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# Arboricultural Impact Assessment

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## **Wood Edge Cottage, Aukside, Middleton in Teesdale**

August 2021

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## **Appendix   Detail**

1	Tree, Group & Hedge Details
2	Plans
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## 1.0 **Introduction**

### 1.1 **Survey Scope**

1.1.1 The survey has been conducted to consider the impact on the trees of the proposed development layout and associated infrastructure.

1.1.2 Trees have been surveyed in accordance with BS5837:2012 Trees in Relation to design, demolition and construction – Recommendations.

1.1.3 The tree positions have been plotted using measurements taken on site therefore are considered approximate. Any other trees and shrubs have been included as groups within the survey. All measurements should be checked on site.

### 1.2 **Site Details**

1.2.1 A site visit was undertaken in August 2021.

1.2.2 The survey area consists of the plot associated with Wood Edge Cottage.

1.2.3 There are trees adjacent to the dwelling to be redeveloped in a small woodland group and further trees within the garden of the neighbouring property. Within the small existing garden area there are a few plum trees. A larger woodland area is on the opposite side of the access road to the west of the property.

1.2.4 Access to the site is via the existing farm road into the cobbled yard area.

### 1.3 **Existing Protection of Trees**

1.3.1 Trees can be protected by being located within a Conservation area or by virtue of a Tree Preservation Order. The Local Authority can advise as to whether either of these applies.

1.3.2 For a works to trees in a Conservation Area notice of 6 weeks of intent to carry out works needs to be made to the Local Authority. For trees protected by virtue of a Tree Preservation Order it is necessary to make an application to the Local Authority before any works can be undertaken.

1.3.3 It is an offence to undertake works on trees under protection without making the relevant applications.

1.3.4 Using Durham County Council's online facilities on Wednesday 25<sup>th</sup> August 2021 it has been ascertained that there are no Tree Preservation Orders on the surveyed trees nor does the site fall within a Conservation Area. This information should be confirmed with the Local Authority Tree Officer.

## 2.0 **Summary of Tree Information**

### 2.1 **Individuals, Groups and Hedges**

2.1.1 There were 6 individual trees surveyed. All of the trees have been given a B category rating (2 B1 and 4 B2). In addition to the individual trees 2 groups were surveyed.

### 2.2 **Root Protection Areas**

2.2.1 The root protection area is indicated for each tree, group and hedge on each of the plans. The red circles around the trunks indicated the root protection areas as calculated in accordance with the British Standard (BS5837:2012). They are indicative only and do not take into account site specific condition such as topography and underground land forms, built structures and underground services.

2.2.2 There should be no level changes made or excavation within the root protection area of the retained trees.

2.2.3 For this site the root protection areas of most trees are shown to extend into the cobbled yard area. This surface has been in place for decades and may have resulted in root protection areas differing to those as indicated on the plan. As a precaution the area marked on the Tree Protection Plan as magenta hatching is designated a hand dig area only. There should be no digging down in these areas only the removal of the top surfacing, if no roots are encountered digging may be permitted. (See notes on tree 5 for the exception to this.)

### 2.3 **Trees to be Removed**

2.3.1 No trees need to be removed to facilitate the proposed development provided methods suggested can be accommodated in the construction of the proposed garage. If the garage construction requires excavation where roots are located, tree 3 will need to be removed.

### 2.4 **Additional Tree Works Required**

2.4.1 Tree 1 overhangs the entrance to the property and will require lifting/pruning back to provide a suitable clearance for vehicles accessing the site.

2.4.2 Trees 2, 3 and 4 have overhanging branches that will need to be lifted/pruned back to provide a suitable clearance over the proposed garage building.

2.4.3 Any tree works carried out are to be in line with BS 3998 (2010) – Recommendations for Tree Work and the appropriate applications in place where required.

## 3.0 **Tree Protection Measures During Development**

### 3.1 **Existing Surfacing**

3.1.1 The existing cobble surfacing should remain in situ for as much as the development period as possible (until the garage is to be constructed or the surfacing replaced) in order to provide space for storage of materials and negate the need for ground protection measures, this is with the exception of the measures required for tree 5 as explained in section 3.3.

### 3.2 **Protective Barriers**

3.2.1 Protective barriers will need to be erected in the position as indicated on the Tree Protection Plan by the thick yellow line to ensure minimal impact on retained trees adjacent to the working area. Barrier position protects both underground and aerial portions of the tree where possible.

