

Report on trees in relation to a proposed development at Alma Street, Llanarth, Ceredigion SA47 0PA



TREE
CONSULTANTS
WALES

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Contents

		Page
1	Introduction	2
2	Site visit	4
3	Appraisal	4
4	Conclusions	6
5	Recommendations	7
6	Bibliography	7
	Appendices	
1	Tree survey schedule and explanatory notes	9
2	Tree quality assessment methodology	14
3	Arboricultural method statement	15
4	Photographs	20
5	Consultant profile	25
6	Tree protection plan	26

1 Introduction

- Instruction** 1.1 Elene Gegeshidze, Planner at Amity Planning Consultants, instructed me to survey the significant trees on a site at Alma Street in Llanarth and provide an arboricultural report in relation to a proposed development.
- Qualifications** 1.2 I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture, a summary of which is included in Appendix 5.
- Documents provided** 1.3 Elene Gegeshidze and Chris Gentle, Divisional Director at Roberts Limbrick, provided me with copies of the following documents:
- Obsidian Developments Llanarth site topo 2D.dxf
 - 10564-SK01G Proving Layout Llanarth, in dwg and pdf formats;
- Scope** 1.4 This report concerns the protection of trees suitable for retention in the context of site development; it is completed in line with British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. This report includes only a preliminary assessment of the structural and physiological condition of the surveyed trees and presumes the trees will be subject to specific safety inspections following the completion of any site development.
- Context** 1.5 Trees are a material consideration in the UK planning system.
- 1.5.1 The Town & Country Planning Act 1990.
Section 197 of the Act provides that a local planning authority is under a duty:
- “(a) to ensure, whenever it is appropriate, that in granting planning permission for any development, adequate provision is made, by the imposition of conditions, for the preservation or planting of trees; and
- (b) to make such orders under section 198 [tree preservation orders] as appear to the authority to be necessary in connection with the grant of such permission, whether for giving effect to such conditions or otherwise.”
- 1.5.2 Planning Policy Wales, 2021 sets out the land use planning policies of the Welsh Government and includes the following guidance for local planning authorities.
- Trees, Woodlands and Hedgerows
- 6.4.24 Trees, woodlands, copses and hedgerows are of great importance for biodiversity. They are important connecting habitats for resilient ecological networks and make a valuable wider contribution to landscape character, sense of place, air quality, recreation and local climate moderation. They also play a vital role in tackling the climate emergency by locking up carbon, and can provide shade and shelter, a sustainable energy source and building materials. The particular role, siting and design requirements of urban trees in providing health and well-being benefits to communities, now and in the future should be promoted as part of plan making and decision taking.

6.4.25 Planning authorities should protect trees, hedgerows, groups of trees and areas of woodland where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial and identified green infrastructure function. Planning authorities should consider the importance of native woodland and valued trees, and should have regard, where appropriate, to local authority tree strategies or SPG. Permanent removal of woodland should only be permitted where it would achieve significant and clearly defined public benefits. Where woodland or trees are removed as part of a proposed scheme, developers will be expected to provide compensatory planting.

6.4.26 Ancient woodland and semi-natural woodlands and individual ancient, veteran and heritage trees are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees and woodlands should be afforded protection from development which would result in their loss or deterioration unless there are significant and clearly defined public benefits; this protection should prevent potentially damaging operations and their unnecessary loss. In the case of a site recorded on the Ancient Woodland Inventory, authorities should consider the advice of NRW. Planning authorities should also have regard to the Ancient Tree Inventory.

6.4.27 The protection and planting of trees and hedgerows should be delivered, where appropriate, through locally specific strategies and policies, through imposing conditions when granting planning permission, and/or by making Tree Preservation Orders (TPOs)¹²⁵. They should also be incorporated into Green Infrastructure Assessments and plans.

6.7.3 Certain sounds, such as those created by trees, birds or water features, can contribute to a sense of tranquillity whilst others can be reassuring as a consequence of their association with the normality of everyday activities. Problematic forms of sound are generally experienced as noise pollution and can affect amenity and be prejudicial to health or a nuisance. Noise action plans¹⁴⁶ drawn up by public bodies aim to prevent and reduce noise levels where necessary and preserve soundscape quality where it is good. Noise levels used to identify priority areas contained in noise action plans are usually set quite high in order to focus resources on the most polluted areas and noise must meet a number of tests before it qualifies as a statutory nuisance. Lower levels of noise, however, can still be annoying or disruptive and impact on amenity and as such should be protected through the planning process wherever necessary. The planning system must protect amenity and it is not acceptable to rely on statutory nuisance under the Environmental Protection Act 1990¹⁴⁷ to do so.

