



ARBORICULTURAL IMPACT ASSESSMENT

At

**LAETARE,
SELSMORE ROAD, HAYLING ISLAND,
HAMPSHIRE**

For

HOP ARCHITECTS LTD

This report was compiled by
Marco Bartolini, Arboricultural Consultant
TechArborA, (TE02501), PTI, FdScWM, Dip Mgmt



*This report is the responsibility of Arbor-Eco Consultancy.
It should be noted that whilst every effort is made to meet the client's brief,
no site investigation can ensure complete assessment
or prediction of the natural environment.*

Report Number: MB210128-01

**Issued: February 2021
Revised: September 2021**

GLOBAL PANDEMIC

COVID-19 Government Rules on social distancing, cleanliness, lockdown measures and such like has meant that the handling of personal equipment belonging to others is no longer permitted. Touch-points such as door handles for example comes with risk. Inviting others into private property is no longer advisable.

19th July 2021 – The English Government announced ‘Freedom Day’, whereby a number of COVID-19 rules were relaxed. However, Arbor-Eco Consultancy made a conscious decision not to follow this mass removal of masks, openness and complacency but to remain vigilant and respect others by wearing appropriate PPE and remaining at a distance from members of the public.

The headings for reports under ‘normal’ circumstances would be deemed necessary for the completion and acknowledgement that a report was concise. This may no longer be possible. Providing welfare facilities by the client in their own property is not deemed safe at the time of the pandemic and writing of this report.

The rules and regulations will add pressure to the industry and this should be taken into account by the Local Authority reading this report.

For the latest guidance please see the NHS or Government websites.

CONTENTS

GLOBAL PANDEMIC	2
1. INTRODUCTION.....	4
1.1 PROJECT BACKGROUND	4
1.2 SITE DESCRIPTION	4
1.3 DEVELOPMENT PROPOSALS	4
1.4 DOCUMENTATION PROVIDED.....	4
2. STATUTORY PROTECTION	5
2.1 TREE PRESERVATION ORDER AND CONSERVATION AREA DESIGNATIONS	5
2.2 PROTECTED SPECIES	5
3. ARBORICULTURAL IMPACT ASSESSMENT.....	6
3.1 INTRODUCTION	6
3.2 DEVELOPMENT DESIGN AND LONG-TERM IMPACTS	6
3.2.1 Potential Impact on the Amenity Value of Trees.....	6
3.2.2 Proximity of Trees to Proposed Structure	6
3.3 POTENTIAL IMPACTS FROM CONSTRUCTION PROCESSES OF THE PROPOSED DEVELOPMENT	7
3.3.1 Potential Root and Canopy Protection	7
3.3.2 Site Construction Access.....	9
3.3.3 Contractors Parking	9
3.3.4 Site Cabins and Welfare Facilities	10
3.3.5 Delivery and Storage of Materials	10
3.3.6 Demolition of Existing Structures	10
3.3.7 Construction of Buildings.....	10
3.3.8 Construction of New Hard Surfacing	11
3.3.9 Boundary and Ancillary Structures	13
3.3.10 Site Gradients	14
3.3.11 Service Requirements.....	14
3.3.12 Preconstruction Recommendations.....	14
3.3.13 Contact Details	15
4. ARBORICULTURAL METHOD STATEMENT	16
5. DRAWINGS.....	17
REFERENCES AND BIBLIOGRAPHY	19
APPENDICES.....	20
APPENDIX 1.....	21
APPENDIX 2.....	24
APPENDIX 3.....	26
APPENDIX 4.....	29

1. INTRODUCTION

1.1 PROJECT BACKGROUND

HOP Architects Ltd commissioned Arbor-Eco Consultancy to compile an Arboricultural Impact Assessment after conducting a Pre-development Arboricultural Survey on 8th February 2021, to support a planning application for a proposed development at Laetare, Selsmore Road, Hayling Island. The site is within the administrative boundary of Havant Borough Council and within the County of Hampshire.

This report details the impact that the proposed development will have upon the site's existing tree stock and sets out recommendations for the subsequent mitigation or avoidance of impact. The study has been completed in accordance with guidance contained within British Standard BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

1.2 SITE DESCRIPTION

The site under consideration is a small parcel of land and existing property called Laetare which is centred at Ordnance Survey Grid Reference SZ 72798 99108. Access to the site is provided from Selsmore Road, minor trunk road.