3.2.2 There is to be no works or storage of materials (temporary or permanent) behind the barrier position within the root protection areas of any of the trees. The barriers will need to be in place before any excavation/development work takes place on site. All excavation/building must be outside of the root protection area.

3.2.3 BS 5837:2012 suggests that the default specification for protective barriers is as follows: Vertical and horizontal scaffold frame work that can be well braced (poles driven into the ground) to resist impact and have welded mesh panels securely fitted to. However where underground constraint inhibit the use of driven poles other options could be considered, such as a free-standing scaffold support framework with pins to secure their position. It is essential that the barriers cannot be 'pushed/nudged' by machinery or persons during works decreasing the protection area.

3.2.4 On this site the above level of protection could be considered not necessary and an alternative may be suggested and agreed by the local planning authority. Suggestions are welded mesh panels supported on rubber or concrete feet that are joined with anti-tamper couplers.

3.2.5 Fencing should also have signs attached to it to make clear that the area beyond it should not be entered, "Construction Exclusion Zone – No Access". In addition to this all persons entering site should be given an induction briefing on safe working with regards to the trees.

3.2.6 There should be no storage of materials within the exclusion zones or within the root protection areas of any other trees.

### 3.3 **Ground Protection Measures**

3.3.1 Ground protection will be required to provide a working space in the root protection area of tree 5 throughout the development as indicated by the blue hatching on the tree protection plan. Once the existing surfacing is lifted ground protection measure will be required to provide working space around the garage within the root protection areas of trees 2, 3 and 4.

3.3.2 The level of ground protection required will depend upon the weight of the load that will be travelling over it. BS 5837: 2012 provides the following recommendations:

- Where the movement will be pedestrian only there are two options. One it to use a single thickness of scaffold boards supported on a scaffold frame therefore creating a raised walkway. The second option is to place a single thickness of scaffold boards on a compression resistant layer (e.g. 100mm woodchips), laid on a geotextile membrane.

- Where movement will be a pedestrian operated plant up to a gross weight of 2 tonnes proprietary inter-linked ground protection boards could be placed on top of a compression resistant layer (e.g. 150mm woodchips), laid on a geotextile membrane.
- Where a wheeled or tracked machine/construction traffic greater than a gross weight of 2 tonnes an alternative system of an engineered specification will be required to accommodate the likely load.

## 4.0 **Construction Methods**

### 4.1 **Alternative Construction Methods**

4.1.1 For tree 3 where the roots are shown extend into the existing yard area it has been a cobbled surface for decades therefore given the yard construction and wall separating the tree from the yard it is likely that the roots do not extend as far as indicated. However, as a precaution the cobble stones should be lifted by hand and any roots encountered should be treating in the appropriate way. The area marked on the Tree Protection Plan as magenta hatching is designated a hand dig area only.

4.1.2 It is proposed the garage is constructed on a raft, the existing levels within the root protection area of the tree will need to be worked with and no digging down to take place.

### 4.2 **Installation of Services**

4.2.1 Where new services are required and pipe work is to be laid underground it will be necessary where possible to install them outside of the root protection areas of the trees. If it is not possible to avoid the root protection areas (indicated by the red circles on the tree protection plan) a trenchless method of installation must be used.

4.2.2 Trenchless methods such as thrust boring are the alternatives to digging a trench. ***Advice from the contractor to carry out the work should be taken and the method chosen approved within the planning application.***

4.2.3 For any parts of the drainage system construction where trenchless methods cannot be used these should be placed outside of root protection areas or tree removals may be required should the excavations be thought to encroach too far on the trees.

4.2.4 When working in the root protection areas of trees it will be necessary to use ground protection to create a working area.

4.2.5 The level of ground protection required will depend upon the weight of the load that will be travelling over it. BS 5837: 2012 provides the following recommendations:

- Where the movement will be pedestrian only there are two options. One it to use a single thickness of scaffold boards supported on a scaffold frame therefore creating a raised walkway. The second option is to place a single thickness of scaffold boards on a compression resistant layer (e.g. 100mm woodchips), laid on a geotextile membrane.
- Where movement will be a pedestrian operated plant up to a gross weight of 2 tonnes proprietary inter-linked ground protection boards could be placed on top of a compression resistant layer (e.g. 150mm woodchips), laid on a geotextile membrane.
- Where a wheeled or tracked machine/construction traffic greater than a gross weight of 2 tonnes an alternative system of an engineered specification will be required to accommodate the likely load.

