

ARBORICULTURAL REPORT

35a Torton Hill Road, Arundel
BN18 9HF

Prepared by

Jonathan Rodwell Cert Arb L4(ABC); TechArborA

April 2022



Beechdown ref: B/0368/22

35a Torton Hill Road – BS 5837 tree survey/report – April 2022

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Appendices:

1 - Tree survey. 2 - Definition of terms. 3 - BS 5837 grading categories. 4 - Tree constraints plan. 5 - Development proposal plan. 6 - Tree protection plan. 7 - Protective barriers. 8 - Site visit and arboricultural supervision record. 9 - Record of arboricultural monitoring. 10 - Geoweb tree root protection installation guide.

SUMMARY

- The quality of 21 trees within influence of a development proposal was assessed;
- an arboricultural impact assessment of the development proposal was prepared;
- the proposal is for construction of a single-storey outbuilding in place of the existing garage;
- the loss of poor-quality trees within influence of the development proposal will have little overall impact on the arboricultural characteristics of the site and can be mitigated to some extent with appropriate planting on the southern boundary;
- precautionary measures will be required to protect the retained trees throughout the development process.

Details

- Date of tree survey - 11th April 2022
- Present at tree survey - Jonathan Rodwell Cert Arb L4(ABC); TechArborA
- Date of report - 19th April 2022

Contact details

<u>Local Planning Authority</u>	Arun District Council	Tel - [REDACTED] Email - [REDACTED]
<u>Architects</u>	Watershedd	Tel - [REDACTED] Email - [REDACTED]
<u>Arboricultural Consultants</u>	Beechdown Arboriculture Ltd	[REDACTED]

References

Roberts, J. Jackson, N. Smith, M. (2006). *Tree Roots in the Built Environment*. The Stationery Office
BSI British Standards (2012) BS 5837:2012 *Trees in relation to demolition and construction – Recommendations*, Fourth (Present) Edition. BSI

Jonathan Rodwell Cert Arb L4(ABC); TechArborA
Beechdown Arboriculture Ltd

19th April 2022

1.0 Introduction

1.1 I have received instruction from Adam Casey to provide arboricultural consultancy with regard to proposed development at 35a Torton Hill Road, Arundel BN18 9HF.

1.2 The purpose of the instruction was to:

- ✦ Assess the quality of any trees that could be affected by the proposed development.
- ✦ Prepare an arboricultural impact assessment evaluating the effects of the development proposal.
- ✦ Prepare a method statement and tree protection plan.

1.3 The survey was conducted and the report prepared with reference to the guidelines detailed in BS 5837:2012 "Trees in relation to design, demolition and construction – Recommendations" and according to good arboricultural practice.

1.4 Contents of the report are exclusively for the use of the client; liability does not extend to any third party without our written consent.

2.0 Documents Provided

2.1 Drawings provided by Watershedd:

22005-001	Existing site plan	1:200@A1
22005-100	Proposed outbuilding plan	1:200@A1

3.0 Survey Format

3.1 Trees included in the survey were those with the potential to be affected by the development proposal and with a stem diameter, at 1.5m high, greater than 75mm. The trees were inspected from the ground only and no specialist decay detection was undertaken. Trees were assessed from within the site or from public areas.

- 3.2 The tree identification numbers used are for the purpose of this report and may not reflect numbering used in previous surveys or Tree Preservation Orders.
- 3.3 Data was recorded on a handheld computer, the individual trees plotted via GPS and their positions marked on the 1:200 @ A3 tree constraints plan (Appendix 4).
- 3.4 A detailed tree survey sheet is shown as Appendix 1 with an explanation of the terms and categories covered as Appendix 2.
- 3.5 The extent of the survey was limited to collecting sufficient data to inform upon the feasibility of the proposed development, it was not a detailed tree hazard or risk assessment and, unless specified, no guarantee, expressed or implied, can be given regarding the safety of the trees or their suitability for safe long-term retention.

4.0 Grading Categories

- 4.1 The quality of the surveyed trees was assessed and they were categorised to reflect the criteria recommended in Table 1 of BS 5837:2012 as detailed at Appendix 3.
- 4.2 The following is a breakdown of the number of trees in each BS category.

Category U	0 trees
Category S	0 trees
Category B	7 trees
Category C	14 trees

5.0 Statutory Controls

- 5.1 Consultation with the Local Planning Authority confirmed the application site is not within a designated Conservation Area but that the recorded trees may be subject to Tree Preservation Order **TPO/AB/1/19**.

6.0 Development Proposal

- 6.1 The proposal is for demolition of the existing dilapidated single garage and construction of a single-storey outbuilding in its place.

7.0 Site Description

- 7.1 35a Torton Hill Road is a detached two-storey dwelling with separate single-storey garage set in grounds of around 0.15ha (**Fig.1**). Access to the property from Torton Hill Road is via a driveway that slopes down to a parking area in front of the house. A level terrace extends to the rear of the house before lawns slope down to the dilapidated garage on the southern boundary and a second access via a five-bar gate in the south-west corner of the grounds. A close-board fence extends along the north and west boundaries with a 5m high clipped yew hedge forming the eastern boundary and a chain-link fence on the boundary between the garage and 37 Torton Hill Road.



Fig.1 – 35a Torton Hill Road (Image courtesy of Google Maps (map data © 2021 Google))

- 7.2 The dwelling is in a suburban location with individual trees or small groups as roadside planting, in domestic settings, in copses between areas of development and with extensive mixed-species woodland a little to the west.

8.0 Tree Survey

- 8.1 With the exception of the English oak (T21) in the garden of 37 Torton Hill Road, the recorded trees were all in the grounds of 35a Torton Hill Road. Trees and shrubs too small to be recorded or beyond influence of the proposed development included a broad belt of holm oak, Portuguese laurel, holly, western red cedar, cherry, laburnum, plum and *Viburnum* in the border between the garden and Torton Hill Road and magnolia, snowberry, spotted laurel, hazel and lilac in beds around the garden

9.0 Tree Appraisal

- 9.1 Individual tree details and comments are listed in the appended BS 5837 survey schedule detailed at Appendix 1. Details of the trees that I consider require further explanation or comment are noted below.

- ✦ **Horse chestnut** (T2); *Category C* – a poor quality, suppressed boundary tree with apical dieback.
- ✦ **Leyland cypress** (T3); *Category C* – a wound and exposed tissue on the lower stem are consistent with historic bonfire damage; good vitality and full, healthy crown but exposed dysfunctional tissue low on the stem, although sound at present, represents a potential failure point.
- ✦ **Sycamore** (T6); *Category C* – a poor quality tree in decline; apical dieback with two or three large dead stems; bark loss and exposed tissue on the main and lower stem.
- ✦ **Lawson cypress** (T4), **yew** (T7-T9) & **western red cedar** (T10 & T11); *Category C* – a widely spaced row of suppressed trees on the southern boundary; a lapsed hedge that provides little in the way of low-level screening between the properties.

