Protective Fencing

To be erected prior to the commencement of all works on site, and retained in place throughout construction.
Default specification: To comprise either 2.4m wooden site hoarding; or a 2.3m high scaffolding framework comprising of vertical and horizontal framework, well braced to resist impacts, with uprights to be spaced at a maximum of 3.0m intervals and driven into the ground by a minimum of 600mm. On to this, standard anti-climb welded mesh panels are to be securely fixed to each other with at least two scaffold clamps and to the scaffold framework with wire.
Secondary Specification: To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should should be attached to a base plate and secured with ground pins.
All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Construction exclusion zone - Keep out".

Ground boarding

New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

Note The ground protection might comprise one of the following:

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100mm depth of woodchip), laid onto a geotextile membrane;
b) for pedestrian-operated plant up to a gross weight of 2t, proprietary inter-linked ground protection boards placed on top of a compression-resistant layer(e.g.150mm depth of woodchip), laid onto a geotextile membrane;
c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary system or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

For situations other than those described in a) or b), the ground boarding is to be designed by a suitably qualified person to an engineering specification in conjunction with arboricultural advice, to be able to support the expected loading to be placed upon it.

In all cases, the objective of the ground boarding is to avoid compaction of the soil beneath, so that tree root function remains unimpaired.

Supervised demolition

Hard surfacing:
Removal of and or replacement of hard surfacing situated either partially or completely within the RPAs of retained trees shall be undertaken with care and under the direct on-site arboricultural supervision as these areas are likely to contain roots.
Where this is necessary the wearing course will be broken up using a hand held pneumatic breaker, hand tools and a wheel barrow to break up and remove the surfacing. If it is necessary to remove the sub base this is to be undertaken using hand tools such as a fork to loosen the material and removed using shovels and wheels barrows.
In some situations and at the discretion of the arborist it may be possibly to use an excavator using a hydraulic breaker and suitably sized toothless grading bucket. If an excavator is to be used it must be situated outside of the RPAs, on top of the hard surfacing working away from the RPAs or from ground boarding.
Which ever system is used the is to be **NO** disturbance of the soil beneath. If roots are found they are to be covered over with damp hessian and a layer of either sharp sand, wood chip or top soil to prevent desiccation.
Structures:
Demolition of existing structures and foundations situated either partially or completely within RPAs of retained trees shall be undertaken with care and under the direct on-site arboricultural supervision as these areas are likely to contain roots.
Where it is necessary for the foundations to be removed they are to only be removed where critical to the proposed development and to the minimum depth required. The foundations will be broken up using a hand held pneumatic breaker, hand tools and a wheel barrow to break up and remove the surfacing. In some situations and at the discretion of the arborist it may be possibly to use an excavator using a hydraulic breaker and suitably sized toothless grading bucket. If an excavator is to be used it must be situated outside of the RPAs, on top of the hard surfacing working away from the RPAs or from ground boarding. If it is likely that there will be any collapse of the soil within the rooting environment excavation is to be stopped immediately and the trench is to be shored up to prevent loss of the rooting environment.
Which ever system is used there is to be **NO** disturbance of the soil on the tree side of the foundations. If roots are found they are to be covered over with damp hessian and a layer of either sharp sand, wood chip or top soil to prevent desiccation.

Foundations within RPAs

The use of traditional strip foundations can result in excessive root loss and as such should be avoided.
Designs for foundations that would minimize the adverse impact upon trees soul include particular attention to the existing levels, proposed finished levels and cross sectional details. Site specific and specialist advice should be sought from the project engineers and arboriculturist.

Root damage can be minimized by using:

- Piles with site investigation used to be determined their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600mm;
- Beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.

Where a slab for minor structures (e.g. shed base) is to be formed within the RPA, it should bear on the existing ground level, and should not exceed an area greater than 20% of the existing unsurfaced ground.