1.5.3 Supplementary guidance is provided by Technical Advice Notes (TANs).

TAN 12: Design (2016) advises:

5.11.3 The design of housing layouts and built form should reflect local context and distinctiveness, including topography and building fabric. Response to context should not be confined to architectural finishes. The important contribution that can be made to local character by contemporary design, appropriate to context, should be acknowledged. To

help integrate old and new development and reinforce hierarchy between spaces, consideration should be given to retaining existing landmarks, established routes, mature trees and hedgerows within housing areas as well as introducing new planting appropriate to the area. All residential proposals should seek to minimise energy demand, larger schemes should investigate the feasibility of a district heating scheme especially when mixed uses are proposed for the site.

- Printing** 1.6 This report is issued as a single PDF file. Any plans or drawings included may need to be printed separately, considering any differences in page size and orientation to the report's standard A4 format.

2 Site visit

- Site visit** 2.1 I carried out an unaccompanied site visit on 17 May 2023. 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 during my visit was clear, still and dry, with good visibility.

- Site description** 2.2 The site, consisting of two adjoining fields, is located on the south side of Alma Street on the western edge of Llanarth in Ceredigion. A variety of native and ornamental, broadleaved and coniferous trees are scattered throughout the site and around the site boundaries.

- Data collection** 2.3 I identified obvious trees, hedges and groups and collected information on their species, height, diameter and maturity. I categorised the quality of the trees using the TreeABC field sheet included in Appendix 2. I have recorded this information in the tree schedule included in Appendix 1.

3 Appraisal

- Proposed development** 3.1 The construction of 35 residential units with associated infrastructure is proposed.

- Tree quality** 3.2 A total of 30 arboricultural features were surveyed; 16 individual trees, 8 tree groups, 4 hedgebanks and 2 woodlands.

- 3.3 I categorised the quality of 7 features as 'A', 8 as 'B', 13 as 'C' and 2 as 'U'.

- 3.3.1 The category 'A' features, T.4, G.23, T.26, T.27, T.28, T.29 and W.30 are worthy of being a material constraint to site development due to their high quality.

- Root morphology** 3.4 The root spread of T.4, T.5, T.6, T.7, T.8 and H.24 is likely to have been influenced to some extent by the road and resulting hostile rooting environment on their western side. I have not modified the root protection areas of these features, as paragraph 4.6.3 of BS 5837:2012 permits, because their likely root morphology is impossible to determine without detailed investigation.
- Branch spread** 3.5 The branches of the surveyed trees have generally been allowed to spread freely.
- Statutory protection** 3.6 The presence of tree preservation orders and Conservation Area designations was not checked for as part of this report.

4 Conclusions

Arboricultural impact assessment 4.1 An assessment of the probable direct and indirect impacts of the proposed development is provided in Table 1.

Table 1: Arboricultural impact assessment

Development stage		Issue		Comments	Impact	
Development stage	Design	Tree losses needed by the proposed plan	Category A	None		
			Category B	4 losses are proposed		
			Category C	11 losses are proposed		
			Category U	2 losses are proposed		
		Damage to retained trees	Structures in RPA	Structures are proposed in the RPAs of T.4, T.14, T.26, T.27, T.28 and an oak within G.23		
			Services in RPA	None proposed		
			Ground-level changes	None proposed		
			Excessive pruning	None proposed		
	Construction	Damaging activities	Demolition	None proposed		
			Site access	The proposed new access will be sufficient for construction traffic		
			Cabins & welfare units	All cabins can be sited outside the RPA of retained trees		
			Contractor parking	Parking can be provided outside the RPA of retained trees		
			Storage	Storage can be provided outside the RPA of retained trees		
			Workspace	There is sufficient workspace outside the RPA of retained trees		
	End-use	Future pressure for tree removals or excessive pruning	Risk	Actual	Proposed units 1 and 2 are located at the edge of the falling distance of T.4. Proposed units 34 and 35 are located within the falling distance of T.28.	
				Perceived	T.4, G.23, T.26, T.27 and T.28 have the potential to cause concern to nearby residents.	
			Damage	Roots	N/A- proposed and existing structures are outside the zone of influence of retained trees.	
				Branches	N/A- proposed and existing structures are sufficiently distanced from retained trees to prevent their damage by branches.	
			Shade	Buildings	Proposed units 1, 2, 6, 7, 8, 34 and 35 will be shaded for some parts of the day	
				Gardens	The gardens of proposed units 2, 3, 4, 5, 6, 7, and 8 will be shaded for parts of the day.	
Seasonal nuisance			N/A- the proposed structure is sufficiently distanced from retained trees to prevent seasonal nuisance.			
Conclusions on the impact of the layout proposal on local amenity, landscape character and canopy cover						
Overall, the proposed development has a moderate impact on local amenity, landscape character and canopy cover due to the number of tree losses and their visibility from the public highways adjacent to the site's north and west boundaries.						
Colour = Impact before mitigation						
	None- acceptable, no mitigation required			Low- broadly acceptable, mitigation optional		
	Moderate- tolerable; mitigation required			High- intolerable; redesign or substantial mitigation and compensation essential		

