is an area, usually within the root protection area, where construction or other activity may be permitted but only under the direction of a 'Arboricultural Method Statement' and the supervision of an Arborist.

Species: The species is the given name of the tree which is usually provided in both the common and scientific names.

Subsidence: in relation to soil or structures resting in or on soil, a sinking due to shrinkage when clay soils dry out, sometimes due to extraction of moisture by tree roots.

Subsidence: in relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight.

Targets: in a tree hazard assessment (and with somewhat incorrect terminology), persons or property or other things of value, which might be harmed by mechanical failure of the tree or by objects falling from it.

Tree: a woody plant, which typically has a single main stem and, in maturity, attains a height of at least four metres and a stem diameter at breast height of at least 75-mm.

Tree Constraint Plan (TCP): plan prepared by an Arboriculturalist for the purpose of layout design showing the RPA and representing the effect that the mature height and spread of retained trees will have on layouts through shade dominance, etc.

Tree Preservation Order: in Great Britain, an order made by a local authority, whereby the authority's consent is generally required for the cutting down, topping or lopping of specified trees.

Tree Protection Plan: scale drawing prepared by an arboriculturalist showing the final layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

Trunk: the single main stem of a tree.

Vigour: in tree assessment, an overall measure of the rate of shoot production, shoot extension or diameter growth (cf. vitality)

Visual Tree Assessment (VTA): in addition to the literal meaning, a system expounded by Mattheck & Breloer (1995) to aid the diagnosis of potential defects through visual signs and the application of mechanical criteria.

Wind exposure: the degree to which a tree or other object is exposed to wind, with regard both to duration and velocity.

Wind pressure: the force exerted by wind on a tree or other object.

Wind snap: the breaking of a tree stem by wind.

Windthrow: the blowing over of a tree at its roots.

REFERENCES

1. BS 5837: 2012 Trees in Relation to Design, Demolition and Construction - Recommendations
2. Ambler SJ - Tree Survey, Tree Categorisation, and Tree Constraints Plan at Twynyroddyn, Merthyr Tydfil May 2020

APPENDICES

Flow Diagram – Planning for Trees in Development

Tree Constraints Plan

Tree Retention and Felling Plan

Tree Protection Plan

FLOW DIAGRAM – PLANNING FOR TREES IN DEVELOPMENT

BS 5837:2012

BRITISH STANDARD

Annex B (informative)

Trees and the planning system

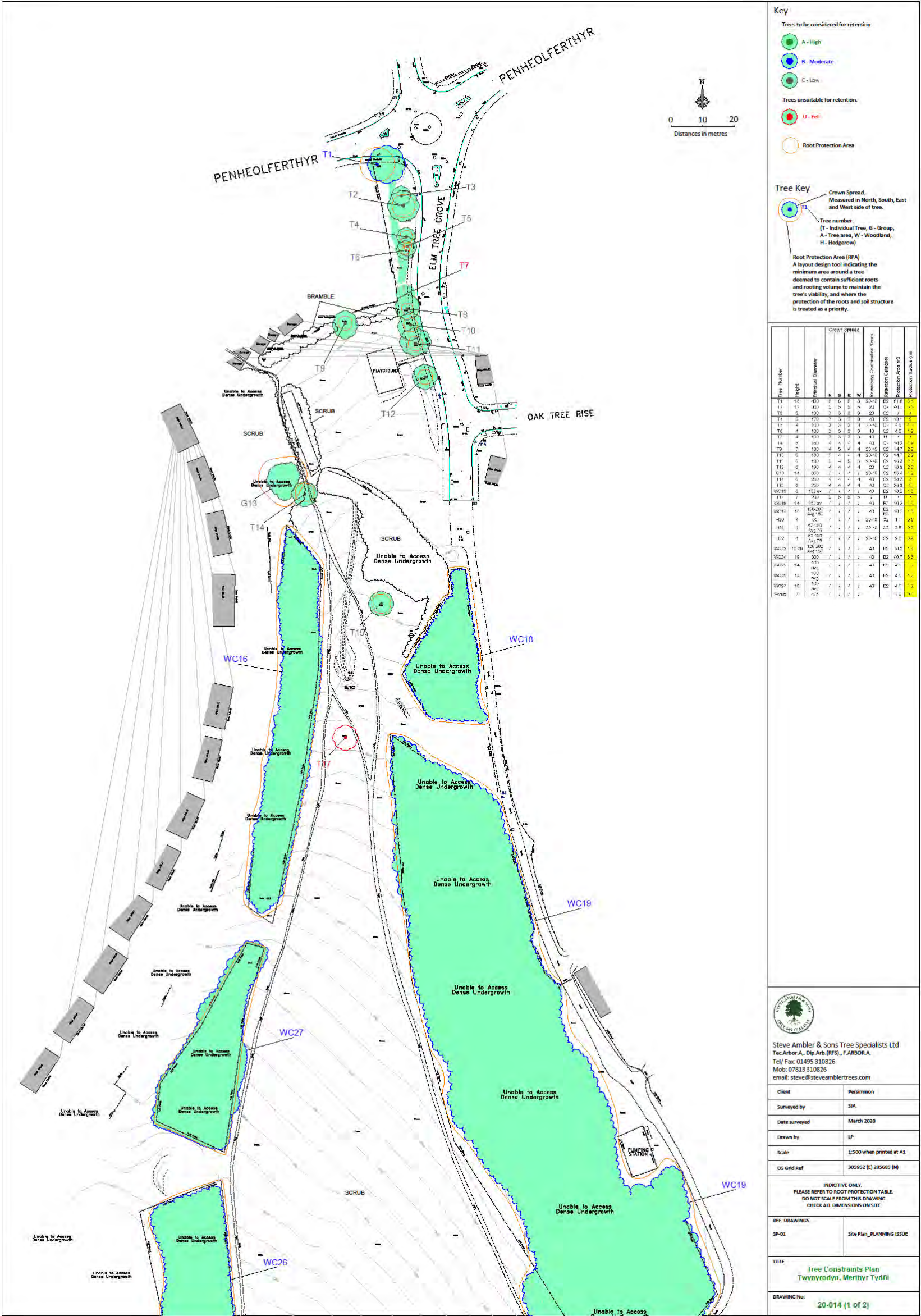
Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.