Slabs for larger structures (e.g. dwellings) should be constructed with a ventilated air space between the underside of the slab and the existing soil surface (to enable gas exchange and venting through the soil surface. In such cases, a specialist irrigation system should be employed (e.g. roof run-off redirected under the slab). The design of the foundation should take into account of the effect on the load bearing properties of the underlying soil from the redirected roof run-off. Approval in principle for a foundation that relies on topsoil retention and roof run-off under the slab should be sought from building control authority prior to this approach being relied upon.

Where piling is to be installed near to trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles. If a piling mat is required, this should conform to the parameters for ground boarding. Use of the smallest practical piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored piles or screw piles.

This information is compliant with British Standard BS5837:2012 Trees in relation to design demolition and construction - Recommendations, section 7.5 Special engineering for foundations within the RPA.

Supervised Excavation

All excavations within and immediately adjacent to RPAs are to be undertaken under direct on-site arboricultural supervision.

Any roots that are to be cut will be cleanly severed by the project arboriculturist using a suitable hand saw or secateurs. The edge of all excavation closest to the retained trees will be covered over with damp hessian to prevent drying out, and where necessary be shuttered to prevent soil collapse or contamination by concrete.
If appropriate soil beneath the depth of the excavation may be sheet piled, tegular piled or have individual piles installed.

Manual excavation:
Excavations within the RPAs will be initially undertaken by hand under direct on-site arboricultural supervision to a minimum of 600mm deep (to be confirmed by the project arboriculturist), whether its is for proposed foundations, hard surfacing or underground services. The soil is to be loosened with the use of a fork or pick and or air-spade and then cleared with a shovel and or the aid of an air-spade and air-vac.
Mechanical excavation:
Excavation within the RPAs will consist of a mixture of mechanical and manual excavation.
Where an excavator is used it will be fitted with a suitably sized toothless grading bucket; using a grading / scrapping motion rather than digging. During each motion the excavator will not be permitted to removing no more than 10 - 20mm deep of soil in any any one pass.
If any roots are discovered, mechanical excavation will immediately be stopped and manual excavation will take over to expose the root. Upon the root being uncovered and either severed or protected the excavations can then continue.
Any excavator or other machinery that is to be used will be situated outside of the RPAs of all retained trees or on top of a suitable ground protection.
Where an excavator or any other machinery is to be used within RPAs or beneath canopies the project arboriculturist will clearly instruct the operator about what they want and expect to happen prior to any works may commence.

Arboricultural Supervision

The arboricultural consultant will be required to attend site to directly supervise all demolition and construction works that have to be undertaken within the root protection areas. This will include:
1. Pre-commencement site meeting.
2. Location of protective measures.
3. Supervised excavations for the extensions to include foundations and services within and adjacent to the RPAs of tree numbers 3 and H1.
4. Any demolition and or excavations within or adjacent to RPAs, including foundations, hard surfacing or underground services (a non-exhaustive list).
5. Arboricultural sign off and removal of protective measures.

Arboricultural Method Statement

Please refer to Arbtech Consulting Ltd. Tree Schedule and Arboricultural Method Statement, for full details on all surveyed trees and how all aspects of the the development maybe implemented without determent to retained trees.

Tree Protection Area
KEEP OUT

Do **not** move this fence

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECT OF A TREE PRESERVATION ORDER. CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