5 Recommendations

Impact mitigation

- 5.1 To help mitigate the impact of the proposed development, I recommend the following actions:
- 5.1.1 A detailed landscape scheme, including new tree and shrub planting, be included with the proposal to mitigate and compensate for the required tree losses.
- 5.1.2 Specifically engineered products and working methods (see Appendix 3) be used to minimise the immediate and long-term effects of placing structures within the RPA of retained trees. The RPA encroachment of T.14 is unlikely to affect the tree's health or stability due to the species' robust character; therefore, no specific products or work methods are needed.
- 5.1.3 A program of proactive safety inspections and risk assessment is adopted for the site's trees to manage their actual and perceived risks in a balanced and proportionate way.
- 5.1.4 The retained trees are protected by a tree preservation order, served post-development, to allow the local authority a degree of control over the future management of the site's trees.

Tree protection

- 5.2 Measures recommended to protect the retained trees during site development are detailed in the Arboricultural Method Statements (Appendix 3) and Tree Protection Plan (Appendix 6).

6 Bibliography

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Appendices

Appendix 1

Tree survey schedule and explanatory notes

Tree No.	Species	Height (m)	Stem dia. (mm)	Maturity	Crown spread N W E S	Low branches	Notes and <u>work recommendations</u>	Cat	RPA (m ²)	RPAR (m)
H.1	Hawthorn Blackthorn Privet Sycamore Ash	4 max.	100 ave.	Mature	1 1 1 1	No	Ash infected with ADB	C2	5	1.2
G.2	Ash x6	17	350 max.	Mature	4.5 4.5 4.5 4.5	No	Group within H.1 Some trees multi-stemmed Infected with ADB	C3	55	4.2
H.3	Hawthorn Holly Ash Privet Sycamore Beech	15	150 max.	Maturing and mature	3 3 3 3	No	Ash infected with ADB Remove a 16m section to facilitate the proposed development	C8	10	1.8
T.4	Oak	26	1300	Mature	14 14 15 15	Yes	Major limb on south side from 3.5m	A1	707	15
T.5	Beech	13.5	400	Mature	6 5 5 4	Yes	Growing on hedgebank within H.3 Low branches on all sides from 3m Remove tree and stump	B	72	4.8
T.6	Lime	20	600	Mature	5 5 8 5	No	Growing within H.3 Remove tree to facilitate the proposed development	B	-	-
T.7	Lime	20	750	Mature	5 5 8 5	No	Growing within H.3 Remove tree to facilitate the proposed development	B	-	-
T.8	Sycamore	18.6	500	Mature	6 6 7 2.5	No	Sparse upper crown	B	137	6.6

Tree No.	Species	Height (m)	Stem dia. (mm)	Maturity	Crown spread N W E S	Low branches	Notes and <u>work recommendations</u>	Cat	RPA (m ²)	RPAR (m)
T.9	Horse Chestnut	18.6	610	Mature	6.5 4.5 9 5	No	Bacterial infection Leaf miner Girdling root on tension side	C3	177	7.5
T.10	Horse chestnut	18.6	700	Mature	5 8 9.5 8	No	Bacterial infection Leaf miner Large wound on stem on west side Girdling root on north side	C3	222	8.4
T.11	Horse chestnut	-	470	Mature	-	-	Sparse upper crown with dieback Basal wound on south side Stem wound Remove tree and grind out stump	U	-	-
T.12	Horse chestnut	18.6	600	Mature	7 7 5 4	No	Bacterial infection with exudate on stem Leaf miner Girdling roots	C3	163	7.2
T.13	Horse chestnut	-	350	Maturing	-	-	Extensive bacterial infection Leaf miner Crown dieback Large basal wound Remove tree and grind out stump	U	-	-
T.14	Ash	14	350	Mature	7 5.5 4 4	No	Early stages of ADB infection	C3	55	4.2
G.15	Willow Ash Oak Sycamore	12	300 ave.	Maturing and mature	5.5 5.5 5.5 5.5	No	Remove approximately 5x trees to facilitate the proposed plan	C8	-	-
G.16	Spruce	23.5	720 490 (west tree)	Mature	5 5 5 5	No	One tree partially uprooted Remove 3x trees to facilitate the proposed development	B		
T.17	Oak	17	700	Mature	8 8 8 9.5	No	-	B	222	8.4