### 4.3 **Tree Friendly Construction of Surfacing Near Retained Trees**

4.3.1 The laying of any new surfacing within the root protection area of trees will need to be conducted in accordance with the guidance provided in BS5837:2012 Trees in relation to design,

demolition and construction – Recommendations and as per the guidance provided by the supplier of the engineered solution.

4.3.2 Factors taken into consideration are as follows;

- The tolerance of the tree species.
- The design should not require excavation other than the removal of a turf layer or other surface vegetation using hand tools.
- Surfacing that is to be used by construction traffic should be suitable for purpose.
- Localised compaction should be avoided.
- The new permanent hard surface should not exceed 20% of the existing unsurfaced ground within the root protection area.
- Where there is the risk of water logging appropriate drainage must be included.
- Oxygen and water must be able to diffuse into the soil beneath the engineered surface.
- An appropriate sub-base must be used for a finished hard surface and can include three-dimensional cellular confinement systems or piles, pads and elevated beams to support bridging over roots (the use of two-dimensional load suspension systems is not recommended when the surface will be used by vehicles).
- The surface should be able to withstand deformation by tree roots and set away from the stem/buttress by a minimum of 500mm.



## 5.0 **Future Site Management**

### 5.1 **On Completion of Development**

5.1.1 Following completion of the development and all materials including tree protection have been removed from the site a 'walk over' survey of the site should be undertaken with particular attention to tree 3. This survey will be to ascertain whether there has been damage to any trees and so remedial works can be undertaken where necessary although it is unlikely provided that the tree protection measures are adhered to. Tree 3 should continue to be monitored following completion of the development to ensure the tree suffers no long term effects. It is likely that future works will be required in that small woodland area.

### 5.2 **Additional Planting**

5.2.1 If planting is to be included in the landscaping of the site the following should be considered.

5.2.2 Careful consideration should be given to species selection and all new planting positions to ensure the trees can grow fully into maturity without requiring major or regular pruning works. The species choice will depend on what is to be achieved by the planting. Using heavy standards would provide immediate impact although the use of smaller standards is perfectly acceptable and less costly.

5.2.3 Usually the planting season for trees runs from mid-November to mid-March, when deciduous trees remain dormant. Any planting beyond March can be carried out although a comprehensive and regular irrigation programme will be required.

5.2.4 Staking and guards will be required initially when the tree is planted to provide support and protection. Larger guards can be fitted as the tree matures should it be required.

5.2.5 Watering will be essential following the planting of the tree in particular during the summer months (May to September). If conditions are wet additional watering may not be necessary.

5.2.6 Some pruning may also be required. At the time of planting any damaged branches must be cut back to a main junction or stem. At the end of the first season of growth, any branches showing signs of dieback must be cut back to live wood. Pruning must take place during the dormant period (mid November to mid March). Pruning works should be carried out to BS 3998 (2010), and if necessary a suitably qualified arborist consulted.

5.2.7 The above is not a full description of planting and care but gives an outline of timings and requirements.

## 6.0 **Conclusion**

6.1 Provided that protective measures as described in this report are adhered to and any tree works undertaken are done in accordance with BS3998 (2010) – Recommendations for Tree Work, the tree cover on this site should remain in order.