The site is currently occupied by an existing building, amenity grassland and associated areas of hard and soft landscaping. In addition, and adjacent to the trees surveyed, there was an outbuilding, garage and underground services inspection access points with an area of concrete ground that runs from the front aspect to the side aspect of the property boundary to a garage.

The site was bound to the north and east by stock-proof fencing and hedgerow, beyond which was a grazed paddock. The west of the site was delineated by a further property off Selsmore Road. The southern boundary was demarcated by Selsmore road, minor trunk road.

The topography of the ground is generally flat and waterlogged in part.

The location of the trees surveyed can be found on Arbor-Eco Consultancy Drawing Number MB210128-01-01 in Section 5 of this report.

1.3 DEVELOPMENT PROPOSALS

It is understood that the site surveyed will be the subject of a planning application to include the demolition of the existing buildings across the site and the construction of a three-storey dwelling with associated hard and soft landscaping across the site.

1.4 DOCUMENTATION PROVIDED

This assessment is based upon the information provided by the client in addition to information collected by Arbor-Eco Consultancy. The documents and drawings considered are detailed within Table 1.1.

Author	Document	Drawing Number	Date
HOP Architects Ltd	Existing Plans and Elevations	HOPA-001-P	Oct 2020
HOP Architects Ltd	Proposed Plans	HOPA-002-P	Sep 2021

Table 1.1: Documentation Provided

2. STATUTORY PROTECTION

2.1 TREE PRESERVATION ORDER AND CONSERVATION AREA DESIGNATIONS

Grace, *Pers comm* (2021), Environmental Services, Havant Borough Council, confirmed in telephone conversation on 10th February 2021, that the trees on and adjacent to the site, are not the subject of a Tree Preservation Order.

Grace, *Pers comm* (2021), Environmental Services, Havant Borough Council, also confirmed in telephone conversation on 10th February 2021, that the trees surveyed are not situated within a Conservation Area.

2.2 PROTECTED SPECIES

Birds

The Conservation of Habitats and Species Regulations 2017 (as amended) places a duty on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds. Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Several bird species are Species of Principal Importance for Nature Conservation in England, making them capable of being material considerations in the planning process.

As the trees on, and adjacent, to the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (generally March to September). If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If any active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have naturally fledged.

Bats

Bats and the places they use for shelter or protection (i.e., roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017, as amended (Habitats Regulations 2010, as amended). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong. As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

3. ARBORICULTURAL IMPACT ASSESSMENT

3.1 INTRODUCTION

All trees within and closely surrounding the site have been surveyed and each has been identified with a unique number. The location of the trees can be found on Drawing Number MB210128-01-01 in Section 5. This report will discuss the trees and hedgerows across the site, however, the report will not mention hedgerows unless specifically required, otherwise, trees will mean hedgerows too.

A schedule of the trees surveyed can be found within Appendix 1.

3.2 DEVELOPMENT DESIGN AND LONG-TERM IMPACTS

3.2.1 Potential Impact on the Amenity Value of Trees

Impacts

Tree Removal

The proposed development will require the removal of one tree to permit its successful implementation.

It must be noted that the tree identified for removal is an apple tree. This tree has been managed for a crop for personal use only. The size and stature, along with the location has meant that in terms of amenity, this tree is not considered important. Its loss, whilst

Tree numbers 1, 2, 3 and 4 will be required to be removed to facilitate the development with consideration for tree number 5 to be removed and replaced as part of the overall unavoidable, will not detract from the overall amenity value in the landscape.

The tree to be removed is shown on the Tree Protection Plan, Drawing Number MB210128-01-01, Section 5.

Proposed Tree Works

In addition to the tree removal work there may be a requirement to carry out a further element of facilitation pruning works as seasonal incremental growth to the trees will increase the canopy and stem diameters. Until such time as the project build date has been set then the final works to the retained trees has yet to be determined.

Mitigation/Avoidance

The loss of the one tree should not to be considered a constraint to the development due to the trees' current form. It is considered that a number of replacement trees should be investigated due to the loss incurred to facilitate the development.

A landscaping plan should be developed to support this. New tree planting should be carried out in accordance with British Standard 8545:2014 Trees: from nursery to independence in the landscape – Recommendations.

3.2.2 Proximity of Trees to Proposed Structure

Impacts

Branch Spread

Tree management, in the form of pruning, exists to trees at the southern aspect within the neighbouring property (tree numbers 6, 7 and 8). It is noted that any future conflict that may arise from the proposed development can be appropriately managed through continued management works to the tree's canopy. Indeed, the trees had been recently pruned as noted during the survey.