10.0 Below Ground Constraints – Root Protection Area (RPA)

- 10.1 Section 3.7 of BS 5837: 2012 states that – *“The Root Protection Area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.”*
- 10.2 The RPA calculations have been produced using the information gathered from the tree survey and section 4.6.1 of BS 5837:2012. This indicates the RPA in m² and the minimum required all round radial distances for rooting zone protection and allows a view to be taken as to whether the trees can be retained safely without undue damage to their root systems. The RPA calculations are detailed in the appended tree survey and the initial dimensions marked on the 1:200 @ A3 tree constraints plan (Appendix 4).
- 10.3 Tree root morphology can be affected by numerous factors; availability of water, aeration, soil type, temperature and structure, compacted or impervious surfaces and proximity to buildings and other structures all affect the way roots develop and although the RPAs are marked on the plan as uniform polygons the actual root systems will be far more irregular. Root mapping or hand excavation under arboricultural supervision could determine whether significant roots extend beyond the RPAs and require greater protection in relation to construction or whether it may be possible to develop within the RPA without a negative impact on the rooting environment.
- 10.4 The recorded trees are growing in unsurfaced ground but with the impermeable hard surfaces of the pavement, driveways and Torton Hill Road having some impact on the RPA of the mature English oaks (T13 & T21); however, with fine moisture-absorbing roots able to exploit the condensation build-up immediately below the tarmac surface there is no reason that the nominal RPAs should vary significantly from those indicated at Appendix 4.

11.0 Above Ground Constraints

- 11.1 Consideration should be given to the effects that the current tree size, future growth potential, shade levels and leaf and fruit nuisance may have on the proposed development. Tree height and crown spread measurements are detailed in the appended tree survey; the crown spread of the trees and the shadow pattern through the main part of the day is indicated on the 1:200 @ A4 tree constraints plan (Appendix 4).

12.0 Comment

- 12.1 The 1:200 @ A3 tree constraints plan and development proposal plan (Appendix 4 & 5) show that both the existing garage and proposed outbuilding are fully within the combined RPA of recorded trees at the southern end of the garden.
- 12.2 The existing dilapidated garage appears to have strip foundations and a concrete floor and may have had some impact on root development of the adjacent trees. It is unlikely that the existing foundations can be utilised for the proposed outbuilding and with construction taking place entirely within the combined RPA any further excavation for strip foundations is likely to damage roots, disturb the rooting environment and have a significant impact on tree health. Installation of a piled-foundation - following hand excavation or compressed air soil displacement to identify root-free locations for the piles - supporting a concrete slab will minimise the risk of damage to roots and the rooting environment. The existing garage appears not to have had an obvious impact on tree health but careful removal of the existing hard-surface and use of a 150mm biodegradable void former beneath the piled slab foundation will allow gaseous exchange and water infiltration where the foundation interacts with the RPA and potentially improve the rooting environment.
- 12.3 Although it may be possible to construct the outbuilding and retain all the recorded trees, the horse chestnut (T2), Leyland cypress (T3) and sycamore (T6) are poor quality and have a limited future whether the development proceeds or not. Loss of the category C boundary trees will allow room to plant a conservation mix hedgerow that will provide better low-level screening and improve biodiversity.
- 12.4 The proposed gravel driveway is permeable and will provide an appropriate surface for pedestrians. If vehicle access or parking is required a load displacing, three-dimensional cellular confinement system, or similar, that leaves soil within the RPA undisturbed should be used.
- 12.5 The level of tree cover means that, as for the existing garage, the proposed outbuilding will be in shade for the majority of the day. I do not consider the current or future growth of the retained trees to have a greater impact on the proposed development than on the existing building.

13.0 Conclusion

- 13.1 With appropriate precautionary measures I consider the proposed development at 35a Torton Hill Road feasible, in relation to the surveyed trees, for the following reasons.

- » Loss of poor-quality trees within influence of the development proposal will have little overall impact on the arboricultural characteristics of the site and can be mitigated to some extent with appropriate planting on the southern boundary.
- » I do not consider current or future growth of the retained trees to have a greater impact on the development proposal or to lead to increased pressure for removal or unsympathetic pruning any more for the proposed development than for the existing building and site use.
- » The use of protective barriers, precautionary measures and arboricultural supervision and monitoring will prevent damage and potentially negative effects on the current and long-term health of the trees.

ARBORICULTURAL METHOD STATEMENT

The arboricultural method statement includes the following plans.

Appendix 6	1:100@A3	Tree protection plan showing position of: ♦ trees to be retained with a continuous outline. ♦ Trees to be removed with a broken outline.
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14.0 Protective Barriers and Construction Exclusion Zone.

- 14.1 Prior to the commencement of construction work and before any machinery or materials are brought onto the site, protective barriers, marked as a ~~blue broken line~~ on the tree protection plan (Appendix 6), must be erected, around the vulnerable Root Protection Area (RPA) to create a construction exclusion zone beyond the working area.
- 14.2 The construction exclusion zone, shown as ~~light purple horizontal hatching~~ on the tree protection plan, will be afforded protection at all times during the development process; strictly no access, construction activities, mixing materials or storage will be allowed.
- 14.3 The barriers will have weather proof signs attached stating that it is protecting a **“construction exclusion zone”** and that **“no works are permitted”** beyond the barrier; the protective barrier should remain in place for the duration of the development process.
- 14.4 The protective barriers should be positioned in accordance with the tree protection plan and would typically be constructed as per figure 2 of BS 5837:2012 (shown at Appendix 7) and consist of a vertical and horizontal scaffold framework, well braced to resist impacts with vertical tubes spaced at a maximum interval of 3m and driven securely into the ground and onto which weld mesh panels would be fixed with wire or scaffold clamps. Care should be taken when locating the vertical and bracing poles to avoid roots; if the presence of roots or hard surfaces precludes the use of driven poles, above ground stabilising using struts mounted on a block tray, constructed as per figure 3 b) of BS 5837:2012 may be used.

15.0 Ground protection

- 15.1 Ground protection should be positioned to protect the vulnerable RPA before site work commences. The type of ground protection will reflect the level of site activity - scaffold planks or sterling board placed on a compressible layer of 100mm depth of woodchips over a geotextile membrane suitable for protection of the lightweight or infrequent pedestrian activity between the garage, protective barrier and boundary fence. Proprietary ground protection sheets or heavy-duty access mats, i.e. Euro Trak should be installed in the area between the garage, road and protective barriers to provide a working area for the piling rig, site traffic, deliveries of materials and removal of waste.

16.0 Demolition

- 16.1 Demolition of the existing garage will take place beyond the fenced RPA of retained trees, from within the footprint of the building or from the ground protected RPA. Arboricultural supervision of the demolition process will manage any risk of damage to the retained trees. Practical measures may include:
- ✧ repositioning temporary fencing to maintain protection as site clearance progresses;
 - ✧ use a top-down pull-back approach to demolition from within the footprint of the building;
 - ✧ demolition waste to be removed by hand or with machinery sited outside the RPA;
 - ✧ no excavation or changes to soil level within RPA after demolition;
 - ✧ 100mm of top soil should be spread by hand if roots exposed on removal of existing hard surfaces;
 - ✧ appropriate pruning, tying back branches or temporary protection of stems;
 - ✧ if the demolition is undertaken during the summer months it may be necessary to hose down the trees if there is an accumulation of dust on the foliage.

17.0 Foundation Construction

- 17.1 Use of a piled slab foundation for the garage will minimise risk to the RPA of retained trees. This foundation will leave the soil level within the RPA of the surveyed trees unchanged. A 150mm biodegradable void former will allow gaseous exchange and water infiltration where the foundation interacts with the RPA. The piles should be sleeved to a depth of 3m to reduce friction and the potential for heave; the sleeved piles will also reduce the potentially harmful effects of uncured concrete on tree roots.