Tree No.	Species	Height (m)	Stem dia. (mm)	Maturity	Crown spread N W E S	Low branches	Notes and <u>work recommendations</u>	Cat	RPA (m ²)	RPAR (m)
G.18	Oak x1 Fir x1	10	300	Maturing	3.5 3.5 3.5 3.5	No	Hedgebank/root morphology	C8	41	3.6
H.19	Willow Hazel Sycamore	-	150 ave.	Mature	3 6 6 3	No	Hedgebank with remnant ditch on southeast side. 2x mature willow, 400mm stem diameter, encroaching site on southeast 10m Remove 2x trees at the hedge's western end and 1x tree at the eastern end to facilitate the proposed development	C8	10	1.8
G.20	Hazel Sycamore	13	175 ave.	Mature	8.5 - 8.5 8.5	No	Growing on hedgebank Remove 1x central tree to facilitate the proposed development	C8	14	2.1
G.21	Hawthorn Blackthorn Sycamore Willow Hazel	8	150 ave.	Maturing	5 5 5 5	No	Willow dominant species within group Remove 1x at the western end to facilitate the proposed development	C2	10	1.8
G.22	Pine Oak Ash Sycamore	17	300 ave.	Mature	5 5 5 -	No	Ash showing early symptoms of ADB infection	B	41	3.6
G.23	Sycamore Beech Oak Ash	17	1200 max.	Mature	6 6 6 -	No	-	A1 & B	652	14.4
H.24	Rhododendron Privet Elm Hawthorn	12 max.	150 max.	Young and maturing	4 4 4 4	No	Growing on roadside hedgebank	C1	10	1.8
W.25	Fir Willow	14	250	Mature	6 6 6 6	No	A linear group of woodland edge trees growing on bank within neighbouring land	B	28	3
T.26	Ash	20	900	Veteran	7 7 7 7	No	-	A1	366	10.8

Tree No.	Species	Height (m)	Stem dia. (mm)	Maturity	Crown spread N W E S	Low branches	Notes and <u>work recommendations</u>	Cat	RPA (m ²)	RPAR (m)
T.27	Oak	12	850	Veteran	6 6 4 6	No	Exposed roots, basal decay. crown retrenchment	A1	327	10.2
T.28	Oak	21	1250	Veteran	10 7 10 10	No	-	A1	707	15
T.29	Ash	23	1050	Mature	12 12 7 10	No	-	A1	499	12.6
W.30	Oak Ash Beech	22	1000	Mature	10 10 10 10	No	-	A1	452	12

Tree survey schedule explanatory notes

Tree No.	The tree number is a unique identifier assigned to a relevant tree feature. Tree number prefixes are abbreviations describing the nature of the arboricultural feature: T = Individual tree G = Tree group H = Hedgerow W = Woodland
Species	Species identification is based on visual observations. Only the most frequent are noted where there are more than one species in a group.
Height	The approximate height recorded to the nearest half metre.
Stem dia.	The stem diameter and recorded in 2.5cm increments as advised in BS 5837 Table D1. Stem diameters are measured at 1.5 m above ground level with a diameter tape unless access is restricted, direct measurement is not possible because of ivy on the trunk, or the tree is assessed as poor quality. The point of measurement and the adjustments for stem variations are advised in Figure C1 of BS 5837. For multi-stemmed trees, the number of significant tree stems is provided in square brackets.
Maturity	Maturity is a simplistic indication of a tree's age and ability to adapt to disturbances in its growing environment and its potential for further growth: 'young' indicates a potential to significantly increase in size and a high ability to adapt to change, 'maturing' indicates some potential to increase in size and some ability to adapt to change, and 'mature' indicates little potential to increase in size and limited ability to adapt to change.
Crown spread	The crown spread is measured from the centre of the trunk to the tips of the live lateral branches and rounded up to the nearest half metre for dimensions up to 10m and the nearest whole metre for measurements over 10m, N= north, E= east, S= south, and W=west.
Low branches	Low branches that would not be feasible for removal during normal management and therefore need to be considered as a design constraint.
Cat	The tree retention category awarded according to the criteria detailed on the TreeABC field sheet. Our assessment automatically considers tree physiological and structural condition (BS 5837, 4.4.2.5h), and the category accounts for the remaining contribution (BS 5837, 4.4.2.5i) as greater than 40 years for A trees, greater than 20 years for B trees, at least 10 years for C trees and less than 10 years for U trees.
Notes and work recommendations	Notes on relevant features relating to physiological or structural condition and low branches that may help clarify the categorisation. If there are no notes, then it should be presumed that no relevant features were observed. Work recommendations are made where necessary and where management is considered prudent.
RPA	Root protection area: the "minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where protection of the roots and soil structure is treated as a priority." <i>BS 5837:2012</i> .
RPAR	Root protection area radius: the distance from the tree's base where protection is required to obtain the recommended RPA.