The off-site hedgerow, H1, had recently been flailed and it is assumed that this is annual maintenance programme for this field boundary feature.

So long as such works are completed in accordance with best practice guidance, they will not cause significant harm to the health or amenity value of these landscape features.

Shading

The new property will not experience significant shading during the day as the sun tracks across the horizon due to the geographical location and distances of the trees being retained. The orientation of the building and aspects of the windows would suggest that this should be overcome with the natural light filtration to living spaces is given priority. It can be assumed that no overbearing shading of primary living spaces within the proposed new extension is likely to occur due to existing trees should lighting be a factor to the final design.

Leaf Litter, Fruits, Pollen, Sap etc.

All of the retained trees are species associated with significant, leaf litter, minor branch drop and cone fall problems, however, the inconvenience experienced can be overcome by implementing good design specifications and regular housekeeping.

Mitigation/Avoidance

The trees surveyed will be the subject of cyclical pruning as the trees continue to grow as was experienced during the survey. Further works may be required in the future to prevent conflict occurring. However, such works will not be significant as to impact the long-term visual quality of the tree so long as the trees are cyclically managed. It is considered that any shading issues are not deemed to be a constraint.

With respect to leaf litter and cone drop, it is noted that the sweeping up of leaves and cleaning of gutters, which may become blocked by falling leaves and cones, is considered to be routine seasonal household maintenance and, as such, no notable conflict with the proposed development is considered to occur. This cleaning system is already in place and therefore should not be considered as a constraint.

Nonetheless it may prove appropriate in certain areas to use gutter guards, or otherwise enclosed gutters, to minimise the potential for leaf fall to cause blockage and an ongoing nuisance. Self-clean glass, treated roof-tiles and or a management regime for cleaning will alleviate much of the problems discussed.

3.3 POTENTIAL IMPACTS FROM CONSTRUCTION PROCESSES OF THE PROPOSED DEVELOPMENT

3.3.1 Potential Root and Canopy Protection

To prevent harm occurring to retained trees during development it is recommended that construction works are excluded from the Root Protection Areas (RPA) of retained trees. Additionally, works should not be undertaken beneath the canopy spread of retained trees where this can be avoided.

The RPA represents the minimum area around trees that must be left undisturbed to ensure their survival. The roots typically occupy the top 600 mm of soil and the fine roots which absorb water, oxygen and nutrients are situated in the top 100 mm of soil. Any incursion into the rooting zone of a tree can cause a notable impact upon a tree's health.

Where existing buildings and areas of hard surfacing exists within the RPA of retained trees it is very likely that the rooting will have occurred asymmetrically due to the hard structures and the morphology of the roots is such that they are likely to have formed a fan shape with many roots running parallel to the man-made structures rather than being offset so far in to the site. Roots may penetrate soils beneath shallow hard surfacing where condensation may collect. This provides an ideal condition for roots and so care in

needed when working around concrete slabs. The current RPA is shown in accordance with the guidance within BS5837:2012 which is effectively a presumed calculation of the extent of a tree's root system that is required to ensure the continued vigour of a tree. Highways, access routes, footpaths (especially those that are kerbed) and underground services will affect the morphology of roots. To determine the exact location of the roots of a tree it would be necessary to employ a root-radar for this work.

Demolition and construction work carried out within the RPAs of the retained trees will cause the greatest damage. Soil that has been compacted will not provide suitable conditions for the survival and growth of vegetation, whether existing or new, and is a common cause of post-construction tree loss on development sites. Compacted soil will adversely affect drainage, gas exchange, nutrient uptake and organic content, and will seriously impede or restrict root growth. The risk of soil compaction is greatest in soils with a significant clay content and in wet conditions. It can result from temporary or short-term loadings, such as the passage of a single vehicle, or from longer-term construction activities, including materials storage.

The RPA and canopy spread of each tree to be retained is shown on Drawing Number MB210128-01-01, Section 5. Additionally, details of the crown spread measurements are contained within Appendix 1 and a schedule of RPAs for trees on the site is located at Appendix 2.

Impacts

The proposed development of the site has been designed so that major works are justifiably required within the RPAs of all the off-site trees adjacent to the proposed refurbished driveway and pedestrian footpath.