- 17.2 The location of the individual piles should follow hand excavation under - arboricultural supervision - or compressed air soil displacement, to a depth of at least 600mm, to avoid significant roots or root masses and prevent root severance. Use of the smallest sized pile possible will both reduce the risk of hitting and damaging significant roots and limit the size of the piling rig required. The piling rig will operate from the ground protection over the vulnerable RPA.

18.0 Surfacing and Infrastructure Requirements

- 18.1 For vehicle access and parking, construction of the new driveway should utilise a no-dig specification with a porous and permeable base layer and surface finish. Appendix 10 provides a detailed installation guide for the Geoweb® tree root protection no-dig Three-Dimensional Cellular Confinement System as summarised below:
- ✧ Existing surface vegetation to be removed by hand or treated with herbicide as agreed with Local Planning Authority (LPA).
 - ✧ Create a level subgrade by filling any hollows with permeable material, i.e. clean stone or sharp sand rather than removing or grading humps that may contain roots.
 - ✧ To help prevent pollution contamination of the RPA a non-woven geotextile should be laid on the level subgrade.
 - ✧ The new surface will be formed from 75mm deep Geoweb panels placed on the geotextile and joined end to end.
 - ✧ The Geoweb panels will be filled with porous, no-fines 4-20mm clean angular stone and using the already filled panels as the working platform.
 - ✧ Pegged treated timber may provide suitable edging.
 - ✧ The finished surface must be permeable to moisture penetration and agreed with the LPA.
- 18.2 Excavation for the new drainage run linking to the existing drains takes place beyond the RPA of retained trees. The following precautions will avoid potential damage during trenching and excavation.
- ✧ Hand excavation of the 100mm topsoil will establish the presence of roots;
 - ✧ exposed roots or fibrous root masses that are to be retained should be immediately covered – with hessian or similar - to prevent drying;
 - ✧ individual roots less than 25mm diameter that need to be removed should be cleanly severed, with secateurs or a pruning saw;
 - ✧ if larger roots are encountered the project arboriculturalist will determine whether it is possible to sever roots greater than 25mm diameter or whether they should be retained and allowed to bridge the trenches;

- 18.3 Undisclosed siting of service runs, above ground services, CCTV cameras, electrical sub-stations, refuse stores, lighting and other infrastructure requirements can lead to unnecessary tree pruning or root loss during or post development. Should any infrastructure requirements become necessary post planning their design should be discussed with the project arboriculturalist and, if necessary, the permission of the local planning authority obtained.

19.0 Additional Precautions

- 19.1 No storage or mixing of materials to take place within the construction exclusion zone or in the ground protected RPA.
- 19.2 No storage or mixing of materials will take place in any location where they may leak into the construction exclusion zone or RPA.
- 19.3 Materials which may contaminate the soil will not be discharged within 10m of the tree stems or mixed in any location where gradients allow contaminants to run towards RPAs.

20.0 Supervision and Monitoring

- 20.1 It will be the responsibility of the main contractor to ensure that any conditions attached to the planning consent are adhered to at all times and that a monitoring regime with regard to tree protection on site is adopted.
- 20.2 An arboriculturalist should be appointed to monitor tree protection measures and address any arboricultural issues that may arise.
- 20.3 The project arboriculturalist should mark the positions of the protective barriers and inspect them once erected and prior to site work commencing.
- 20.4 In addition to any scheduled supervision, regular site visits to inspect the protective barriers may be required. Frequency of the visits is dependent on the progress of the development but should take place every two to four weeks of continuous site activity.
- 20.5 A copy of a site visit and arboricultural supervision record is shown at Appendix 8.
- 20.6 A copy of an arboricultural monitoring record is shown at Appendix 9.

- 20.7 The main contractor will be responsible for ensuring subcontractors comply with the arboricultural method statement and do not undertake any operation that is likely to impact adversely upon any tree on site.
- 20.8 The main contractor will ensure that the build sequence is appropriate to ensure that no damage occurs to the trees during the development process.

21.0 Sequence of Events

21.1 Sequence of tree protection measures in relation to phases of development.

<u>Site meeting</u>	Project arboriculturalist to discuss tree protection measures with architect/developer and local authority arboricultural officer.
<u>Protective barriers</u>	Installation of protective barriers prior to construction.
<u>Arboricultural supervision</u>	Arboricultural supervision of demolition and hand-excavation to locate piles.
<u>Monitoring</u>	Arboricultural monitoring every two to four weeks of continuous site activity.
<u>Protective barriers</u>	Removal of protective barriers on completion of development proposal.

- 21.2 Should circumstances arise where unscheduled work may impact upon trees or tree protection the work should cease until the project arboriculturalist has been consulted and the local planning authority arboricultural officer informed.

BS5837:2012 Tree Survey

Beechdown Arboriculture Ltd

Client: Watershedd
 Project: 35a Torton Hill Road
 Survey Date: 11/04/2022
 Surveyor: Jonathan Rodwell Cert Arb L4(ABC); TechArborA

Club Cottage, Top Road
 Slindon
 Arundel
 West Sussex
 BN18 0RP
 Phone: 01243 814740

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations		Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment		
T1												
Sycamore <i>Acer pseudoplatanus</i>	19	1	420	N E S W	6 5 5 6	8 6 2 2	M A: 79.8 R: 5.03	Fair	C: Fair S: Fair B: Fair			B.1 20 to 40 yrs
T2												
Horse Chestnut <i>Aesculus hippocastanum</i>	7	1	310	N E S W	4 5 3 2	2.5 2 3 2.5	M A: 43.5 R: 3.72	Poor	C: Poor S: Fair B: Fair	Poor quality suppressed tree with apical dieback.		C.1 10 to 20 yrs
T3												
Leyland Cypress <i>X Cupressocyparis leylandii</i>	20	1	570	N E S W	6 4 5 4	8 6 4 3	M A: 147 R: 6.84	Good	C: Fair S: Poor B: Poor	Wound and exposed tissue on lower stem consistent with old bonfire damage. Exposed dysfunctional tissue appears sound but represents a potential failure point.		C.1 10 to 20 yrs
T4												
Lawson Cypress <i>Chamaecyparis lawsoniana</i>	6	1	90	N E S W	1 1 1 1	2 2 2 2	SM A: 3.7 R: 1.08	Fair	C: Fair S: Fair B: Fair			C.1 10 to 20 yrs

Age Classifications:	N	Newly planted	EM	Early Mature	Condition:	C	Crown	Stems:	Ø	Diameter
	Y	Young	M	Mature		S	Stem		(Eq)	Equivalent stem diameter using BS5837:2012 definition
	SM	Semi-mature	OM	Over Mature		B	Basal area		ERC:	Estimated Remaining Contributio