The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. Table B.1 provides advice to both developers and local authorities on an appropriate amount of information. The term "minimum detail" is intended to reflect information that local authorities are expected to seek, whilst the term "additional information" identifies further details that might reasonably be sought, especially where any construction is proposed within the RPA.

Table B.1 Delivery of tree-related information into the planning system

Stage of process	Minimum detail	Additional information
Pre-application	Tree survey	Tree retention/removal plan (draft)
Planning application	Tree survey (in the absence of pre-application discussions) Tree retention/removal plan (finalized) Retained trees and RPAs shown on proposed layout Strategic hard and soft landscape design, including species and location of new tree planting Arboricultural impact assessment	Existing and proposed finished levels Tree protection plan Arboricultural method statement – heads of terms Details for all special engineering within the RPA and other relevant construction details
Reserved matters/ planning conditions	Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method Dimensioned tree protection plan Arboricultural method statement – detailed Schedule of works to retained trees, e.g. access facilitation pruning Detailed hard and soft landscape design	Arboricultural site monitoring schedule Tree and landscape management plan Post-construction remedial works Landscape maintenance schedule

TREE CONSTRAINTS PLAN





Key

Trees to be considered for retention:

- A - High
- B - Moderate
- C - Low

Trees unsuitable for retention:

- U - Fell

Root Protection Area

Tree Key

Crown Spread:
Measured in North, South, East and West side of tree.

Tree number:
(T - Individual Tree, G - Group, A - Tree area, W - Woodland, H - Hedgerow)

