

ARBORICULTURAL IMPACT ASSESSMENT

Terms of Reference

- 1.1 This report was requested by Paul Turnstall of JWPC Limited, 1B Waterview, White Cross, Lancaster, LA1 4XS.
- 1.2 The instruction was to carry out an arboricultural impact assessment to support a Planning Application regarding a proposed development at the Northcote Hotel.

Limitations

- 2.1 The content of this report is valid for a period of one year from the date shown above.
- 2.2 The report is for the sole use of the client and its reproduction or use by anyone else is forbidden unless written consent is given by the author.
- 2.3 This is an arboricultural report and as such, no reliance should be placed on comments relating to buildings or soil data.

Introduction

- 3.1 I carried out my original arboricultural survey at the above site during 2023 and produced my report number 4690.
- 3.2 This supplementary report has been commissioned to assess the arboricultural impact of the layout.
- 3.3 For ease of cross referencing, the original schedule detailing specific information on each tree is included. Details of the measurement conventions relating to this are contained in the original report and have not therefore been duplicated in this document.
- 3.4 To facilitate the preparation of this report, a scaled copy of the proposed layout was provided. My observations regarding the impact on the trees are based upon this drawing and the locations of the plotted trees within and adjacent to the site.

Arboricultural Impact

- 4.1 I have made an appraisal of the proposals and their potential impact on the trees, including removals, proximity issues, surface changes, protection during demolition & construction.
- 4.2 The following table details the potential conflict that the proposed operations to re-develop the site may create.

Tree	Ret Cat	RPA Root Protection Area	Conflict	Mitigation
T835 Lime	B2	5.3m	Conflict between RPA's and hard surfacing.	To prevent damage to tree roots and longterm detriment to the trees, the hard surfacing will be in accordance with the Arboricultural Method Statement.
T836 Beech	B1	9.6m		
T838 Sycamore	B2	6.2m		
T840 Sycamore	B1	12.0m		
T841 Beech	B1	8.8m		
T843 Scyamore	B1	9.1m		
T844 Sycamore	B1	8.4m		

- 4.3 Modern No Dig construction systems are highly efficient and are proven to minimise any disruption to tree root function and the surrounding soil structures.
- 4.4 The remaining trees on site and on adjacent land will be unaffected by the development proposals provided the attached guidance is followed. The ultimate sizes of retained trees should not cause unwanted shading or dominance of the completed development.

Protection of Retained Trees

- 5.1 All felling and pruning operations should be undertaken by an Arboricultural Association Approved Contractor, operating in accordance with British Standard 3998 2010 – Recommendations for Tree Work and other current industry best practice guidelines. This work should ideally be completed and the protective barriers erected prior to any other site clearance or construction work commencing.

- 5.2 The trees proposed for retention will need to be rigorously protected throughout the development period to avoid them being accidentally damaged. Protective barriers should be erected prior to any work commencing.
- 5.3 The following appendices are included in this report:
- A Root Protection Areas
 - B How tree roots can be damaged during construction
 - C How to avoid damage to trees during construction
- 5.4 Prior to commencing any arboricultural work to trees, it is essential to liaise with the Local Planning Authority as they may be protected by a Tree Preservation Order or within a Conservation Area.
- 5.5 Any arboricultural work should be carried out by a competent arborist in line with BS3998 British Standards for Tree Work. Should you require details of suitably qualified contractors, the Arboricultural Association maintains a list which is available via their website (www.trees.org.uk).

Should you have any questions or require any clarification, please do not hesitate to contact me.

Yours sincerely

Bruce Hatton
Dip. Arb. (RFS). F. Arbor. A. MICFor.