The construction works to develop sections of hard surfacing, such as the driveway and footpath has the greatest potential to cause harm to the retained trees. It is considered that the trees identified on Tree Protection Drawing MB210128-01-01, Section 5, will not be so significantly impacted upon with the adoption of a no-dig technical solution, the erection of tree protection measures, the installation of suitable ground protection and good working practices as described within Sections 3.3.6, 3.3.7 and 3.3.8. In addition, the methodology for a no-dig solution will be required as described within Section 3.3.7 and 3.3.8.

Tree number 6 will experience a minor incursion onto its' RPA. BS5837:2012 Para 7.4.2.3 states; New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA. This allowance may be permitted in the case of the parking bays or other sections of hard surfacing where encroachment into an RPA is at the periphery. In this case, the foundation of the building is shown to be within the RPA of tree number 6. However, it is deemed that with suitable arboricultural supervision, this section of foundation can be excavated with minimal disruption to the trees' roots. In addition, the tree is sufficiently young enough to respond to the root pruning and the long-term effect not be significant.

Overall, it is considered that the potential for harm to occur to the root systems of retained trees can be adequately controlled through the adoption of appropriate working practices, supervision from the retained arboriculturist and erection of protective barriers to exclude access from vulnerable sections of the site.

Mitigation/Avoidance

Construction Exclusion Zones

To minimise the potential for harm to occur to the root systems and canopies of retained trees during development it will be necessary to implement construction exclusion zones throughout the site. These are areas surrounding the trees' RPAs and canopies in which no construction works, or related activities, will be undertaken. These zones will be demarcated by the erection of tree protection barriers prior to any works (with the exception of tree works) being carried out.

It is recommended that the exclusion zones are afforded protection at all times through the use of tree protection barriers and ground protection (specified in accordance with BS5837:2012). With exception to the tree protection adjacent to tree numbers 6, 7 and 8 (to comprise of the default system), it is deemed that a variant configuration would be suitable across the remainder of this site due to the low-level activity anticipated and the extent of the existing hard surfacing available to work off. An example of the various barriers can be found at Appendix 4 to this report.

Where hard surfacing already exists on site, consideration should be given so that these areas will be retained and utilised as ground protection within the RPAs of retained trees until the replacement of hard landscaping is implemented into the construction phase of the development. The retention of the hard surfacing is deemed suitable ground protection and therefore the conflict with retained tree's roots is eliminated.

Where the replacement of hard surfacing is being considered, then retaining the sub-base hard-core layer is recommended as this will reduce the risk of root damage.

Drawing Number MB210128-01-01, in Section 5, provides a Tree Protection Plan indicating the potential location of areas of no-dig construction, tree protection barriers and ground protection.

All works within the RPA of a retained tree should be carried out under the supervision of the retained Arboricultural Consultant. All tree protection measures should be confirmed for their position and suitability prior to any construction works being carried out. (See Section 3.3.13 for contact details).

3.3.2 Site Construction Access

Impacts

Construction access to the site will need to make use of the existing access route in to the site via Selsmore Road. The threshold into the site is relatively narrow (for heavy goods vehicle deliveries), however, it has a robust concrete finish is suitable medium for an access directly from the road for narrow vehicles.

There are no trees in proximity to the entrance or boundary wall that would be in conflict with the access.

Mitigation/Avoidance

It's recommended that section of the boundary wall, adjacent to Selsmore Road, be deconstructed to improve access. This in turn will remove the pressure on potential root damage due to a narrow driveway.

3.3.3 Contractors Parking

Impacts

The location of contractor parking has yet to be determined but it is understood that it will occur within off-site locations and well away from the RPAs of retained trees.

Mitigation/Avoidance

All contractor parking shall consider local highway laws, respect neighbouring property access routes, the footway and driveway area of Laetare, Selsmore Road.

No parking is to occur on the footway or verge and no vehicle shall block access through Selsmore Road or the driveway access to any neighbouring properties.

As the highway entrance is relatively narrow, and parked cars were present during the survey, it may be necessary to deploy a banksman to assist with the movement of all vehicles during the development in order to prevent accident or injury. The Contracts Manager would supervise this work.

3.3.4 Site Cabins and Welfare Facilities

Impacts

The location of the Welfare Facilities should be carefully considered due to COVID-19 restrictions and only occur in locations away from retained trees.