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 Number	Height	Species	Crown Spread				Retaining Consideration	Retaining Category	Retaining Area m2	Proposed Retention
			N	S	E	W				
T1	12	20	10	10	10	10	20	20	400	2
T2	12	20	10	10	10	10	20	20	400	2
T3	12	20	10	10	10	10	20	20	400	2
T4	12	20	10	10	10	10	20	20	400	2
T5	12	20	10	10	10	10	20	20	400	2
T6	12	20	10	10	10	10	20	20	400	2
T7	12	20	10	10	10	10	20	20	400	2
T8	12	20	10	10	10	10	20	20	400	2
T9	12	20	10	10	10	10	20	20	400	2
T10	12	20	10	10	10	10	20	20	400	2
T11	12	20	10	10	10	10	20	20	400	2
T12	12	20	10	10	10	10	20	20	400	2
T13	12	20	10	10	10	10	20	20	400	2
T14	12	20	10	10	10	10	20	20	400	2
T15	12	20	10	10	10	10	20	20	400	2
T16	12	20	10	10	10	10	20	20	400	2
T17	12	20	10	10	10	10	20	20	400	2
T18	12	20	10	10	10	10	20	20	400	2
T19	12	20	10	10	10	10	20	20	400	2
T20	12	20	10	10	10	10	20	20	400	2
T21	12	20	10	10	10	10	20	20	400	2
T22	12	20	10	10	10	10	20	20	400	2
T23	12	20	10	10	10	10	20	20	400	2
T24	12	20	10	10	10	10	20	20	400	2
T25	12	20	10	10	10	10	20	20	400	2
T26	12	20	10	10	10	10	20	20	400	2
T27	12	20	10	10	10	10	20	20	400	2
T28	12	20	10	10	10	10	20	20	400	2
T29	12	20	10	10	10	10	20	20	400	2
T30	12	20	10	10	10	10	20	20	400	2
T31	12	20	10	10	10	10	20	20	400	2
T32	12	20	10	10	10	10	20	20	400	2
T33	12	20	10	10	10	10	20	20	400	2
T34	12	20	10	10	10	10	20	20	400	2
T35	12	20	10	10	10	10	20	20	400	2
T36	12	20	10	10	10	10	20	20	400	2
T37	12	20	10	10	10	10	20	20	400	2
T38	12	20	10	10	10	10	20	20	400	2
T39	12	20	10	10	10	10	20	20	400	2
T40	12	20	10	10	10	10	20	20	400	2
T41	12	20	10	10	10	10	20	20	400	2
T42	12	20	10	10	10	10	20	20	400	2
T43	12	20	10	10	10	10	20	20	400	2
T44	12	20	10	10	10	10	20	20	400	2
T45	12	20	10	10	10	10	20	20	400	2
T46	12	20	10	10	10	10	20	20	400	2
T47	12	20	10	10	10	10	20	20	400	2
T48	12	20	10	10	10	10	20	20	400	2
T49	12	20	10	10	10	10	20	20	400	2
T50	12	20	10	10	10	10	20	20	400	2
T51	12	20	10	10	10	10	20	20	400	2
T52	12	20	10	10	10	10	20	20	400	2
T53	12	20	10	10	10	10	20	20	400	2
T54	12	20	10	10	10	10	20	20	400	2
T55	12	20	10	10	10	10	20	20	400	2
T56	12	20	10	10	10	10	20	20	400	2
T57	12	20	10	10	10	10	20	20	400	2
T58	12	20	10	10	10	10	20	20	400	2
T59	12	20	10	10	10	10	20	20	400	2
T60	12	20	10	10	10	10	20	20	400	2
T61	12	20	10	10	10	10	20	20	400	2
T62	12	20	10	10	10	10	20	20	400	2
T63	12	20	10	10	10	10	20	20	400	2
T64	12	20	10	10	10	10	20	20	400	2
T65	12	20	10	10	10	10	20	20	400	2
T66	12	20	10	10	10	10	20	20	400	2
T67	12	20	10	10	10	10	20	20	400	2
T68	12	20	10	10	10	10	20	20	400	2
T69	12	20	10	10	10	10	20	20	400	2
T70	12	20	10	10	10	10	20	20	400	2
T71	12	20	10	10	10	10	20	20	400	2
T72	12	20	10	10	10	10	20	20	400	2
T73	12	20	10	10	10	10	20	20	400	2
T74	12	20	10	10	10	10	20	20	400	2
T75	12	20	10	10	10	10	20	20	400	2
T76	12	20	10	10	10	10	20	20	400	2
T77	12	20	10	10	10	10	20	20	400	2
T78	12	20	10	10	10	10	20	20	400	2
T79	12	20	10	10	10	10	20	20	400	2
T80	12	20	10	10	10	10	20	20	400	2
T81	12	20	10	10	10	10	20	20	400	2
T82	12	20	10	10	10	10	20	20	400	2
T83	12	20	10	10	10	10	20	20	400	2
T84	12	20	10	10	10	10	20	20	400	2
T85	12	20	10	10	10	10	20	20	400	2
T86	12	20	10	10	10	10	20	20	400	2
T87	12	20	10	10	10	10	20	20	400	2
T88	12	20	10	10	10	10	20	20	400	2
T89	12	20	10	10	10	10	20	20	400	2
T90	12	20	10	10	10	10	20	20	400	2
T91	12	20	10	10	10	10	20	20	400	2
T92	12	20	10	10	10	10	20	20	400	2
T93	12	20	10	10	10	10	20	20	400	2
T94	12	20	10	10	10	10	20	20	400	2
T95	12	20	10	10	10	10	20	20	400	2
T96	12	20	10	10	10	10	20	20	400	2
T97	12	20	10	10	10	10	20	20	400	2
T98	12	20	10	10	10	10	20	20	400	2
T99	12	20	10	10	10	10	20	20	400	2
T100	12	20	10	10	10	10	20	20	400	2