## **Appendix 1**

### **Tree, Hedge & Group Details**

Tree	Species	Height (m)	Crown Spread (m)				Trunk Diameter (mm)	Root Protection Area Radius (m)	No. of Stems	Crown Clearance (m)	Height & Direction of First Significant Branch (m)	Age	Physiological Condition	Structural Condition	Life Expectancy (Years)	BS5837 Category	Comments	Recommendations
			N	E	S	W												
<b>Individual Trees</b>																		
1	Holly	8.0	3.5	4.0	4.0	3.5	320	3.8	4	0.5	1.0 E	Mature	Fair	Fair	20+	B2	<p>The tree is located outside of the site boundary within the garden of the neighbouring dwelling.</p> <p>Multiple stems from ground level.</p>	<p>As the tree is in the adjacent garden behind the stone wall a protective barrier will not be necessary.</p> <p>Overhanging branches will need to be lifted/pruned back to provide a suitable clearance for vehicles accessing the site.</p> <p>The existing surfacing should be left in place during the development.</p> <p>If the surfacing is to be replaced although it is unlikely roots have extended into the site as a precaution the cobble stones should be lifted by hand. If there are roots beneath the existing surfacing the new surface will need to be laid in a tree friendly way as detailed in the main body of the report.</p>
2	Laurel	4.5	3.5	5.0	4.0	4.0	200	2.4	1	0.0	1.0 S	Mature	Fair	Fair	20+	B2	<p>The tree is located outside of the site boundary within the garden of the neighbouring dwelling.</p> <p>Large shrub, part of the garden landscaping.</p>	<p>As the tree is in the adjacent garden behind the stone wall a protective barrier will not be necessary.</p> <p>Overhanging branches will need</p>

Tree	Species	Height (m)	Crown Spread (m)				Trunk Diameter (mm)	Root Protection Area Radius (m)	No. of Stems	Crown Clearance (m)	Height & Direction of First Significant Branch (m)	Age	Physiological Condition	Structural Condition	Life Expectancy (Years)	BS5837 Category	Comments	Recommendations
			N	E	S	W												
																		to be lifted/pruned back to provide a suitable clearance over the proposed garage building.  The existing surfacing should be left in place during the development.
3	Beech	10.5	4.5	5.0	6.0	5.0	440	5.3	1	1.5	2.0 SW	Early Mature	Fair	Fair	20+	B1	<p>The tree is located within the small woodland adjacent to the development area.</p> <p>There were no major visible defects at the time of the survey.</p> <p>The root protection area of the tree extends into the proposed garage building.</p> <p>Removing the tree would remove any construction issues. However, it would be preferred that the tree is retained therefore the following precautions will need to be adhered to.</p> <p>Branches overhanging the proposed garage will need to be lifted/pruned back to provide a suitable clearance.</p> <p>Where the roots are shown extend to has been a cobbled yard for decades therefore given the yard construction and wall separating the tree from the yard it is likely that the roots do not extend as far as indicated.</p>	

Tree	Species	Height (m)	Crown Spread (m)				Trunk Diameter (mm)	Root Protection Area Radius (m)	No. of Stems	Crown Clearance (m)	Height & Direction of First Significant Branch (m)	Age	Physiological Condition	Structural Condition	Life Expectancy (Years)	BS5837 Category	Comments	Recommendations
			N	E	S	W												
																		<p>As a precaution the cobble stones should be lifted by hand. Any roots encountered should be treated in the appropriate way.</p> <p>The garage is to be constructed on a raft, the existing levels within the root protection area of the tree will need to be worked with and no digging down to take place.</p> <p>The existing surfacing should be retained until the time that the garage is to be constructed.</p> <p>Following the development the health of the tree will need to be monitored, if a deterioration occurs appropriate action should be taken, this may include removing and replacing the tree.</p>
4	Birch	14.5	3.0	2.5	1.0	4.0	310	3.7	1	1.5	3.5 NW	Mature	Fair	Fair	10+	B2	<p>The tree is located within the small woodland adjacent to the development area.</p> <p>The trunk leans towards the north.</p> <p>Asymmetric crown shape.</p> <p>Dome deadwood retained in the crown.</p>	<p>Where the roots are shown extend to has been a cobbled yard for decades therefore given the yard construction and wall separating the tree from the yard it is likely that the roots do not extend as far as indicated.</p>