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations		Cat ERC
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment		
T5													
Yew	7	1	140	N	3	2	SM	A: 8.9	Fair	C: Fair			C.1
<i>Taxus baccata</i>				E	2	2		R: 1.68		S: Fair			>40 yrs
				S	2	3				B: Fair			
				W	1	2							
T6													
Sycamore	20	2	523 (Eq)	N	6	5	M	A: 124	Decline	C: Poor			C.1
<i>Acer pseudoplatanus</i>				E	6	6		R: 6.28		S: Poor			<10 yrs
				S	5	2				B: Poor	Poor quality tree in decline; apical dieback with two or three large dead stems; bark loss and exposed tissue on the main and lower stem.		
				W	6	6							
T7													
Yew	7	1	180	N	2	2	SM	A: 14.7	Fair	C: Fair			C.1
<i>Taxus baccata</i>				E	2	2		R: 2.16		S: Fair			>40 yrs
				S	2	3				B: Fair			
				W	1	2							
T8													
Yew	7	1	90	N	1	2	SM	A: 3.7	Fair	C: Fair			C.1
<i>Taxus baccata</i>				E	1	2		R: 1.08		S: Fair			>40 yrs
				S	1	3				B: Fair			
				W	1	2							
T9													
Yew	6	1	140	N	2	3	SM	A: 8.9	Fair	C: Fair			C.1
<i>Taxus baccata</i>				E	1	2		R: 1.68		S: Fair			>40 yrs
				S	2	3				B: Fair			
				W	1	2							
T10													
Western Red Cedar	14	1	320	N	3	3	M	A: 46.3	Fair	C: Good			C.1
<i>Thuja plicata</i>				E	3	2		R: 3.83		S: Fair			10 to 20 yrs
				S	3	2.5				B: Fair			
				W	2	2							
Age Classifications: N Newly planted EM Early Mature Condition: C Crown Stems: Ø Diameter													
Y Young M Mature S Stem (Eq) Equivalent stem diameter using BS5837:2012 definition													
SM Semi-mature OM Over Mature B Basal area ERC: Estimated Remaining Contributio													

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations		Cat ERC
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment		
T11													
Western Red Cedar <i>Thuja plicata</i>		15	1	310	N	4	2.5	M	A: 43.5 R: 3.72	Fair	C: Good S: Fair B: Fair		C.1 10 to 20 yrs
T12													
Yew <i>Taxus baccata</i>		8	2	206 (Eq)	N	3	3	SM	A: 19.2 R: 2.47	Fair	C: Good S: Fair B: Fair		B.1 >40 yrs
T13													
English Oak <i>Quercus robur</i>		24	1	1090	N	8	5	M	A: 537.6 R: 13.08	Good	C: Fair S: Good B: Good		B.1 >40 yrs
T14													
Holly <i>Ilex aquifolium</i>		7	3	192 (Eq)	N	1	3	SM	A: 16.7 R: 2.3	Fair	C: Fair S: Fair B: Fair		C.1 10 to 20 yrs
T15													
Holly <i>Ilex aquifolium</i>		6	1	140	N	2	3	SM	A: 8.9 R: 1.68	Fair	C: Fair S: Fair B: Fair		C.1 10 to 20 yrs
T16													
Holly <i>Ilex aquifolium</i>		8	1	190	N	2	2	M	A: 16.3 R: 2.27	Fair	C: Fair S: Fair B: Fair		C.1 10 to 20 yrs
Age Classifications: N Newly planted EM Early Mature Condition: C Crown Stems: Ø Diameter Y Young M Mature S Stem (Eq) Equivalent stem diameter using BS5837:2012 definition SM Semi-mature OM Over Mature B Basal area ERC: Estimated Remaining Contributio													

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations		Cat ERC	
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
T17														
Western Red Cedar <i>Thuja plicata</i>		9	2	364 (Eq)	N E S W	4 2 3 4	2 3 2 2	M A: 59.9 R: 4.36	Fair	C: Good S: Fair B: Fair			C.1 10 to 20 yrs	
T18														
Robinia <i>Robinia pseudoacacia</i>		19	1	460	N E S W	10 6 1 8	8 8 8 8	M A: 95.7 R: 5.51	Good	C: Good S: Good B: Fair			B.1 20 to 40 yrs	
T19														
Atlas Cedar <i>Cedrus atlantica</i>		19	1	630	N E S W	8 5 3 6	3 3 4 5	M A: 179.6 R: 7.56	Good	C: Fair S: Fair B: Fair	Old wounds in upper crown consistent with historic storm damage.		B.1 20 to 40 yrs	
T20														
Whitebeam <i>Sorbus aria</i>		15	1	250	N E S W	5 5 2 3	5 6 6 7	M A: 28.3 R: 3	Good	C: Fair S: Fair B: Fair			B.1 20 to 40 yrs	
T21												Estimated Measurements		
English Oak <i>Quercus robur</i>		22	2	1070 (Eq)	N E S W	5 10 10 9	8 5 5 4	M A: 518.1 R: 12.84	Good	C: Fair S: Good B: Good			B.1 >40 yrs	
Age Classifications:		N	Newly planted	EM	Early Mature		Condition:		C	Crown	Stems:		Ø	Diameter
		Y	Young	M	Mature				S	Stem			(Eq)	Equivalent stem diameter using BS5837:2012 definition
		SM	Semi-mature	OM	Over Mature				B	Basal area	ERC:		Estimated Remaining Contributio	

Appendix 2 – tree survey definition of terms

<u>Tree ID/tag -</u>	Identification number and/or tree tag number.
<u>Species -</u>	Common and/or scientific name.
<u>Height (m) -</u>	To the nearest 0.5m below 10m; to the nearest 1m above 10m.
<u>Ø (mm)/No. of stems -</u>	Stem diameter measured at 1.5m or equivalent with reference to Annex C of BS5837:2012.
<u>First branch -</u>	Height above ground level and direction of first significant branch.
<u>Crown spread (m) -</u>	Measured at the cardinal points.
<u>Canopy height/clearance -</u>	Crown clearance in metres above ground level at the cardinal points.
<u>RPA -</u>	Root protection area (m ²) and length of radial protection (m).
<u>Age class:</u>	<i>Young -</i> Less than approximately 10 years old. <i>Semi-Mature -</i> Less than 1/5 of typical life expectancy. <i>Mature -</i> Between 1/5 and 5/5 of typical life expectancy. <i>Over-Mature -</i> Tree having reached its maximum life span and declining in health and size. <i>Veteran -</i> A tree that is of interest biologically, aesthetically or culturally because of its age, size or condition.
<u>Structural/physiological condition:</u>	General condition of tree crown, stem and basal area structure and form - assessed as: <i>Good -</i> Good form, structure and vitality; no apparent signs of decay, structural weakness, decline in health, pests or diseases. <i>Fair -</i> Moderate form and structure. <i>Poor -</i> Poor form or structure; significant decay, structural weakness or decline in vitality.
<u>BS 5837 category -</u>	BS grading category detailed at Appendix 3.
<u>ERC -</u>	Estimated remaining contribution.

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Trees Unsuitable for Retention

Category U Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years – shown in dark red on plans.

Trees To Be Considered for Retention

Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years - shown in light green on plans.

1 - Mainly arboricultural qualities – trees that are good examples of their species, especially if rare or unusual; or those that are essential components of groups, formal or semi-formal arboricultural features.

2 - Mainly landscape qualities – trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.

3 - Mainly cultural values, including conservation – trees, groups or woodlands of significant conservation, historical, commemorative or other value.

Category B Trees of moderate quality with an estimated life expectancy of at least 20 years - shown in mid blue on plans.

1 - Mainly arboricultural qualities – trees that might be included in category A but are downgraded because of impaired condition (e.g. presence of significant but remediable defects) to the extent that they are unlikely to be suitable for retention beyond 40 years; or trees lacking the particular quality necessary for category A designation.

2 - Mainly landscape qualities – trees present in numbers, usually growing as groups or woodlands, that attract a higher collective rating than they might as individuals; or groups of trees situated so as to make little visual contribution to the wider locality.

3 - Mainly cultural values, including conservation – trees with material conservation or other cultural values.

Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter under 150mm - shown in grey on plans.

1 - Mainly arboricultural qualities – unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.