Tree quality assessment

TreeABC field sheet (Version 16.03-UK)

Ancient/veteran: Each tree is assessed by a visual check. If it is a veteran/ancient tree, then it is automatically categorised as A2, and not subjected to any of the category U, C or B considerations.

Category U (unsuitable for retention): Any remaining trees that are unsuitable for retention because they are dead; in irreversible decline; and/or have irreparable structural conditions; and/or are causing severe structural damage or inconvenience, are categorised as U.

Category C (low quality): Any remaining trees are systematically reviewed to decide if they fit into any of the four C subcategory groups listed below.

Category B (moderate quality): Any remaining trees are automatically category B, with the possibility of being promoted to category A.

Category A (high quality): If a category B tree is already large, or has the potential to become so, it can be promoted to category A, at the discretion of the assessor.

Category C: Low quality trees not worthy of being a material constraint

C	Size and legal exemptions: Trees that are too small to be important or unlikely to be suitable for legal protection	
	1	Size: Young or insignificant small tree
	2	Legal exemptions: Trees unlikely to be suitable for legal protection, e.g. a maintained urban hedge, shrubs, etc
	Deteriorating health/condition: Trees that are likely to be removed within 10 years because of deteriorating health and/or structural condition	
	3	Health: Deteriorating health with little realistic prospect of recovery
	4	Crown instability: Deteriorating structural conditions where an increasing risk of failure can be temporarily addressed by reasonable intervention, e.g. storm damage, cavities, decay, included bark, wounds, excessive imbalance, etc
	5	Root instability: Deteriorating whole tree stability through poor anchorage, increased exposure to weather, etc
	Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people	
	6	Inconvenience: Ongoing and increasing inconvenience to residents to the extent that a TPO appeal is likely to result in tree removal, e.g. dominance, debris, interference, etc
	7	Damage: Ongoing and increasing structural damage to property to the extent that a TPO appeal is likely to result in tree removal, e.g. severe damage to surfacing and structures, etc
Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population		
8	No future potential: Poor condition or location with no realistic potential for recovery or improvement, e.g. dominated by adjacent trees or buildings, poor architectural framework, etc	
9	Benefit nearby trees: Removal would benefit better adjacent trees, e.g. relieve physical interference, suppression, etc	
10	Maintenance costs: Unacceptably high maintenance costs, e.g. structural conditions requiring high levels of regular pruning, etc	

NOTE: Although C trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

Categories B and A: Moderate and high quality trees suitable for retention for more than 10 years, and worthy of being a material constraint

B	All trees that are not categories U or C that can be retained with minimal or limited intervention
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NOTE: Category B trees that are already large, or have the potential to become so, with minimal or limited intervention, can be promoted to category A1, at the discretion of the assessor. Veteran/ancient trees are automatically category A2. Although all category A and B trees are sufficiently important to be material constraints, category A trees are at the top of the categorisation hierarchy and should be given the most weight in any selection process.

A	1	Single category B trees or small groups which, at the discretion of the assessor, have been promoted to category A because they are already large, or have the potential to become large
	2	Veteran/ancient tree

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Further explanation of this enhancement of the BS 5837 method can be found at www.TreeAZ.com.

A3 Arboricultural method statement

- General** A3.1 A copy of this arboricultural method statement and the tree protection plan shall be available on-site for the duration of development activities.
- Protective barriers** A3.2 The following protective barrier specification is considered fit for purpose, considering the high intensity of adjacent work activities:
- 2m tall, welded mesh panels on rubber or concrete feet, as shown in Figure 1. The fence panels must be joined together using a minimum of two anti-tamper couplers installed so they can only be removed from inside the fence. The distance between the fence couplers must be at least 1m and uniform throughout the fence. The panels must be supported on the inner side by stabiliser struts mounted on a block tray.
- A3.2.1 Laminated copies of the sign, shown in Figure 2, must be attached to the protective barrier fencing at various locations.
- A3.2.2 Note: the protective barrier may be used to form some or all of the site's security fencing.

Figure 1: Barrier–Heras fencing panels



Figure 2: Sign



- Responsibility** A3.3 The Main Contractor shall be responsible for ensuring the details of this arboricultural method statement are made known to all site personnel as part of the site's induction procedures. A copy of this report shall be available on-site for the duration of the development.