Mitigation/Avoidance

Installation of protective barriers and ground protection to ensure that trees are protected from physical damage resulting from works to establish Welfare Facilities.

Safety from COVID-19 of all site staff is to be included within the site briefing and monitored accordingly and in keeping with current laws for England. Contractors from different disciplines should ideally be segregated. The client must also consider the safety of all those present as a priority over the development.

3.3.5 Delivery and Storage of Materials

Impacts

The proposed locations for site deliveries and materials storage during the development has yet to be determined but will occur outside of the RPAs of retained trees.

Mitigation/Avoidance

Ensure no storage occurs upon un-surfaced ground within the defined RPAs of the retained trees via the installation of protective barriers and ground protection.

It is proposed that all deliveries and storage of materials occurs on the front aspect driveway and proposed parking area.

3.3.6 Demolition of Existing Structures

Impacts

The proposed development of the site will require the demolition of existing buildings to provide the space required to construct the proposed new dwelling.

Mitigation/Avoidance

The demolition of the existing buildings shall not proceed until all tree protection measures are installed and the retained Arboricultural Consultant has deemed it suitable (See Section 3.3.13).

A top-down, pull-back system of works to demolish the building shall be used to prevent accidental damage to retained trees. Any 360-degree, traversable machinery, shall be used with the aid of a banksman. Debris and dust shall be prevented from falling on or near retained trees.

3.3.7 Construction of Buildings

The construction of the proposed development is at such a distance that retained trees that they can be protected with the installation of tree protection barriers, ground protection and good working practices. Tree number 6, an off-site tree is growing adjacent to the north east elevation. With appropriate pruning work and tree protection, it is considered that this tree should not be significantly harmed.

Impacts

The proposed construction has been considered in proximity to retained trees;

Where the scaffold towers are erected within the RPAs of the retained tree (6) and hedgerow 1, the following approach should be adopted should the existing hard surfacing be removed beforehand;

1. Apply the following ground protection within the RPA of the tree prior to the realignment of the tree protection barriers if required;
 - a. For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g., 100 mm depth of woodchip), laid onto a geotextile membrane.
 - b. For pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g., 150 mm 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 systems 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.
2. Construct the scaffold vertical tubes upon wooden blocks (to distribute the point load) with suspended walkways ensuring a layer of impermeable membrane is placed beneath the scaffold to catch any falling debris such as curing cement as this can be phytotoxic to the roots of vegetation. All pedestrian access will use the suspended scaffold walkways.
3. Fit scaffold boards to provide a walkway of 1.5 m width.
4. Any vegetation obstructing access or deemed to be within eye-strike shall only be removed with the authority of the retained Project Arboriculturalist or Arboricultural Officer for the Local Authority (See Section 3.3.13 for more details).

To restock materials around the scaffold towers, further ground protection may be required and therefore the Contracts Manager will be responsible for the installation and supervision of this works. Once this has been carried out the Project Arboricultural Consultant will be contacted to confirm the suitability and location.

The locations of the tree protection barriers and ground protection is shown on Tree Protection Plan Drawing Number MB210128-01-01, Section 5.

Mitigation/Avoidance

To minimise the risk of damage occurring to the tree and hedgerow's crowns during the erection of scaffolding and construction it may be necessary to undertake some access facilitation pruning works, as detailed in Section 3.2.1.

The potential for direct damage to the stems of the trees will be controlled by the installation of protective barriers as shown on Tree Protection Plan Drawing Number MB210128-01-01, Section 5. The roots of the trees can be retained with the supervision of the retained Project Arboriculturalist or Arboricultural Officer for the Local Authority (See Section 3.3.13 for more details).

3.3.8 Construction of New Hard Surfacing

Impacts

Examination of the proposed plan indicates that the construction of the proposed footpath and driveway will pass through the RPAs of the off-site trees number 6, 7 and 8.

The potential for significant harm to occur to the retained trees can be controlled through adoption of appropriate working techniques, construction utilising a no dig methodology and tree protection measures along with arboricultural supervision.

Mitigation/Avoidance

Wherever it is intended to undertake construction operations within the Root Protection Areas of trees precautions must be taken to maintain the condition and health of tree's root systems. The Tree Protection Plan (Drawing Number MB210128-01-01, Section 5) indicates that there may be a requirement to realign the tree protection barriers **ONLY** when the work is to completed and **NOT** beforehand so that the ground remains protected within the RPAs outside of this construction activity. This is especially important for the construction of the footpath from Selsmore Road. This will be carried out under the supervision of the retained Project Arboriculturalist or Arboricultural Officer for the Local Authority (See Section 3.3.13 for more details).