2 - Mainly landscape qualities – trees present in groups or woodlands but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary landscape benefits.

3 - Mainly cultural values, including conservation – trees with no material conservation or other cultural values.

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35a Torton Hill Road
Appendix 4 - tree constraints plan

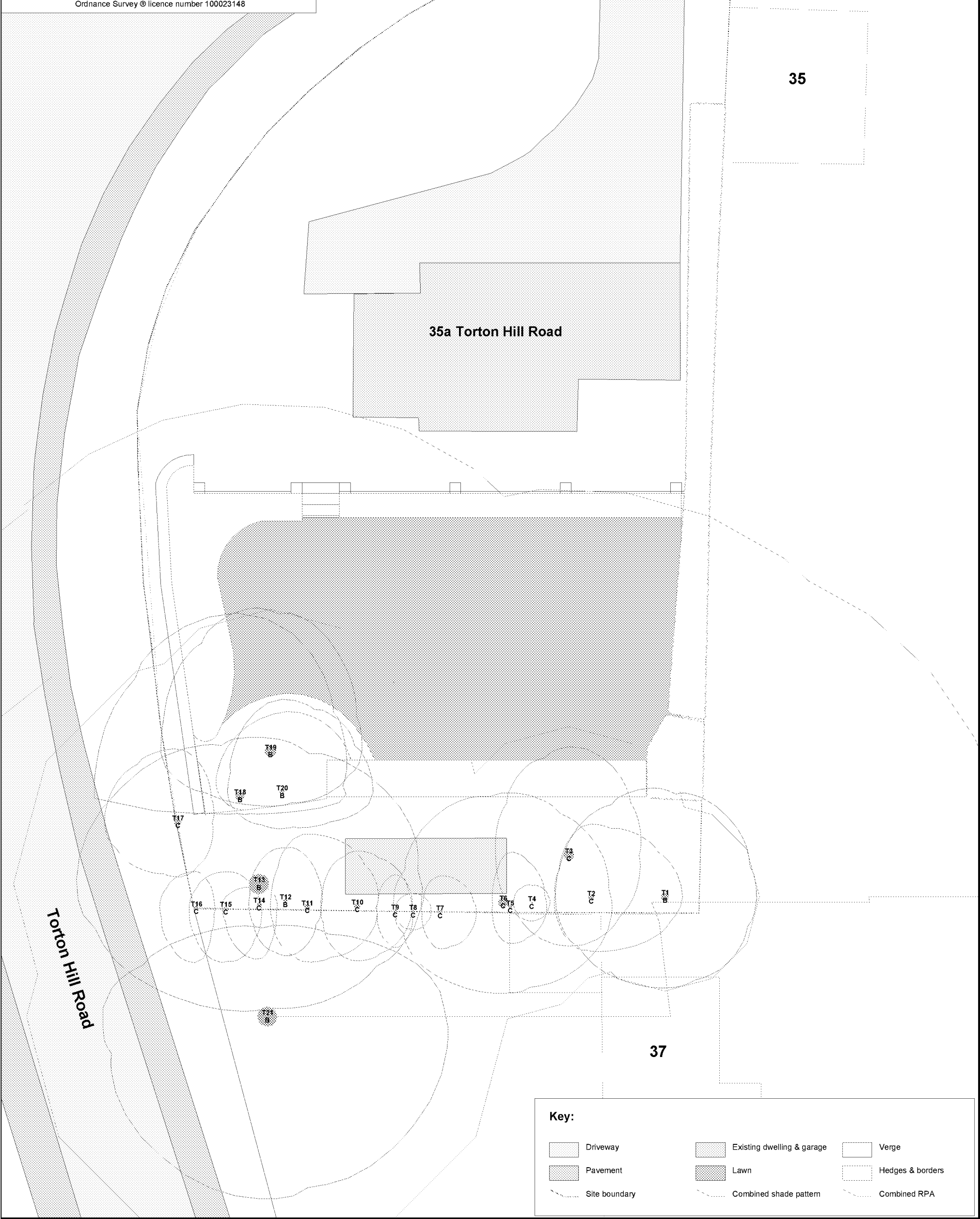
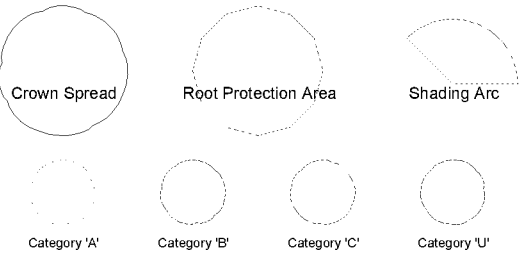
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19/04/2022



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Appendix 5 - development proposal plan

SCALE :
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19/04/2022

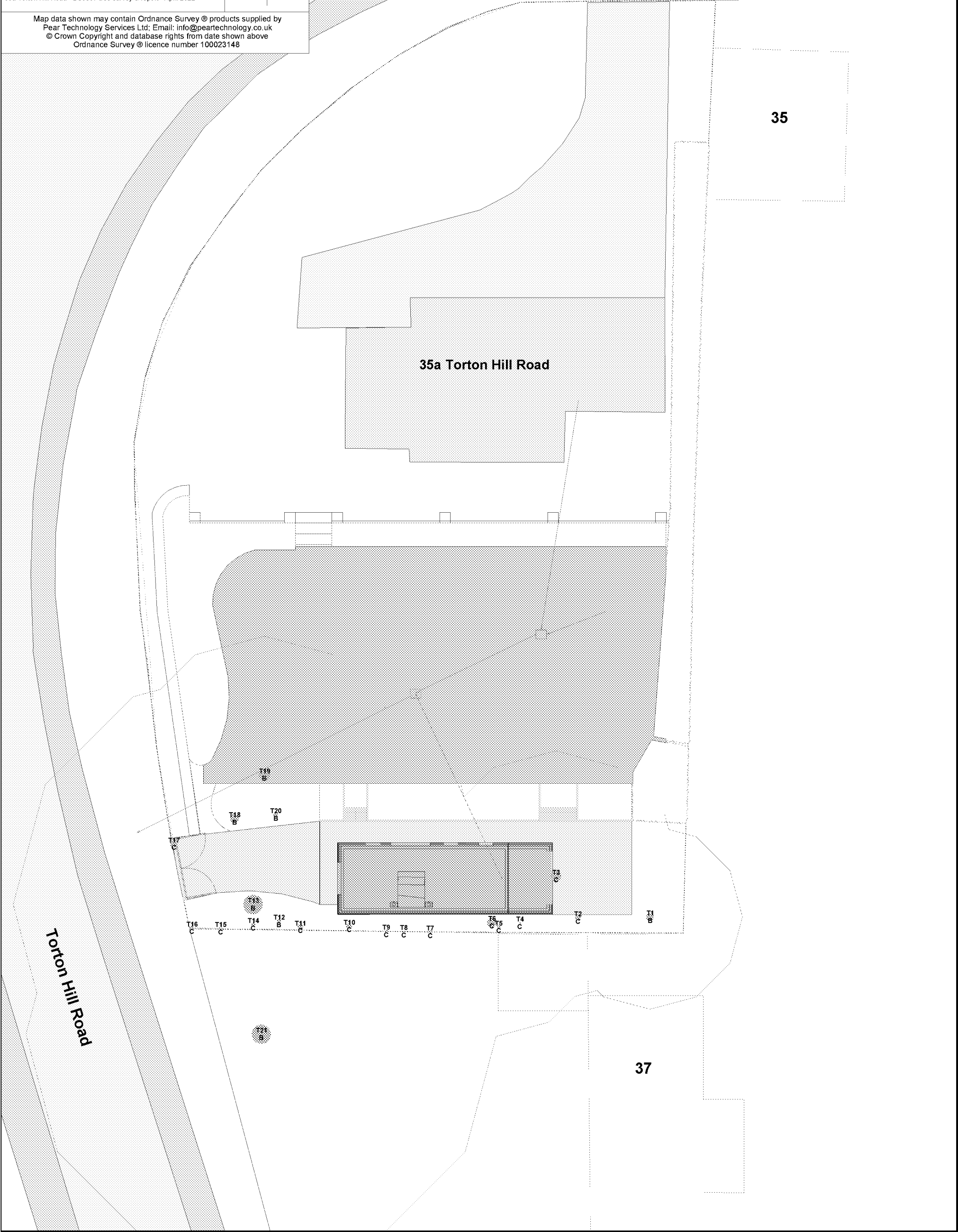


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Key:

- | | | |
|----------------------|----------------------------|----------------------|
| Driveway | Existing dwelling & garage | Verge |
| Pavement | Hedges & borders | New gravel driveway |
| New hard landscaping | Lawn | Development proposal |
| Site boundary | New gates | Existing drainage |
| New drainage | Combined RPA | |



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35a Torton Hill Road
Appendix 6 - tree protection plan

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Key:

- | | | |
|----------------------|-----------------------------|--------------------|
| Verge | Torton Hill Road | Pavement |
| Development proposal | Construction exclusion zone | Ground protection |
| Site boundary | Hedges & borders | Existing drainage |
| Protective barriers | New drainage | Category C removed |
| Combined RPA | | |

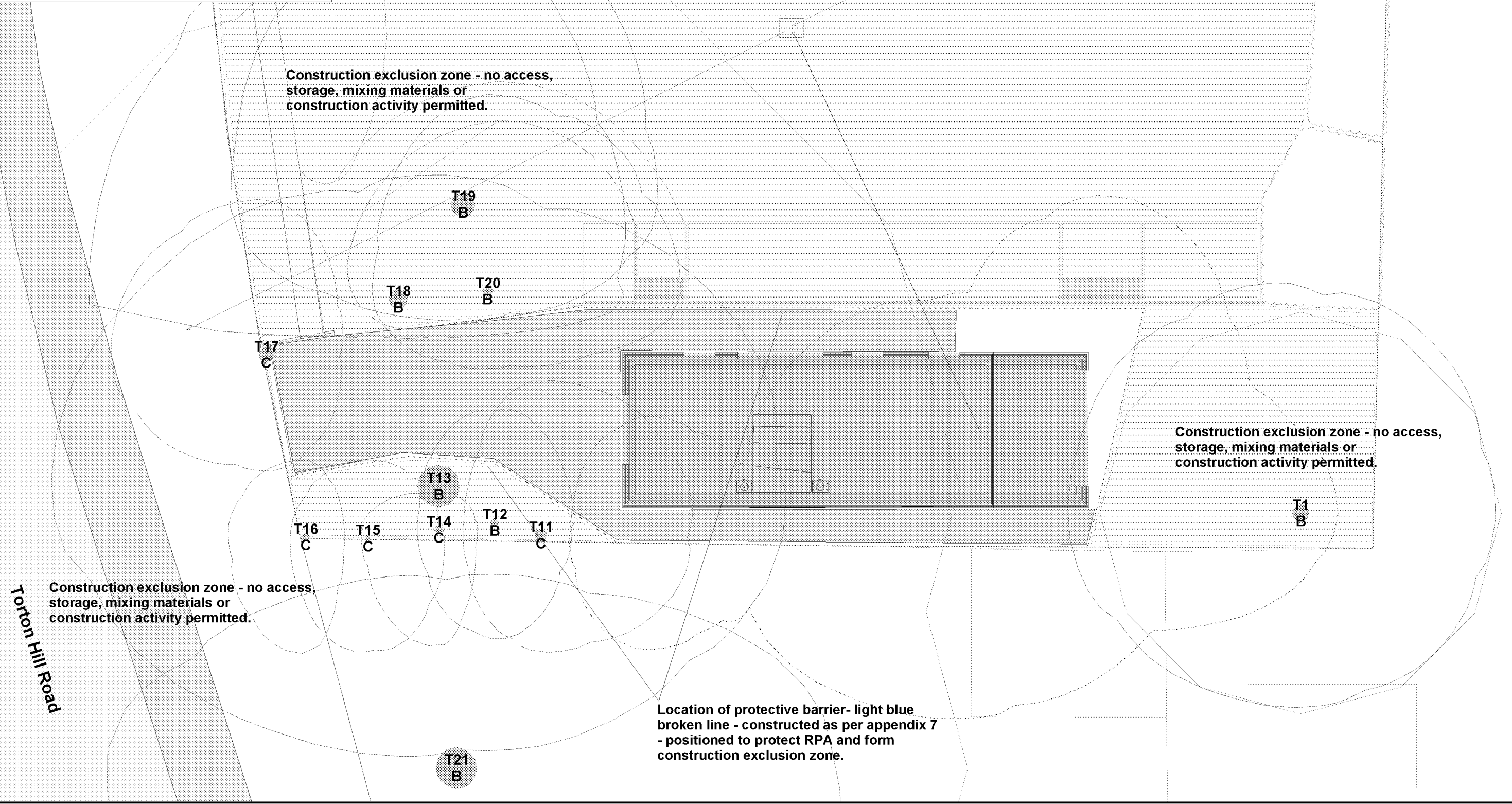
Construction exclusion zone - no access,
storage, mixing materials or
construction activity permitted.