Subject to contractual arrangements being in place, TreeConsultants.Wales shall be the Arboricultural Consultant supervising the protection of trees for this project.

Construction phasing A3.4 A preliminary programme of construction phasing and arboricultural input is set out below.

Table 2: Construction phasing

Phase 1: Pre-commencement	
Activity	Arboricultural input
Pre-start meeting	Meet with the main contractor, on-site or remotely, to confirm the tree protection requirements and timing of arboricultural supervision visits for works within the precautionary areas.
Tree work	Liaise with the tree work contractor, as required, to confirm the specification of permitted works.
Protective barrier install	On-site assistance with the setting out and installation of the protective barriers.
Arboricultural supervision	Site visit and collection of photographic evidence for the discharge planning conditions relating to tree protection.
Phase 2: Construction	
Activity	Arboricultural input
Main build	Remain as the point of contact to advise on any arboricultural issues that may arise.
Arboricultural supervision	On-site supervision of all work within the precautionary areas. Periodic site visits and collection of photographic evidence for the discharge planning conditions relating to tree protection.
Phase 3: Landscaping and final tidying up	
Activity	Arboricultural input
Protective barrier removal	Liaise with contractors, as required.
Final tidy up & landscaping	Liaise with contractors, as required.
Arboricultural supervision	Site visit and collection of photographic evidence for the discharge planning conditions relating to tree protection.
<i>Note: The precise order and timing of some of the above operations may change due to site operating requirements. However, all operations that can affect trees will remain under arboricultural supervision.</i>	

Tree work A3.5 The proposed tree works are set out in the Notes & **Work recommendations** column of the tree schedule, Appendix 1. The trees to be removed are highlighted with red text in the schedule and with a red crown fill on the plan. The following points must also be noted before carrying out any work:

- A3.5.1 All tree works should be carried out by a suitably qualified and experienced arboricultural contractor.
- A3.5.2 Birds, bats and other species that inhabit trees have statutory protection under The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000. Advice from the project ecologist should be obtained before undertaking any tree work to avoid committing an offence.

A3.5.3 Stumps to be removed within the RPAs of retained trees must be ground out with a stump grinder to minimise any disturbance unless otherwise authorised by the appointed Arboricultural Consultant.

Work inside RPAs A3.6 The following additional precautions are required for work within the RPA of T.4, T.26, T.27, T.28 and the oak within G.23:

A3.6.1 Fencing within the RPA of the oak within G.23 shall be constructed as follows:

- A temporary 3m wide corridor shall provide pedestrian access along the fence line within the RPA
- Post holes within the RPA shall be excavated by hand
- The excavated post holes shall be lined with a non-porous membrane before positioning the posts and pouring the concrete base
- Once the fence has been constructed, the temporary corridor shall be closed until the site's main construction activities are finished.

A3.6.2 Sections of the site road and parking bays within the RPA of T.4, T.26 and T.27 shall be constructed with a cellular confinement system, as described below, to ensure minimum excavations and long-term soil compaction.

Typical build detail of cellular confinement systems.

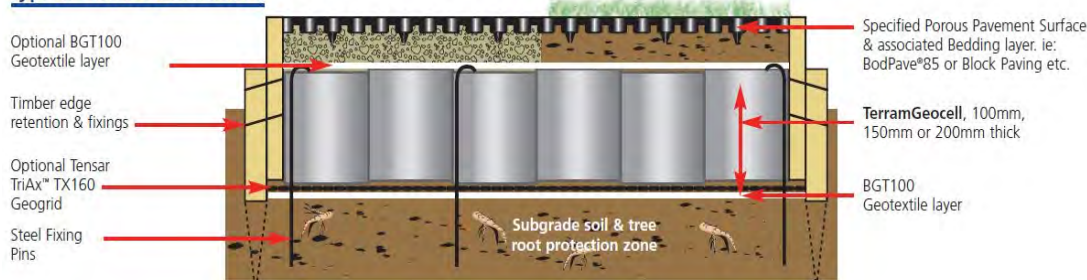
Prepare the site by carefully removing all debris, strictly avoiding soil compaction and tree root damage.

Ensure the prepared surface is reasonably even and fill any localised depressions with sharp sand to achieve an even surface profile. Do not roll or consolidate the area.

Install tanalised timber edging boards or other approved edge retention to the perimeter of the construction zone as appropriate to the total layer profile thickness. Avoid damage to tree roots when placing fixing posts and pegs.

Example product- TERRAM GEOCELL 22/20

Typical Profile Construction



Install a layer of geotextile fabric across the work area, overlapping adjacent rolls by a minimum of 150mm. Lightly pin the geotextile in place until the overlying layers are installed.