In particular:

- Works shall be conducted in such a manner as to prevent physical damage to roots during construction, such as soil compaction or root severance.
- Provision for water and oxygen to reach the roots must be made and the soil structure must not be disturbed.
- Provision must be made for future root growth and precautions taken to ensure that such root growth does not cause unacceptable levels of damage to the finished construction.
- The soil must not be compacted and soil bulk density must be maintained at suitable levels for tree root growth and function. In this respect, a soil bulk density of over 1.8g/cm³ is likely to impede root growth and function.

To achieve the above requirements for tree root growth and function the proposed hard surfaces shall be designed so that:

- No excavation of bare ground is required for their installation; to ensure that physical root damage does not occur.
- The surface can be installed **without** compaction of the existing soils; thus, ensuring damage to the soil structure does not occur.
- The surface is permeable; thus, ensuring that oxygen and water can reach the root system and that CO² can diffuse vertically out of the soil as high concentrations can cause root suffocation.

The footpath access should be constructed of a permeable surface such as block paving, grasscrete or similar to retain the integrity of the soil structure below and allow for the percolation of water, nutrients and oxygen to the roots. This must be carried out without the need to change the soil / ground levels.

It should be noted however that should such an approach be adopted some limited impact upon the trees is likely and whilst they are species that will typically adapt to changes in their growing environment some short-term loss of vigour could be expected.

Where existing areas of hard surfacing is proposed for renewal then it is recommended that only the surface layer is removed down to the existing hard-core base layer and rebuilt from this horizon. This will negate the requirement for excavating within the RPA of a retained tree and thus reducing the likelihood of damage to underlying roots.

To form the new access driveway, it is recommended that the existing hard-core layer is retained to prevent the requirement to disturb the rooting zone of the off-site trees. If this cannot be achieved then the following shall be adhered to;

In particular:

- Works shall be conducted in such a manner as to prevent physical damage to roots during construction, such as soil compaction or root severance.
- Provision for water and oxygen to reach the roots must be made and the soil structure must not be disturbed.
- Provision must be made for future root growth and precautions taken to ensure that such root growth does not cause unacceptable levels of damage to the finished construction.
- The soil must not be compacted and soil bulk density must be maintained at suitable levels for tree root growth and function. In this respect, a soil bulk density of over 1.8g/cm³ is likely to impede root growth and function.

To achieve the above requirements for tree root growth and function the proposed temporary hard surfaces shall be designed so that:

- No excavation of bare ground is required for their installation; to ensure that physical root damage does not occur.
- The surface can be installed without compaction of the existing soils; thus, ensuring damage to the soil structure does not occur.
- The surface is permeable; thus, ensuring that oxygen and water can reach the root system and that CO₂ can diffuse vertically out of the soil as high concentrations can cause root suffocation.
- There are various methods of creating such a surface however one that is commonly in use and is therefore recommended here is the use of a three-dimensional cellular confinement system, such as CellWeb produced by Geosynthetics or Geoweb produced by Greenfix UK, to provide for load suspension above the existing soil grade and reducing vertical loads on the underlying soils.

It should be noted however that should such an approach be adopted some limited impact upon the trees is likely and whilst they are species that will typically adapt to changes in their growing environment some short-term loss of vigour could be expected.

In summary mitigation measures shall be to utilise a 'no dig' construction methodology to construct all areas of hard surface within the RPAs of the retained trees. This will mean that surface levels may be raised from existing levels and this must be a consideration in the design phase.

In accordance with BS5837:2012 all areas of construction activity within the RPA should be supervised by the retained arboriculturist (See Section 3.3.13 for contact details).

3.3.9 Boundary and Ancillary Structures

Impacts

The exact details of any proposed boundary structures are not known at this time.

Mitigation/Avoidance

The location of any concrete foundations, tree protection scaffold bars and supporting posts needs to be carefully considered to ensure no damage to the adjacent trees occurs. For example, due to the highly alkaline leachate produced during the curing process of wet concrete, the concrete should not be poured within the RPA of a retained tree unless an impermeable liner has been installed.

Foundations for any proposed retaining wall within an RPA should not be of traditional trench style but consideration made for an above ground bridged-lintel to allow for future growth both above and below ground.