APPENDIX A Root Protection Areas (RPA's)

- A1 *For the roots to be retained undamaged, there must be no excavation, soil stripping or site grading within the RPA. Or in other words, NO DIGGING. This means that construction will have to be above the existing ground level.*
- A2 *In order to avoid damage to the roots or rooting environment of retained trees, the RPA should be plotted around each of the category A, B and C trees. This is a minimum area in square metres which should be left undisturbed around each retained tree.*
- A3 *The RPA for each tree, as determined in Table 2, should be plotted on the Tree Constraints Plan (TCP), taking full account of the following factors, as assessed by an arboriculturalist, which may change its shape but not reduce its area, whilst still providing adequate protection for the root system.*
- A3.1 *The likely tolerance of the tree to root disturbance or damage, based on factors such as species, age and condition and presence of other trees. For individual open grown trees only, it may be acceptable to offset the distance by up to 20% in one direction.*
- A3.2 *The morphology and disposition of the roots, when known to be influenced by past or existing site conditions (e.g. the presence of roads, structures and underground services).*
- A3.3 *The soil type and structure.*
- A3.4 *Topography and drainage.*
- A3.5 *Where any significant part of a tree's crown overhangs the provisional position of tree protection barriers, these parts may sustain damage during the construction period. In such cases, it may be necessary to increase the extent of tree protection barriers to contain and thereby protect the spread of the crown. Protection may also be achieved by access facilitation pruning. The need for such measures, including the precise extent of pruning, should be assessed by an arboriculturalist.*
- A4 *The guidelines for type and dimensions of protective barriers are given in BS 5837 2012, and are as follows:*
- A4.1 *Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). On all sites, special attention should be paid to ensuring that barriers remain rigid and complete.*
- A4.2 *The default specification for protective barriers is a vertical and horizontal scaffold framework, well braced to resist impacts with welded mesh panes securely fixed onto this framework. The vertical tubes should be spaced at a maximum interval of 3m and driven securely into the ground.*
- A4.3 *Where site circumstances and associated risk allow, an alternative specification should be prepared by the arboriculturalist and agreed with the Local Planning Authority. For example, 2m tall welded mesh panels on rubber or concrete feet, stabilised on the inside and joined together using a minimum of two anti-tamper couplers, installed so they can only be removed from inside the fence.*

- A4.4 *"Protected Trees No Entry" signs should be affixed to every fourth panel. The barriers should remain in place until completion of the construction phase and removed only on the consent of the Local Planning Authority.*
- A5 *Where it has been agreed during the design stage, and shown on the tree protection plan, vehicular or pedestrian access for the construction operation may take place within the RPA. The possible effects of construction activity should be addressed by a combination of barriers and ground protection. The position of the barrier may be shown within the RPA at the edge of the agreed working zone but the soil structure beyond the barrier to the edge of the RPA should be protected with ground protection.*
- A6 *For pedestrian movements within the RPA, the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile, or supported by scaffold, may be acceptable.*
- A7 *For wheeled or tracked construction traffic movements with the RPA, the ground protection should be designed by an engineer to accommodate the likely loading and may involve the use of proprietary systems or reinforced concrete slabs.*