Install a geogrid layer, place it over the geotextile fabric layer, and fix it down using steel pins to hold it flat. Overlap adjacent rolls by a minimum of 150mm. Avoid tree root damage and soil compaction.

Open out and lay the geocell, and pin in place between the edging boards using steel fixing pins or similar. The pins are used to maintain the cells in an open and fully expanded position whilst the cells are being filled and to stop the structure from being pushed up by migrating aggregate during the filling process. Pin spacing will vary according to the site conditions but will generally be required at 1m – 2m centres on flat surfaces, mainly placed around the perimeter of the area and where adjacent sections of geocell join each other, with less in the middle of the area. Pins will be driven in, so they just touch the top of the cells but do not compress the fabric. Avoid tree root damage during the pinning process.

Fill the geocell, working from the existing hard standing outside of the RPA, using the filled geocells as a platform. The cells must be filled with clean, open-graded angular aggregate, with a particle size range of 5mm - 45mm, not single-sized or rounded aggregate. Do not roll the surface; a light vibratory compaction plate (whacker) may be permitted to settle the stone into the cells. Do not contaminate the filled cells with site debris, soil or mud.

A3.6.2 All activities within the precautionary must be carried out in a manner that minimises damage and disturbance to the branches, stems, roots and rooting environment (soil) of adjacent trees, specifically:

- No mechanic excavations
- No changes to the original ground levels
- No storage of spoil or materials
- No storage of fuels or chemicals

A3.6.3 Protective barriers, as shown on the tree protection plan (TPP), must be installed before any work activity commences, including site set-up and the delivery of materials or equipment. **All work must be completed from the outside of the protective barrier.**

**Work outside
RPAs**

A3.7 The risk to trees from activities outside RPAs shall be assessed daily by the Main Contractor, and appropriate precautions to reduce the risk shall be implemented. The following points should also be noted:

A3.7.1 All cement mixing and washing points for equipment must be outside RPAs. Where the site's contours create a risk of polluted water or toxic liquids running into RPAs, a precautionary measure of using heavy-duty plastic sheeting and sandbags with the ability to contain accidental spillages must be put in place to prevent contamination. Contaminated mixer and tool wash water must be decanted into a sealed container and transported off-site for appropriate disposal.

A3.7.2 No fires within 3m of root protection areas are permitted due to the danger of scorching leaves and branches of overhanging trees.

Installing new services A3.8 The installation of new services within the RPA or precautionary area of any retained trees is not proposed or permitted.

Photographs

Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10

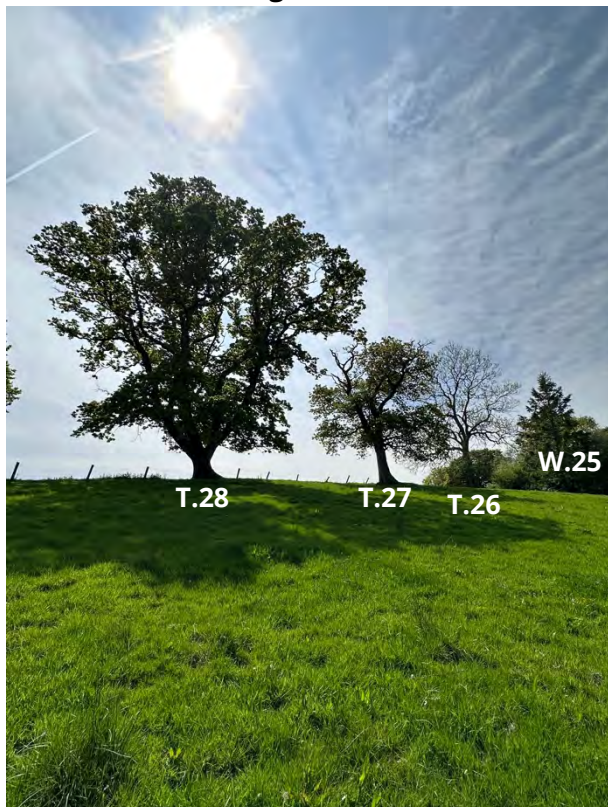


Figure 11



Figure 12



Figure 13



Appendix 5

Consultant's profile

Paul Cleaver
 Level 6 Certificate of Arboriculture
 Professional Member of the Arboricultural Association
 Professional Member of the Institute of Chartered Foresters
 Registered Consultant of the Arboricultural Association
 Registered Consultant of the Institute of Chartered Foresters

Paul has worked in the industry since 1995 and has extensive experience as an arboricultural contractor, instructor, and consultant.

As a consultant, Paul supports private and commercial tree owners, local authorities, and Welsh Government agencies on various arboricultural issues.