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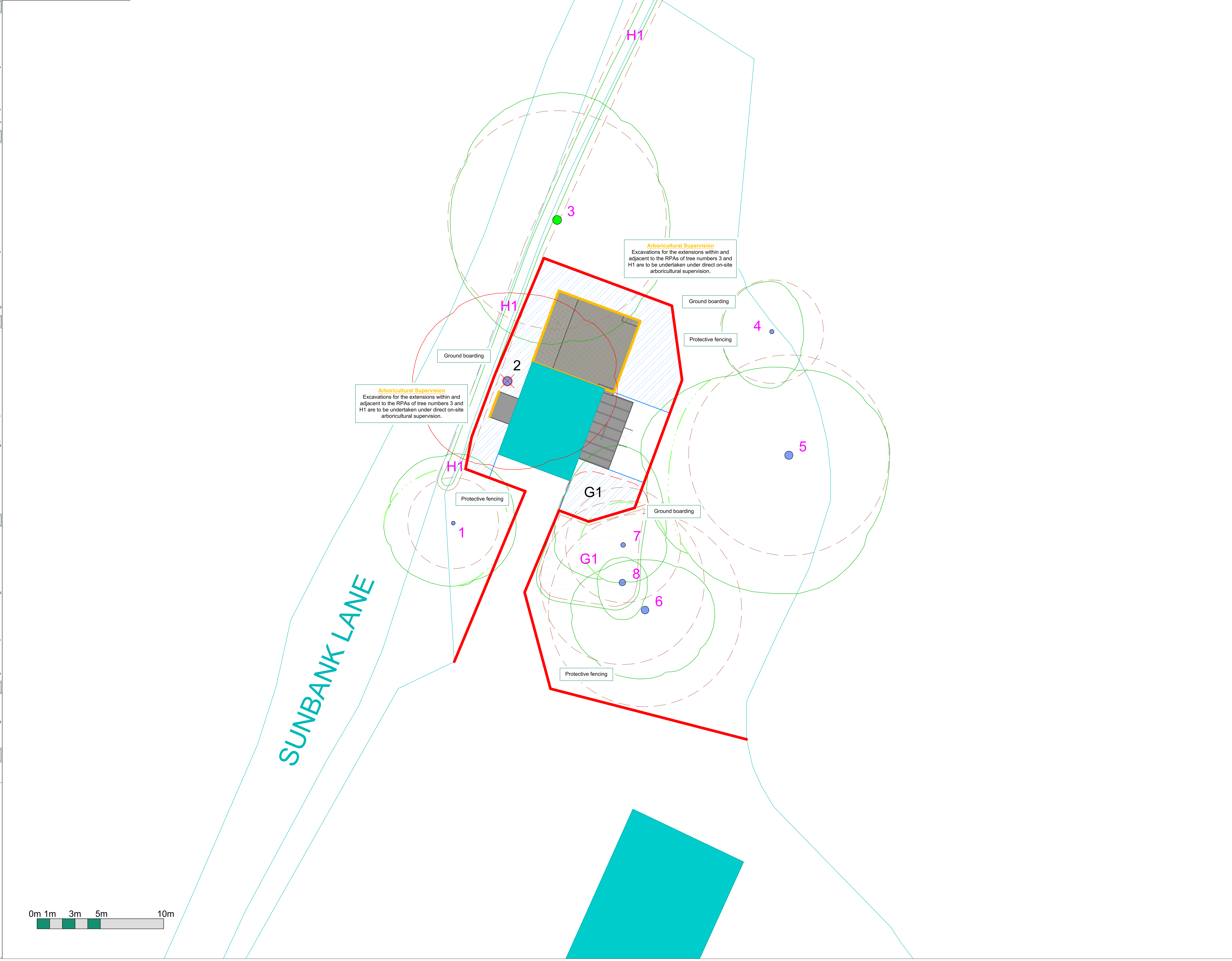

Tree Work Schedule

No.	Species	Works	Category
1	English oak	Crown reduce N, NE, E canopy to 4m from trunk	B
2	Black poplar	Fell to ground level; grind out stump	B
3	English oak	Crown lift S canopy to 7.5m above GL	A
5	Black poplar	Crown reduce W canopy to 9m from trunk	B
7	Goat willow	Crown reduce N & W canopy to 3m from trunk	B
G1	Laurel	Partial removal - Fell to ground level; grind out stumps	C

All tree work is to be undertaken in accordance with British Standard BS 3998:2010 Tree work - Recommendations.
All arising's are to be removed and the site is to be left as found.
Care is to be taken of the ground around retained trees to make sure that it does not become compacted as a result of tree surgery operations. No equipment or vehicles such as timber lorries, tractors, excavators or cranes shall be parked or driven beneath the crowns of any retained trees, to prevent subsequent compaction and root death.