Tree	Species	Height (m)	Crown Spread (m)				Trunk Diameter (mm)	Root Protection Area Radius (m)	No. of Stems	Crown Clearance (m)	Height & Direction of First Significant Branch (m)	Age	Physiological Condition	Structural Condition	Life Expectancy (Years)	BS5837 Category	Comments	Recommendations
			N	E	S	W												
																	<p>As a precaution the cobble stones should be lifted by hand. Any roots encountered should be treated in the appropriate way.</p> <p>Branches overhanging the proposed garage will need to be lifted/pruned back to provide a suitable clearance.</p> <p>The existing surfacing should be retained until the time that the garage is to be constructed.</p>	
5	Bird Cherry	11.0	4.0	3.5	4.0	3.5	474	5.7	3	0.5	2.0 W	Mature	Fair	Fair	10+	B2	<p>The tree is located within the small woodland adjacent to the development area.</p> <p>Trunk divides to form 2x dominant and 1x subdominant stems from 1.0/1.5m.</p> <p>Epicormic growth.</p> <p>Subdominant stem removed at the base.</p> <p>Asymmetric crown shape.</p> <p>Some deadwood retained in the crown.</p> <p>The existing surfacing should be left in place during the development.</p> <p>The root protection area of the tree extends into the proposed extension to the building, the encroachment is not extensive therefore provided excavations are undertaken by hand and any roots encountered are correctly pruned the tree should continue to flourish.</p> <p>A protective barrier will need to be erected as indicated on the</p>	

Tree	Species	Height (m)	Crown Spread (m)				Trunk Diameter (mm)	Root Protection Area Radius (m)	No. of Stems	Crown Clearance (m)	Height & Direction of First Significant Branch (m)	Age	Physiological Condition	Structural Condition	Life Expectancy (Years)	BS5837 Category	Comments	Recommendations
			N	E	S	W												
																		tree protection plan by the yellow line. In addition to this ground protection measures to provide a working space in the area indicated by the blue hatching will be required.  Any new surfacing in the root protection area will need to be laid in a tree friendly way as described in the main body of the report.
6	Fir	14.0	3.0	3.5	1.5	2.0	410	4.9	1	1.0	2.0 NE	Early Mature	Fair	Fair	20+	B1	The tree is located in the small woodland adjacent to the development area.  Deadwood retained in crown.  Trunk has a slight lean towards the north west.	A protective barrier will need to be erected as indicated on the tree protection plan by the yellow line. In addition to this ground protection measures to provide a working space in the area indicated by the blue hatching will be required.  Any new surfacing in the root protection area will need to be laid in a tree friendly way as described in the main body of the report.
<b>Groups</b>																		
1	Plum	6.0	-	-	-	-	150	1.5	-	0	-	Mature	Fair	Fair	10+	C1	Small group of tangled multiple stemmed fruit trees.	The group should be removed as part of the development and redesign of the garden area for



Tree	Species	Height (m)	Crown Spread (m)				Trunk Diameter (mm)	Root Protection Area Radius (m)	No. of Stems	Crown Clearance (m)	Height & Direction of First Significant Branch (m)	Age	Physiological Condition	Structural Condition	Life Expectancy (Years)	BS5837 Category	Comments	Recommendations
			N	E	S	W												
																		the property.
2	Horse chestnut, Holly, Pine, Privet, Fir, Ash. Beech, Larch.	14.5	-	-	-	-	<400	<4.8	-	0	-	< Mature	Fair	Fair	20+	B1	<p>Small woodland area.</p> <p>Trees are spaced well and in general good condition.</p> <p>There is a large ash on the boundary in the middle of the woodland between the subject site and the neighbouring property whose diameter exceeds that of the group. It has two stems from ground level. There is a cavity at the base of the tree and a dryads saddle bracket on in the western most stem. The owner of the tree was made aware of its condition during the site visit and will take any appropriate action as necessary.</p>	The group will be adequately protected by the position of the barrier as indicated on the Tree protection plan.