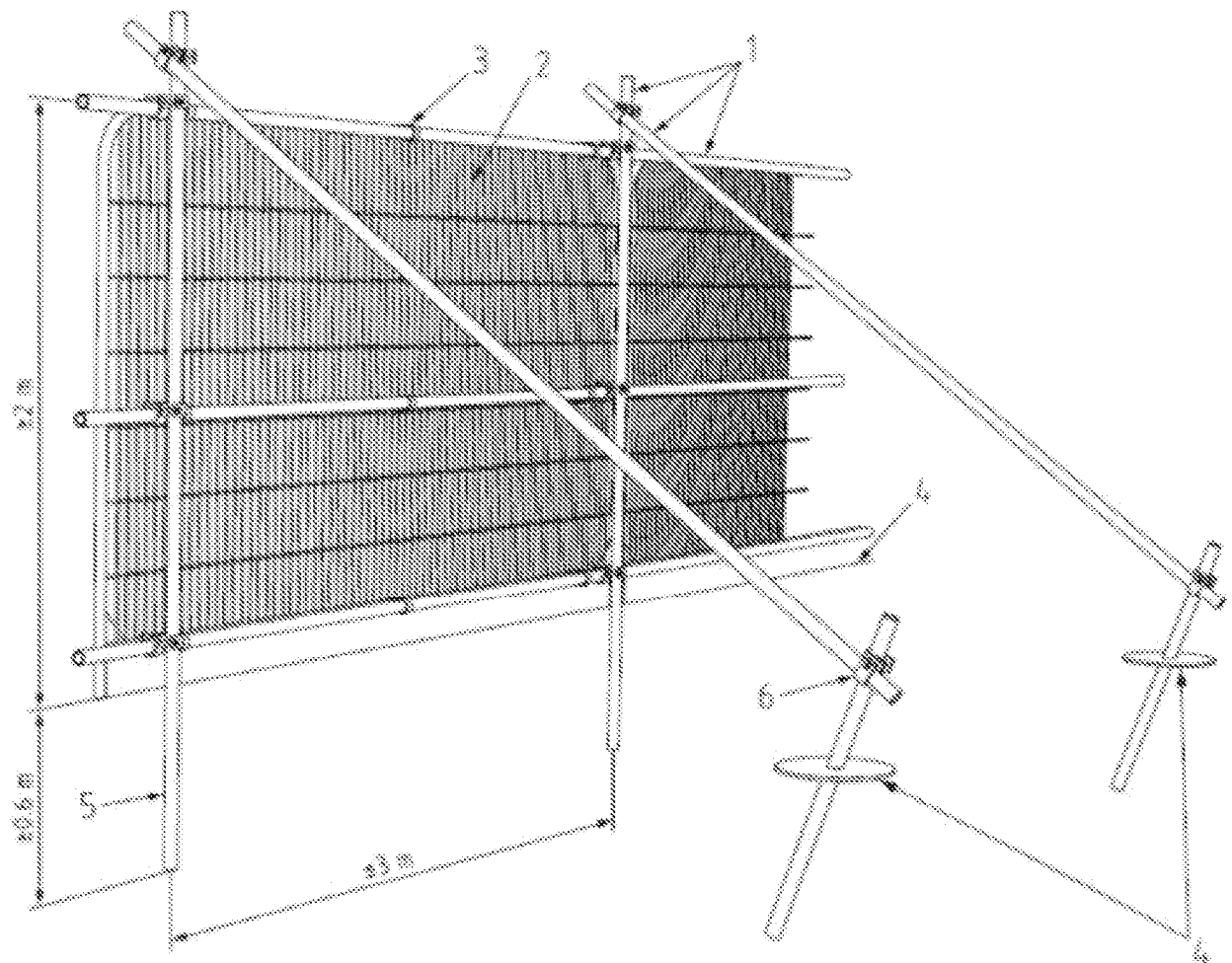
Construction exclusion zone - no access,
storage, mixing materials or
construction activity permitted.

Construction exclusion zone - no access,
storage, mixing materials or
construction activity permitted.

Location of protective barrier- light blue
broken line - constructed as per appendix 7
- positioned to protect RPA and form
construction exclusion zone.

Torton Hill Road

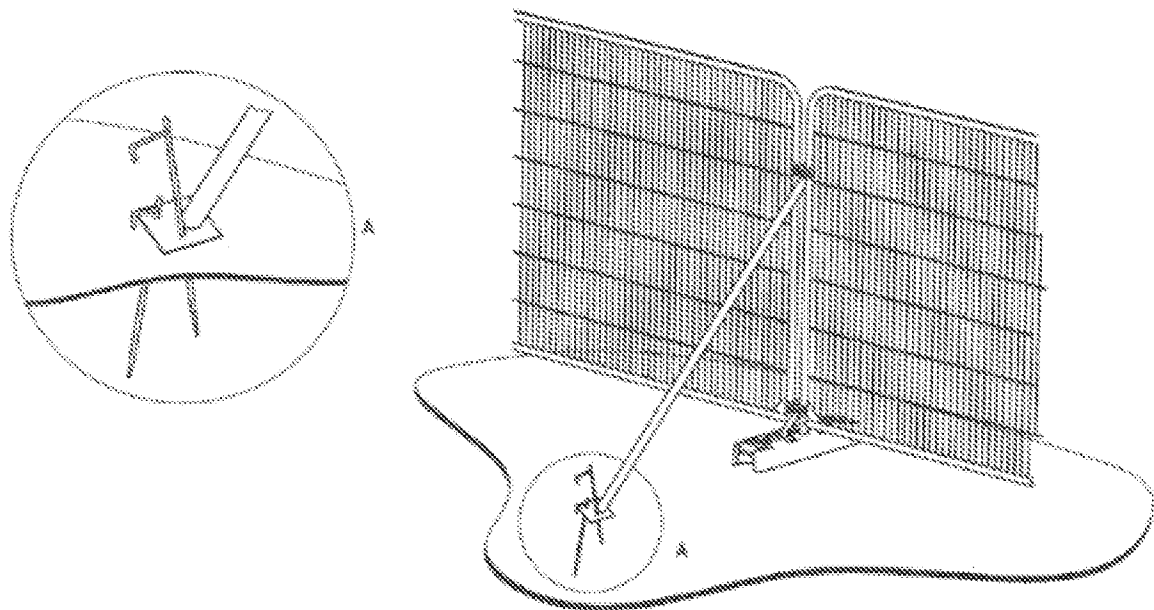




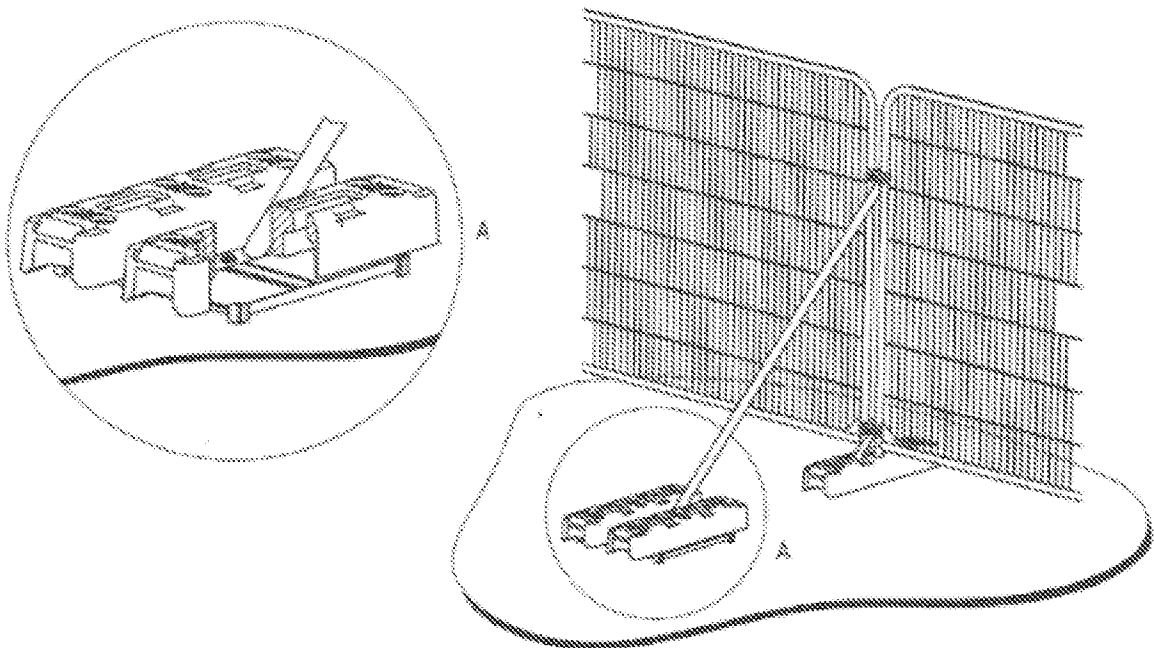
Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps

Default specification for protective barrier as per Figure 2 of BS 5837:2012 *Trees in relation to demolition and construction – Recommendations, Fourth (Present) Edition*. BSI



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Examples of above-ground stabilising systems as per Figure 3 of BS 5837:2012 *Trees in relation to demolition and construction – Recommendations, Fourth (Present) Edition*. BSI

Appendix B – Record of Site Visits and Arboricultural Supervision

Client	Adam Casey		Location	35a Torton Hill Road, Arundel BN18 9HF.
Local planning authority	Arun District Council			
Planning application	-			
Development	Demolition of the existing dilapidated single garage and construction of a single-storey outbuilding in its place.			