Site investigations

Site investigations are to be undertaken within the RPAs of retained trees to determine the size, depth and location of any roots that may be present for the purpose of informing foundation design.

All excavation within the RPAs are to be initially undertaken to a minimum depth of 800mm deep for any excavation or to the full depth of the proposed foundations, hard surfacing or underground services. The soil is to be loosened with the use of a fork or pick and then cleared with the aid of an air-spade and air-vac using a specialist arboricultural contractor; If an air-spade is not used and all excavations are to be undertaken using hand tools (forks, shovel, trowel, brush). Soil will be loosened with the aid of a fork or trowel and the spoil removed from with the aid of a shovel. Where an air spade or specialist arboricultural contractor is not employed, all excavations are to be undertaken under direct arboricultural supervision. All roots are to be retained in situ and the project arborist will visit the site to recorded and photograph the depth, location, and size of any roots present; during this visit the project arborist may be able to cut specific roots with the use of a hand saw or secateurs. The edge of the excavation closest to the retained trees and all uncovered roots will be covered over with a minimum of two layers of damp hessian to prevent drying out, and where necessary be shuttered to prevent soil collapse or contamination. If appropriate soil beneath the depth of 800mm may be sheet piled with any deeper excavations being undertaken by a machine with an appropriate bucket under direct arboricultural supervision. If a decision is made for a machine to be used it must work form outside of the RPA or have appropriate ground protection in place to move and work upon.

Upon the completion of the site investigations all trial excavations are to be back filled with the original material or inert fill. It may be suitable to insert a root barrier in locations where the proposed roots are not present or are beginning to enter to prevent root activity within areas deemed to be root free.

Utility apparatus

Underground utility apparatus
Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the rout and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside of RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts, all inspection chambers should be sited outside of the RPAs.
Where underground apparatus is to pass within the RPAs, detailed plans showing the proposed route should be drawn up in conjunction with the project arboriculturist. In such cases trenchless insertion methods should be used with entry and retrieval pits being located outside of the RPAs. If this option is not feasible and providing roots can be retained and protected excavations should be undertaken using hand held tools (air-spade, forks, shovels) or a combination of trenchless and manual excavation (broken trench).
Any design and installation should be undertaken in accordance with the National Joint Utilities Guidelines (NJUG).
Above-ground utility apparatus
Above-ground apparatus(including CCTV cameras and lighting) should be sited to avoid the need for detrimental tree pruning, as such the current and future crown size of the tree should be assessed.
Tree branches can be pruned back with care to provide space, though it is not appropriate for repetitive and significant tree work to bean initial design solution unless this is a suitable management outcome for the tree. Any pruning should be undertaken in accordance with BS3998:2010

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Project:
Bollinbrook
Sunbank Lane
Ringway
Cheshire
WA15 0PY

Client:
Osman Khan

Drawing:
Tree Protection Plan

Based on:
IPS/R/Bollinbrook/WA150PY SHT 2 of 2

Drawing No:
Arbtech TPP 01

Date:	Scale:	Drawn:
Sept 2021	1:100 @ A0	MGM

Key:

Tree Nos.:	T1	Tree Canopies:		Trunks:	
RPAs:		Category 'A' trees:		Category 'B' trees:	
Category 'C' groups:		Trees to be removed:	2	Trees to be pruned:	
Existing site (OS Tile):		Protective fencing:		Ground boarding:	
Arboricultural supervision - Excavations:					

All dimensions should be checked on site. No dimensions are to be scaled from this drawing.
Please notify us of any discrepancies found. Arbtech Consulting Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan is based.
This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of retained trees.
This drawing is not to be read as a definitive part of the engineering or construction designs or method statement. An architect or structural engineer should be contacted over any matters of construction, detailing or specification and for any standards or regulatory requirements relating to proposed structures, hard surfacing or underground services.
This drawing was produced in colour - a monochrome copy should not be relied upon.