## **Appendix 2**

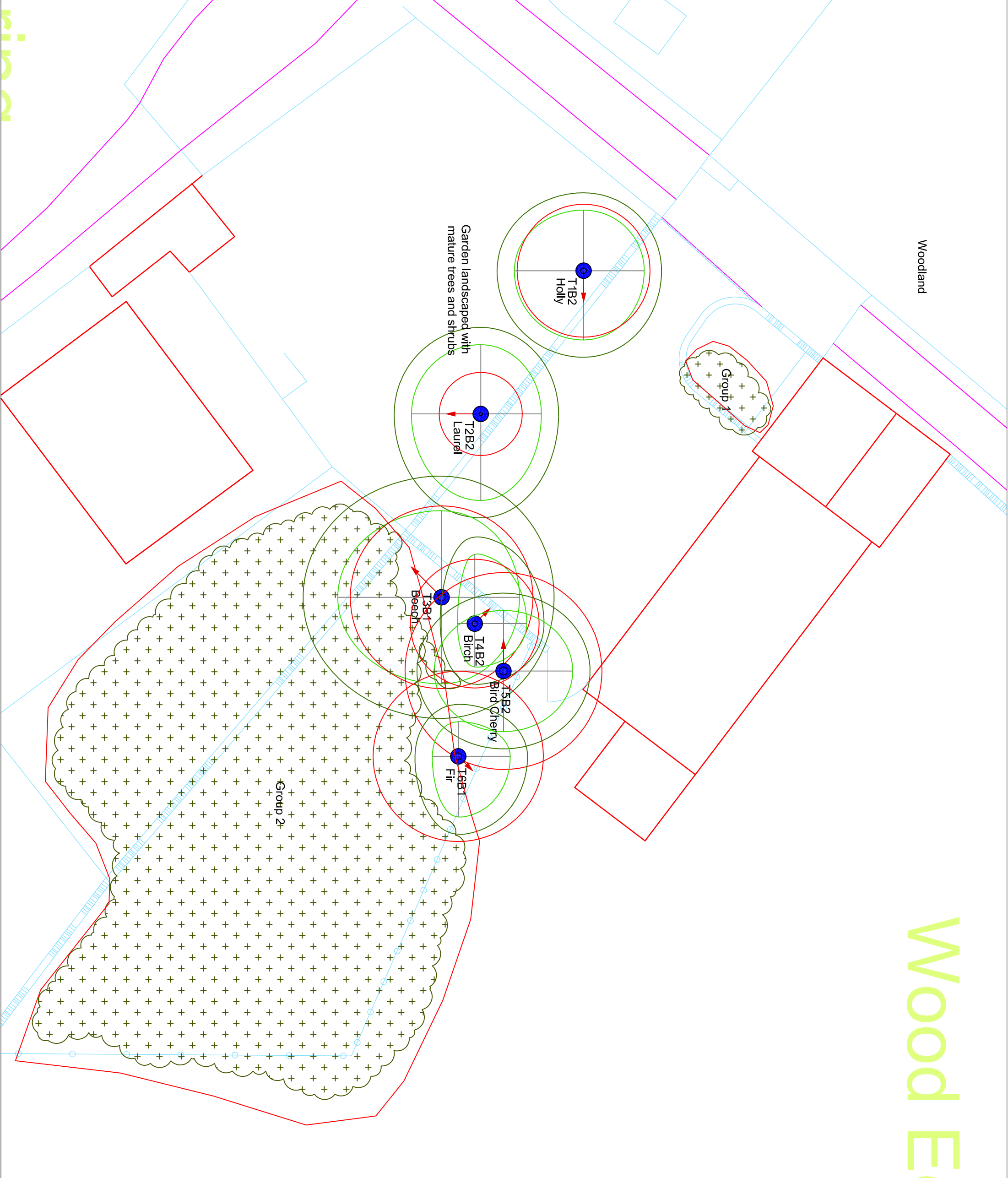
### **Plans**

Existing Tree Location Plan









Tree Protection Plan

# Wood Edge

Woodland



## Key

-  Trunk Position
-  Tree Number and Category Rating  
B - Moderate
-  B - Moderate Category with Blue Centre
-  Canopy Spread - Light green
-  Proposed Canopy Spread - Dark Green surrounding light green
-  Root Protection Area (as per calculations in BSS5837 - 2012)
-  Direction of First Significant Branch
-  Group