Figure 2 Default specification for protective barrier

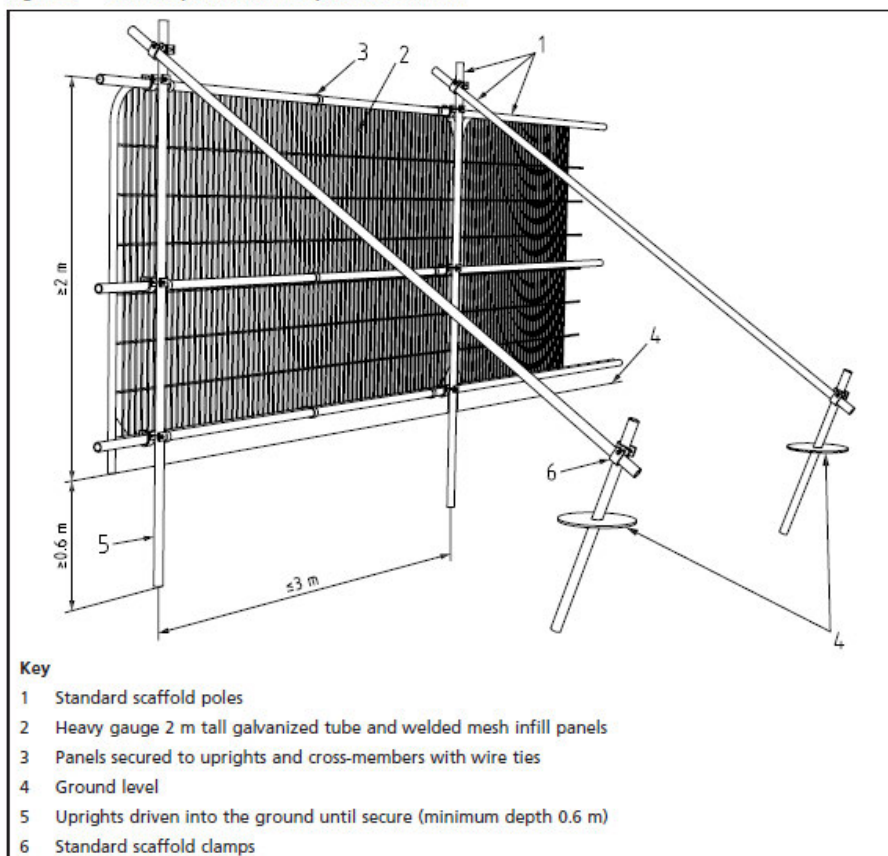
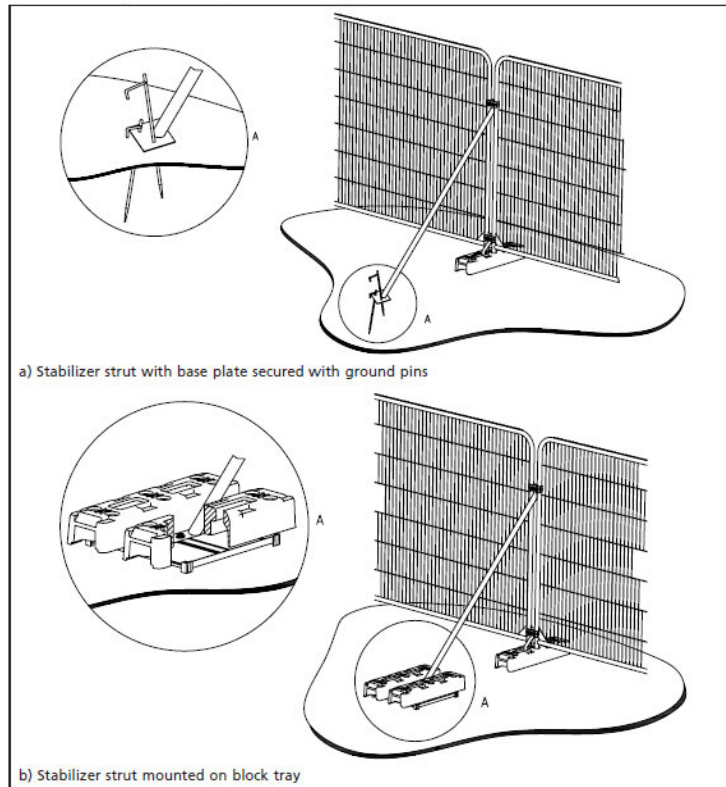


Figure 3 Examples of above-ground stabilizing systems



Available for download from: www.aie.org.uk/download/pictures/avcc_sign.pdf

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APPENDIX B ***How tree roots can be damaged during construction***