Steve Ambler & Sons Tree Specialists Ltd
Tec Arbor A, Dip Arb (IFS), FARBORA
Tel/ Fax 01495 310826
Mob: 07813 310826
email: steve@steveambler-trees.com

Client	Peterson
Surveyed by	SIA
Date surveyed	March 2020
Drawn by	LP
Scale	1:500 when printed at A1
OS Grid Ref	305952 (E) 205685 (N)

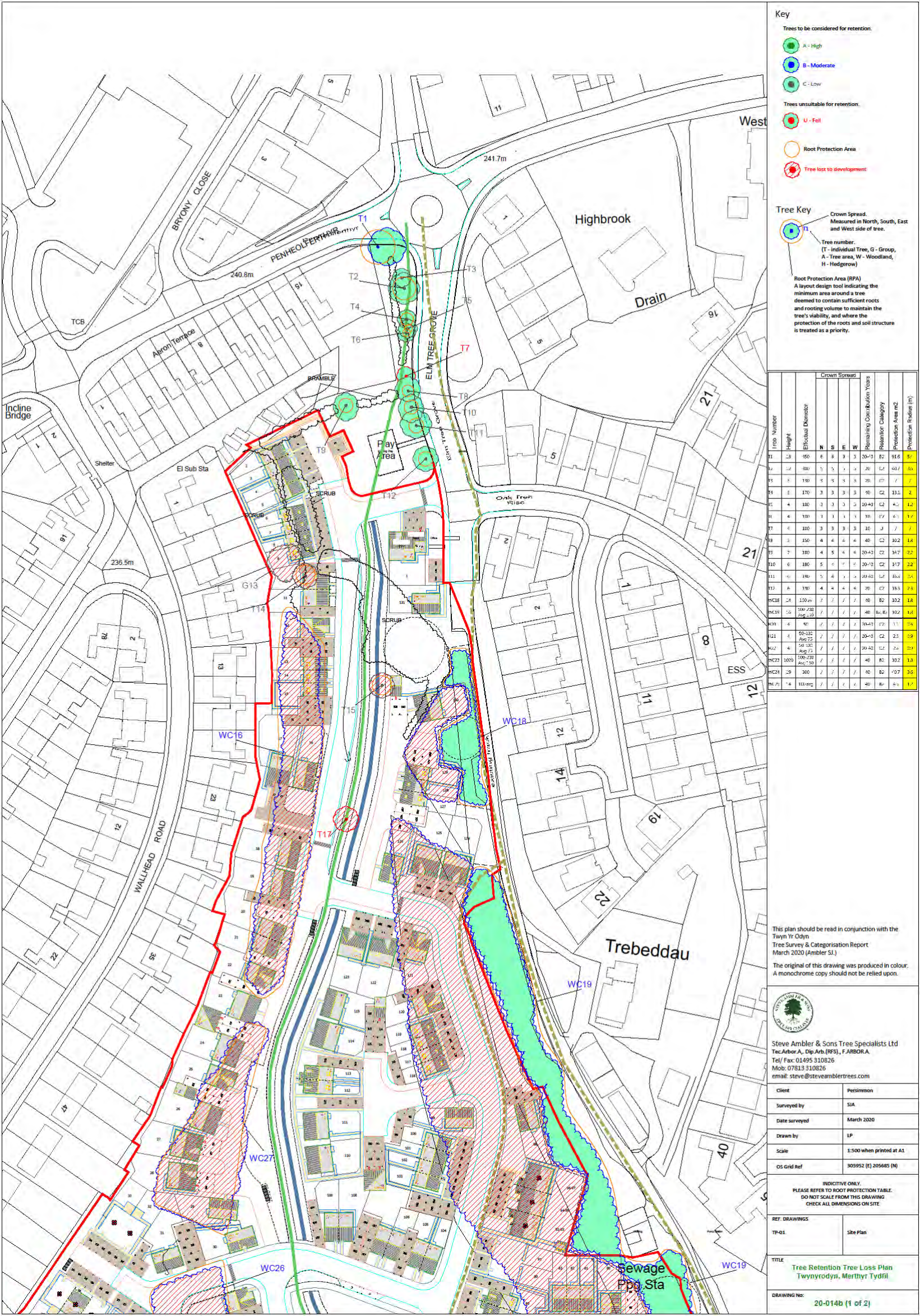
INDICATIVE ONLY.
PLEASE REFER TO ROOT PROTECTION TABLE.
DO NOT SCALE FROM THIS DRAWING
CHECK ALL DIMENSIONS ON SITE