Existing Tree Location Plan  
Wood Edge Cottage, Aukside  
Middleton in Teesdale

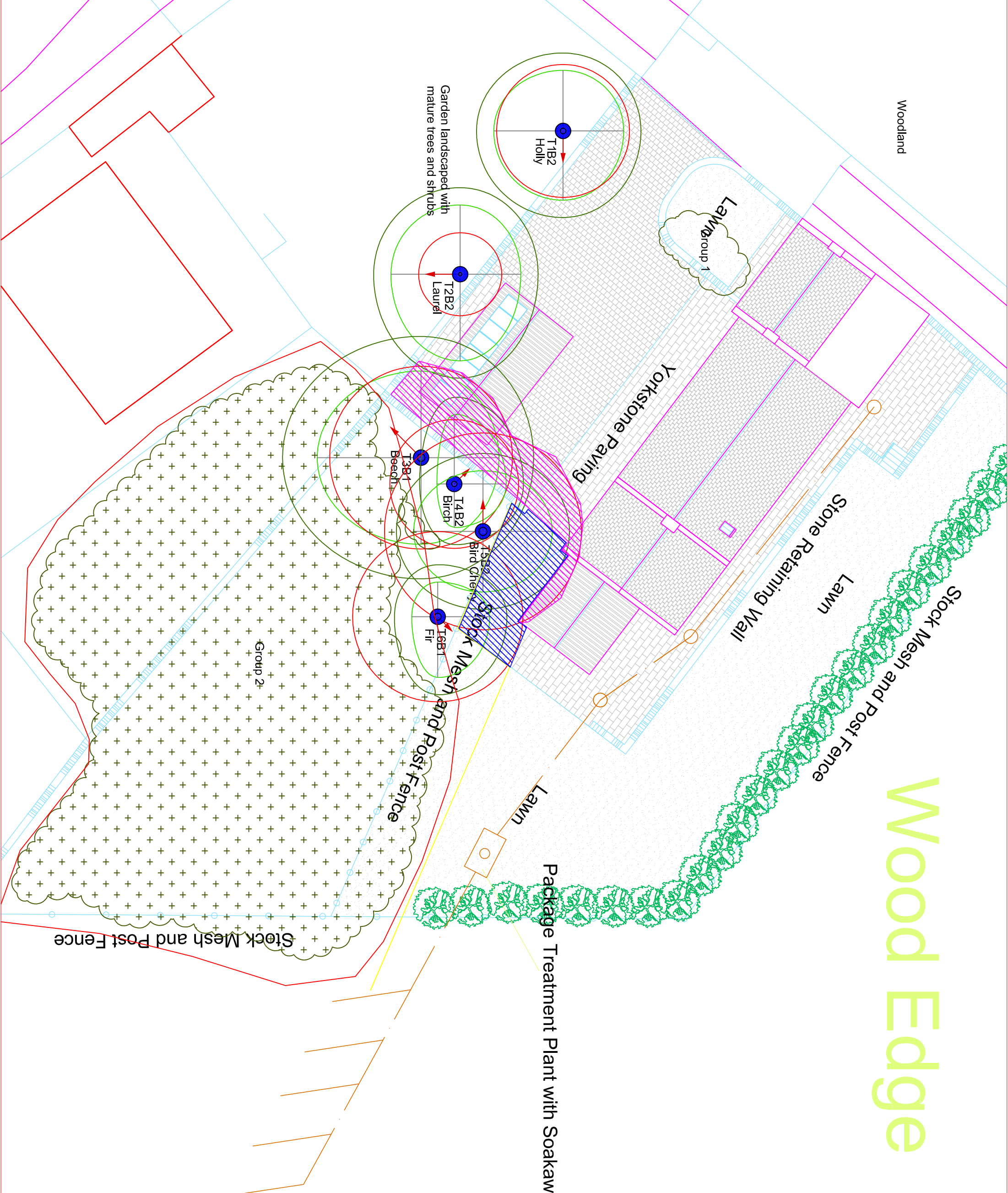
1:200  
at  
A3

No.: ETLP-A

Drawn By: CR

Date: August 2021

# Wood Edge



Woodland

Lawn Group 1

Yorkstone Paving

Stone Retaining Wall

Lawn

Stock Mesh and Post Fence

Lawn

Package Treatment Plant with Soakaway

Garden landscaped with mature trees and shrubs

T1B2 Holly

T2B2 Laurel

T3B1 Beech

T4B2 Birch

T5B2 Bird Cherry

T6B1 Fir

Group 2+

Stock Mesh and Post Fence

Key	
	Trunk Position
	Tree Number and Category Rating B - Moderate
	B - Moderate Category with Blue Centre
	Canopy Spread - Light Green
	Proposed Canopy Spread - Dark Green surrounding light green
	Root Protection Area (as per calculations in BSS5837 - 2012)
	Direction of First Significant Branch
	Group
	Protective Barrier
	Hand dig only area (magenta hatching)
	Ground Protection Measures required (Blue hatching)

Tree Protection Plan  
Wood Edge Cottage, Auckside,  
Middleton in Teesdale

1:200  
at  
A3

No.: TPP-A

Drawn By: CR

Date: August 2021