- B1** *Construction close to trees can be enormously damaging and detrimental to the tree's health, often leading to death and eventual removal. Most trees that have been growing undisturbed on a site for many years will have developed an extensive root system with the roots growing where the soil conditions are most favourable. There will be a balance between the development of the crown (which demands water) and the roots (which supply it). Any sudden alteration in the soil conditions within the tree's rooting area (a circle of radius equal to the tree's height) will therefore upset this balance.*
- B2** *Root systems can be damaged by:*
- *Repeated passage of machinery, which will squeeze the soil, closing up the pores causing compaction, especially in the upper levels, and so reducing the amount of oxygen available to roots and preventing them from growing through the soil. Surviving roots may then not be able to grow through the compacted soil. It is essential therefore that all but the immediate area of the development is protected from construction operations by fencing as recommended in BS5837.*
 - *Placing soil or other materials over the roots of a tree, which will impede air movement into and out of the soil and consequently reduce the availability of oxygen to the roots.*
 - *The severance of a root, for example by trenching, which will destroy all parts of the root beyond that point. Even roots less than 10mm in diameter may be serving the fine roots over a wide area. The larger the root severed, the greater the impact on the tree.*
 - *Damage to the bark on the root. The bark protects the root from decay and is also essential for further root growth. It is loosely attached and easily damaged. If damage to the bark extends around the whole circumference, the root beyond that point will be killed.*
 - *Alterations in soil level. Lowering the level will strip out the mass of roots near the surface. Raising the levels will have the same effect as soil compaction.*
 - *Incorrect application of herbicide. There is frequently a need for operational land to be kept clear of weed growth for safety and as a fire precaution. Herbicides provide an efficient method of killing both herbaceous and woody weeds. There are several types of herbicide with different modes of action and persistence, the most attractive of which tend to be those that can be applied to the ground, usually as a granule and which remain active in the soil for long periods. The wide-ranging root system of a tree may extend into the operational land from adjoining properties and may absorb some types of herbicides which have been applied to the ground. Material absorbed in one part of the root system can kill the whole tree.*
 - *Spillage of oils or other harmful materials which leach into the soil, can also damage the root system. For instance, oil spilled into the soil is broken down by soil bacteria which deplete the oxygen and so asphyxiate the roots. Other materials may also have a direct toxic effect on roots.*

APPENDIX C *How to avoid damage to trees during construction*

The precautionary area of a tree can be defined as either the extent of the crown spread (the drip line), or half the tree's height on either side of the tree. For excavation within the precautionary area, the key points to remember are:

- C1 Do not excavate with machinery. Use trenchless techniques where possible. Otherwise dig only by hand. All excavations within the area below the crown must be carried out by hand, digging carefully around roots, retaining as many as possible.*
- C2 Do not sever any tree roots over 25mm diameter, unless the council's Tree Officer agrees beforehand.*
- C3 Where small tree roots are to be cut, this should be done cleanly, as with the pruning of branches, using secateurs or a handsaw. Make a clean cut and leave as small a wound as possible.*
- C4 Roots exposed during construction should be kept moist and protected from frost and from drying out. If trenches are to be left open overnight, cover the roots with dry sacking. Remember to remove the sacking before backfilling.*
- C5 Backfill the trench with an inert granular material and top soil mix. Compact the backfill with care around the retained roots. On non-highway sites backfill only with excavated soil.*
- C6 Do not store spoil or building material, including chemicals and fuels within the tree's crown and make sure you do not contaminate tree roots and surrounding soils.*
- C7 Do not lower or raise soil levels close to the tree.*
- C8 Do not allow the passage of vehicles across the unprotected soil surface, especially when the soil is wet, as this will cause breakage of surface roots, soil compaction and consequently reduced soil aeration.*
- C9 Construction materials must be permeable to allow gaseous exchange between the root system and the atmosphere and be constructed in line with current guidelines to avoid soil compaction.*
- C10 Where car parking or roadways are to be constructed close to trees, it is essential that construction follows guidelines available in APN12 Arboricultural Practice Note issued by the Arboricultural Advisory and Information Service.*

Construction of driveway- Porous No Digs Method in accordance with APN 12

Figure 5. Diagram of a 'no-dig' method for constructing access drives and parking near to trees in order to minimise damage to tree roots. (*Not to scale*)

2009/05476/PA

1:5 = 25cm	1:200 = 10m
1:10 = 50cm	1:250 = 12.5m
1:20 = 100cm	1:500 = 25m
1:50 = 2.5m	1:1250 = 62.5m
1:100 = 5m	1:2500 = 125m