He specialises in tree risk management and is an Elite VTA¹ Practitioner authorised by Prof. Dr Claus Mattheck to deliver Visual Tree Assessment lectures throughout the UK.

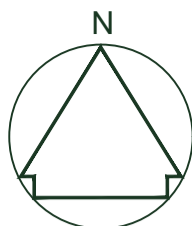
Paul contributed to the 2017 Arboricultural Association (AA) publication *Aerial Inspections: A Guide to Good Practice, Guidance Note 11*. He co-authored the AA's *Intermediate Tree Inspection* training course, which he teaches on behalf of the AA in Wales and England.

Paul is also the past Chair and current Vice-chair of the Arboricultural Association in Wales.



¹ VTA- Visual Tree Assessment, the standard approach to tree risk assessment consisting of the diagnosis of structural defects and the evaluation of their significance from visible signs and the application of biomechanical criteria developed by Prof. Dr. Claus Mattheck.

Tree protection plan



NOTES

- 1. Protective barrier**
2m tall welded mesh panels on rubber or concrete feet, as shown in Figure 1.
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 1m and should be uniform throughout the fence.
The panels should be supported on the inner side by stabiliser struts mounted on a block tray.
Attached to the protective barrier fencing, at various locations, will be laminated copies of the sign shown in Figure 2.
- 2. General precautions required for work inside the RPA of retained trees**
Protective barriers installed before any construction activities commence, including site set-up and the delivery of any materials or equipment.
All proposed work to be supervised by the Project Arboriculturist.
No mechanical excavations are permitted within the precautionary area, hand-dig or air-spade excavations only.
Original ground-levels to be maintained / restored.
No spoil to be stored inside the precautionary area.
No materials to be stored inside the precautionary area.
No fuels or chemicals to be stored inside the precautionary area.
- 3. General precautions required for work outside the RPA of retained trees**
Prevention of soil contamination: All cement mixing and washing points for equipment will be outside RPAs.
Where the contours of the site create a risk of polluted water or toxic liquids running into RPAs, a precautionary measure of using heavy-duty plastic sheeting and sandbags with the ability to contain accidental spillages will be put in place to prevent contamination.
Contaminated mixer and tool wash water shall be decanted into a sealed container and transported off site for appropriate disposal.
Burning of waste: No fires will be lit on site within 3m of root protection areas due to the danger of scorching leaves and branches of overhanging trees.
Installation of new services: The installation of new services within the RPA of any retained trees is not permitted.

Figure 1.



Figure 2.



Note: The position of W.30 is illustrative only.

Note: The position of W.25 is illustrative only.

Precautionary area: Temporary access permitted to construct new fencing. Work to be supervised by the Project Arboriculturist.

Precautionary area: Cellular confinement system used to minimise excavation and soil compaction. Work to be supervised by the Project Arboriculturist.

NOTE: THIS PLAN IS FOR ILLUSTRATIVE PURPOSES ONLY AND MUST NOT BE USED FOR DIRECTLY SCALING MEASUREMENTS

DEFINITIONS

RPA- Root protection area
"The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's vitality, and where protection of the roots and soil structure is treated as a priority." BS 5837:2012

CEZ- Construction exclusion zone
An "area based on the root protection area from which access is prohibited for the duration of a project." BS 5837:2012.

Precautionary area
An area inside the RPA of retained trees where limited construction activities are permitted subject to specified precautions

PLAN KEY

NUMBERING
1 = The tree identification number in as per the tree survey schedule.
Number prefixes:
T = An individual tree
G = A group of trees
H = A hedge/line formed by trees

STEM COLOURS
Moderate and high quality trees suitable for retention for more than 10 years, and worthy of being a material constraint.
● **Category A- high quality tree**
● **Category B- moderate quality tree**

CROWN COLOURS
Low quality trees likely to be removed within years, and not worthy of being a material constraint.
● **Category C- low quality tree**
● **Category U- trees unsuitable for retention because they are dead, in irreversible decline, and/or have irreparable structural conditions, and/or are causing severe structural damage or inconvenience.**

INDICATIVE DAILY SHADOW PATTERNS
Indicative crown spread of trees proposed for retention
● Crown spread of trees proposed for removal
● RPA as BS 5837:2012
● Protective barriers and CEZ
● Precautionary area

ALL COPIES OF THIS PLAN SHOULD BE REPRODUCED IN COLOUR

SCALE OF AS
N/A

DATE
09/06/23

DRAWN
PC

CHECKED
-

PROJECT REF
PC23-50

PAGE 27 OF 27

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ALMA STREET, LLANARTH

TREE PROTECTION PLAN

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TreeConsultants.Wales is the trading name of TreeWorks (West Wales) Ltd