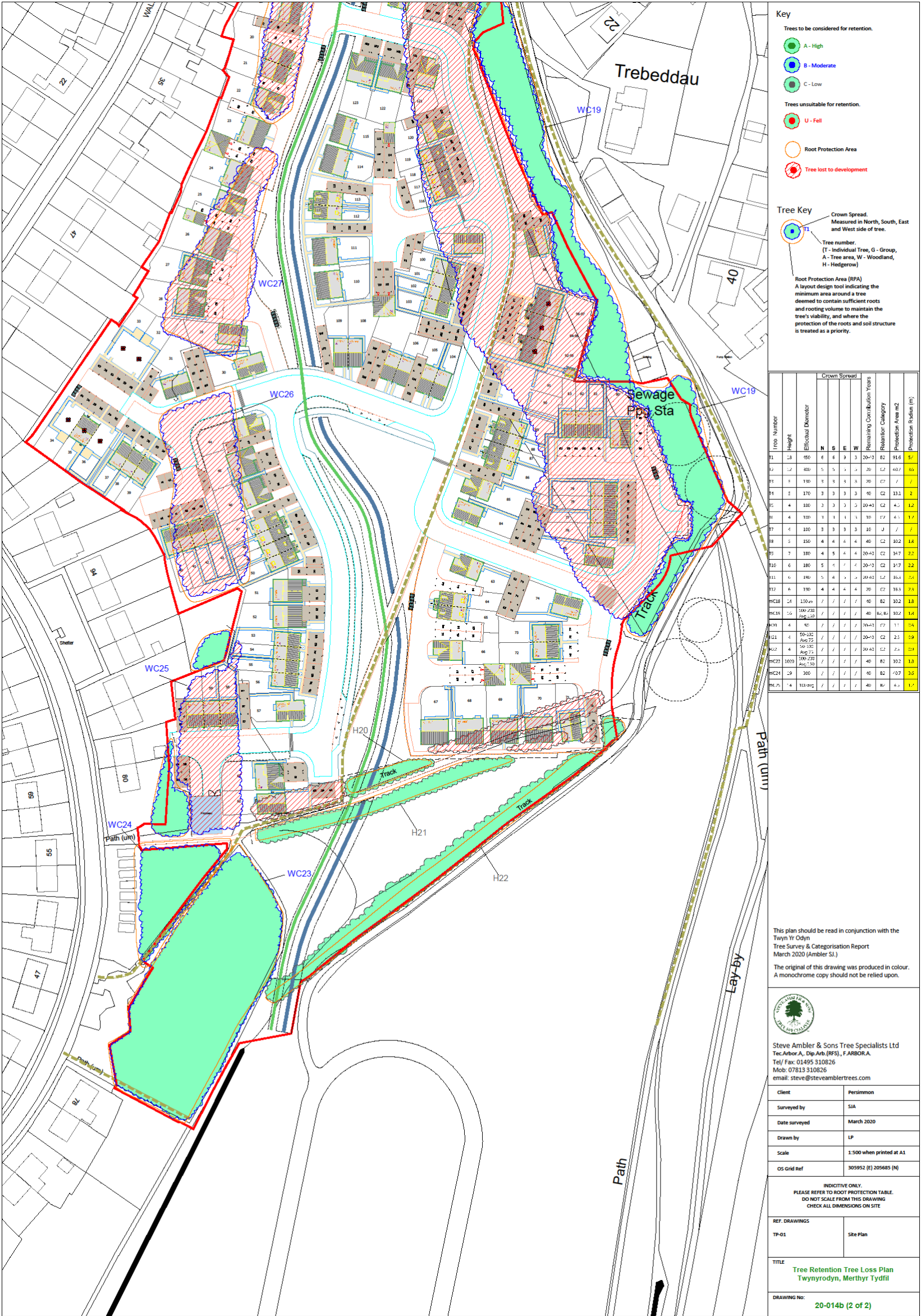
REF: DRAWINGS	
SP-01	Site Plan PLANNING ISSUE

TITLE
Tree Constraints Plan
Twynyrodyn, Merthyr Tydfil

DRAWING NO:
20-014 (2 of 2)

TREE RETENTION AND FELLING PLAN





Tree Protection Plan