Edging Board

Retaining Peg

Nails

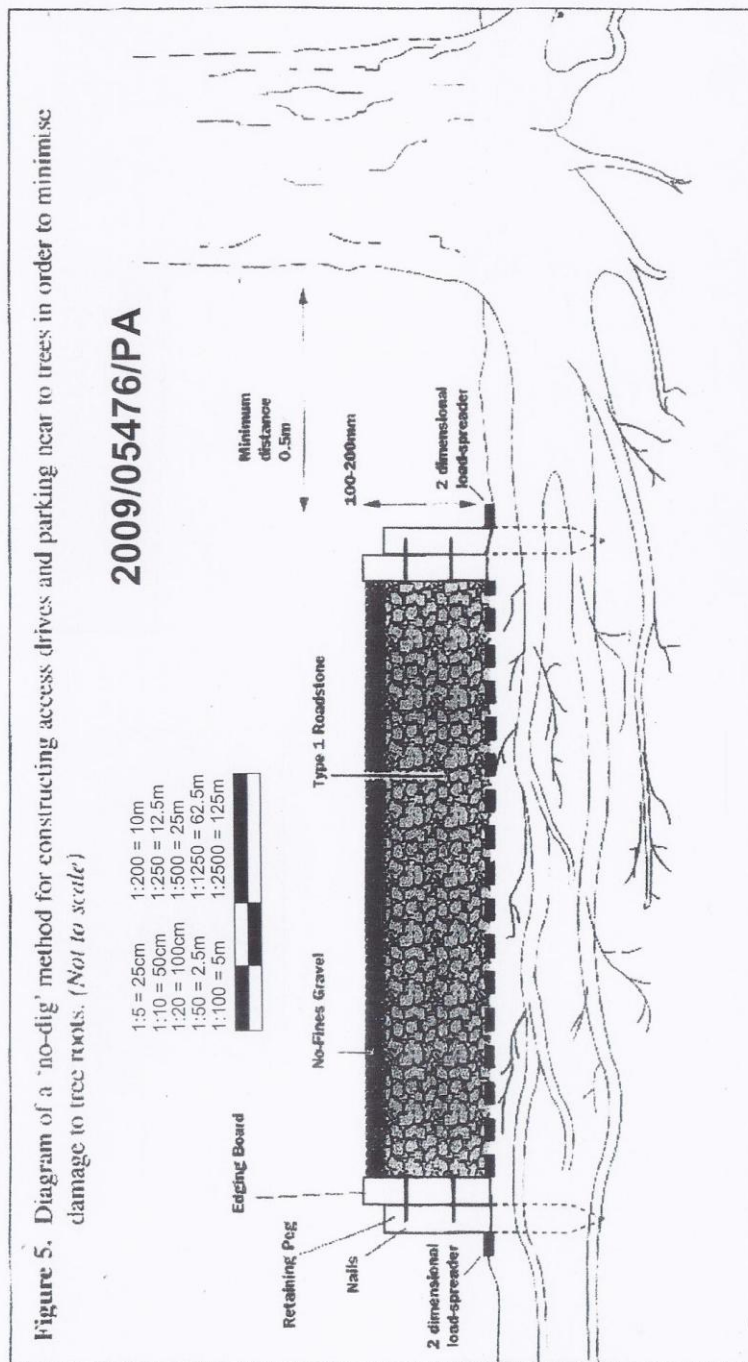
No-Fines Gravel

Type 1 Roadstone

Minimum distance 0.5m

100-200mm

2 dimensional load-spreader



* For example, Tensar SS30, manufactured by Nelon Ltd, New Wellington Street, Blackburn, BB2 4PJ, UK.

† Care must be taken to select a herbicide which does not damage the roots of desirable vegetation that may be in the treated area. Always read the product label before use.

GREENWAY
Landscape Architects

08C-007 - Porous Drive to APN 12: 2007/BS5837:2005