Stage of development	Action required
<u>Pre-construction</u>	Mark position of protective barrier forming construction exclusion zone.

Notes	
-------	--

Arboriculturalist	
Signed	
Date	

NOTE - COPY OF COMPLETED FORM TO BE SCANNED AND SENT TO LPA ARBORICULTURAL OFFICER

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35a Torton Hill Road – BC 5837 tree survey/report – April 2022

Appendix B – Record of Site Visits and Arboricultural Supervision

Client	Location	
Adam Casey	35a Torton Hill Road, Arundel BN18 9HF.	
Local planning authority	Arun District Council	
Planning application	-	
Development	Demolition of the existing dilapidated single garage and construction of a single-storey outbuilding in its place.	

Stage of development	Action required
<u>Construction</u>	Arboricultural supervision of demolition & hand excavation for pile locations.

Notes	
-------	--

Arboriculturalist	
Signed	
Date	

NOTE - COPY OF COMPLETED FORM TO BE SCANNED AND SENT TO LPA ARBORICULTURAL OFFICER

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Appendix 9 - Arboricultural Monitoring Form

Client	Adam Casey		Location	35a Torton Hill Road, Arundel BN18 9HF.	
Local planning authority	Arun District Council				
Planning application	-				
Development	Demolition of the existing dilapidated single garage and construction of a single-storey outbuilding in its place.				

Area inspected	Comments	Action required
<u>Protective barriers</u>		
<u>Construction exclusion zone</u>		
<u>Site storage/material mixing</u>		
<u>Other</u>		
<u>Additional Comments</u>		

Arboriculturalist	
Signed	
Date	

NOTE - COPY OF COMPLETED FORM TO BE SCANNED AND SENT TO LPA ARBORICULTURAL OFFICER

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Page 1 of 1

Geoweb Tree Root Protection Installation Guide

Installation Recommendation

1. Preparation of the subgrade ready for Geoweb tree root protection no dig solution. Whilst inside the tree rooting area, all actions must ensure no detrimental effect on the ground condition. The tree rooting area is the surface which is being protected

- Removal of surface vegetation using prior agreed methods with local authority. No methods of removal which will cause compaction to the subgrade can be used. This includes the use of plant, vehicles and machinery. Examples of appropriate methods include hand tools or herbicide
- When creating a level subgrade, do not grade off humps or level off through compaction, as these may contain tree roots. Rather infill hollows with a permeable material such as clean stone or sharp sand to create a level surface.
- All external debris, such as rocks and waste, should be removed
- When an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that may be present beneath. Hand held tools or appropriate machinery should be used to remove the existing surface, working backwards over the area so not trafficking the exposed area

2. TRP4000 Non-woven Geotextile

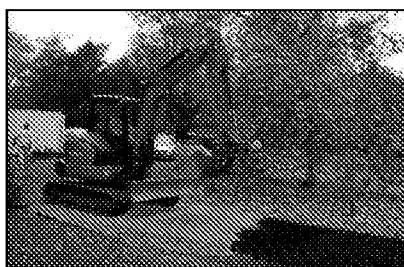
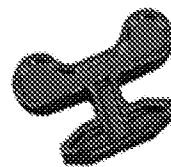
- Lay out the TRP4000 over the prepared area, overlapping joins by a minimum of 300mm, dependent on soil conditions
- When overlapping the TRP4000, ensure the overlap is in the same direction as the Geoweb will be extended. This will ensure the geotextile does not pull up when extending the Geoweb
- If a site specific solution has been provided by Greenfix which includes a sub-base, this will require installation through non compaction methods

3. Installation of the Geoweb panels

- Lay out the collapsed Geoweb on the TRP4000 and secure at one end in the middle of the width.
- Extend the panel to 6.6m length, and secure its length at the other end
- Extend the width of the Geoweb to 2.6m wide, and secure each corner
- Ensure the panel is secured at 6.6m x 2.6m, as this will achieve the 259mm by 224mm cell diameter required.

4. Connection of the panels to create one single mattress

- All panels must be adjoined to one another both side by side and end to end
- Simply connect the Geoweb with the supplied ATRA® keys, through the aligned slots



For enquiries and recommendations please contact

Greenfix. Tel: 01608 666027 Fax : 01608 665468

Email : info@greenfix.co.uk

Web: www.greenfix.co.uk

Greenfix
Soil Stabilisation and
Erosion Control Specialists



GEOWEB®

Geoweb Tree Root Protection Installation Guide

1. Infill of the Geoweb for tree root application

- Compacted, non-porous material, such as M.O.T. Type 1 / crushed stone with fines should not be used for tree root protection
- Infill Geoweb panel with 4-20mm clean angular stone, ensuring Geoweb is not visible and is overfilled by a minimum 25mm. Plant and tracked vehicles should not drive on exposed Geoweb as this will lead to tearing and damage.
- Infill towards the tree, using the filled Geoweb cells as the working platform
- For a stone specification sheet please contact Greenfix Ltd go to www.greenfix.co.uk

2. Compaction of the infilled material

- Compaction of the Geoweb system is not required on generic site conditions, as the infill will secure its own level when trafficked over a short time
- If on poor / site specific conditions, complete 4 passes of a non-vibrating, smooth wheeled roller over the 25mm overfill. Refill and roller as necessary to ensure a 25mm surcharge remains

3. Edging options

- Where edging is required for light structures, such as footpaths, above ground peg and treated timber edging may be acceptable. Where areas of hard surface require edge support, the use of pinned sleepers, gabions or non-invasive haunch kerbing can provide appropriate solutions.
- For recommendations and details (CAD or PDF), please contact Greenfix for assistance

4. Surface options available

- Geoweb acts as a sub-base to all available surfaces on the market, including asphalt, block-paving, resin bound, grass vegetation or gravel etc.
- For tree rooting areas, the surface must be porous unless approved otherwise by local authority.
- For details of surface options please contact Greenfix for assistance

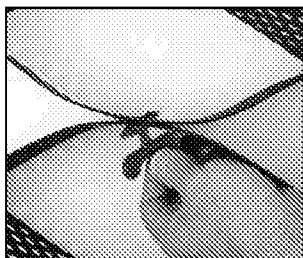
Additional Greenfix services available

For an on-site installation visit on the day of installation on any purchase of Geoweb TRP, please contact Greenfix for recommendations and support.

Site specific calculations and technical recommendations are also available via Greenfix.

Greenfix can offer an on-site visit to recommend correct installation to the calculated recommendation if it has been complete via Greenfix

This information corresponds to our current knowledge on the subject. It is offered solely to provide possible suggestions for your own experimentation. It is not intended however to substitute for any testing you may need to conduct to determine for yourself the suitability of the product for your particular use. Since we can not anticipate all variations in actual end use conditions, Greenfix Ltd make no warranties and assumes no liabilities in connection with this information. Nothing in this publication is to be considered as a licence to operate under or a recommendation to infringe any patent right



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