Additionally, any new fence posts or tree protection upright support bars should not be installed or constructed within 1.0 m of the stem of any retained tree. Consideration for the use of half-panels to relocate fence posts away from retained trees by measuring site boundaries beforehand is recommended. This will reduce the amount of excavation for post foundations required within the RPAs of the retained trees. Any excavation for fence posts in RPAs will need to occur by hand and under arboricultural supervision to ensure no root damage occurs (See Section 3.3.13 for contact details).

No machinery should be used for the installation of fence posts and ground protection may be a consideration in some circumstances where access is challenging. See Section 3.3.7 for ground protection options.

3.3.10 Site Gradients

Impacts

There has been no indication for the intention to alter levels across the site.

Mitigation/Avoidance

The areas of new hard surfacing within the RPAs of retained trees are to be built up from existing ground level in accordance with a no-dig methodology and under the supervision of the arboriculturalist (See Section 3.3.8). No excavation of ground or build-up of levels shall occur within the RPAs of retained trees. This is to prevent destabilising the tree or suffocation of the tree roots. In both instances, it would be detrimental to the trees' vitality and vigour.

3.3.11 Service Requirements

Impacts

As the site is developed there are existing service connections throughout and as such it is considered that various opportunities to create new service connections without harming trees exist.

Mitigation/Avoidance

The methodology for the installation, maintenance or removal of any services within an RPA will be in accordance with NJUG Volume 4 'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees'. This will include hand dug 'broken' trenches to ensure that maximum protection is given to tree roots.

3.3.12 Preconstruction Recommendations

Auditable systems of site monitoring should be made available to the Local Planning Authority/Arboricultural Officer and included within the program of development construction as recommended within BS5837:2012. This should include a schedule of events whereby periods of supervision or input from the Project Arboriculturist is required (See Section 3.3.13 for contact details).

A pre-commencement site meeting involving all interested parties, including the Local Authority should be convened to confirm;

- Tree protection measures;
- Underground services location and installation methodology;
- Ground protection measures;
- Tree works schedule;
- Project timeline;

- Hard surface replacement and footpath construction.
- Audit and supervision periods.

3.3.13 Contact Details

Name: Marco Bartolini

Position: Arboricultural Consultant

Mobile: 07542 093882

Email: arborecoconsultancy@gmail.com

The Arboricultural Officer for the Local Planning Authority is:

Name: Jamie Gargett

Position: Arboricultural Manager (Planning Compliance)

Company: Havant Borough Council

Telephone: 023 9244 6019

4. ARBORICULTURAL METHOD STATEMENT

It is considered that an Arboricultural Method Statement should not be required for the site as although various aspects of the proposed construction phases will require works to be undertaken within the RPAs of retained trees, it is deemed that supervision from the retained Arboricultural Consultant will oversee these works and ensure that they are carried out in accordance with BS5837:2012 recommendations.

Planning Context; National Planning Policy Framework

It is important to note that trees are a material consideration in the UK planning system and existing trees are an important factor requiring forethought when assessing the development potential of a site, whether they are within the working area or within such proximity to it that they may be affected by construction operations.

Environmental Benefits of Trees

It is worthwhile noting that the trees can intercept many of the hostile elements humans and animals need shelter from. Trees provide shading and offer significant humidity regulation and a cooling effect felt at ground level. All trees will consume a considerable amount of ground water that will regulate the local hydrology and may assist with the removal of local flooding issues. A mature tree will consume tens of thousands of litres of water during a year. A group of trees can provide an element of acoustic dampening effect at ground level and growing next to a road many tree species have been linked with the sequestration of impurities from the atmosphere. Finally, the trees will provide some shelter from prevailing winds and inclement weather. Therefore, it can be seen that the trees will benefit, rather than hinder, the landscape in which they are growing.

5. DRAWINGS

1. Drawing MB210128-01-01 Tree Protection Plan

Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.
All rights reserved.

Tree Protection Plan Showing Proposed Scheme and Arboricultural Controls

Key

-  Tree
Showing Canopy extents, category colour, tag number (with category) and RPA circle.
-  Tree Protective Fencing
Location of tree protective fencing. Fencing to be BS5837:2012 default specification.
-  Materials Storage Area
-  Ground Protection
-  Facilitation Pruning Required
Hedges to be faced back to boundary
-  No dig cellular confinement solution
-  Trees for Removal

Tree Numbering: T1-T8, H1-H2.

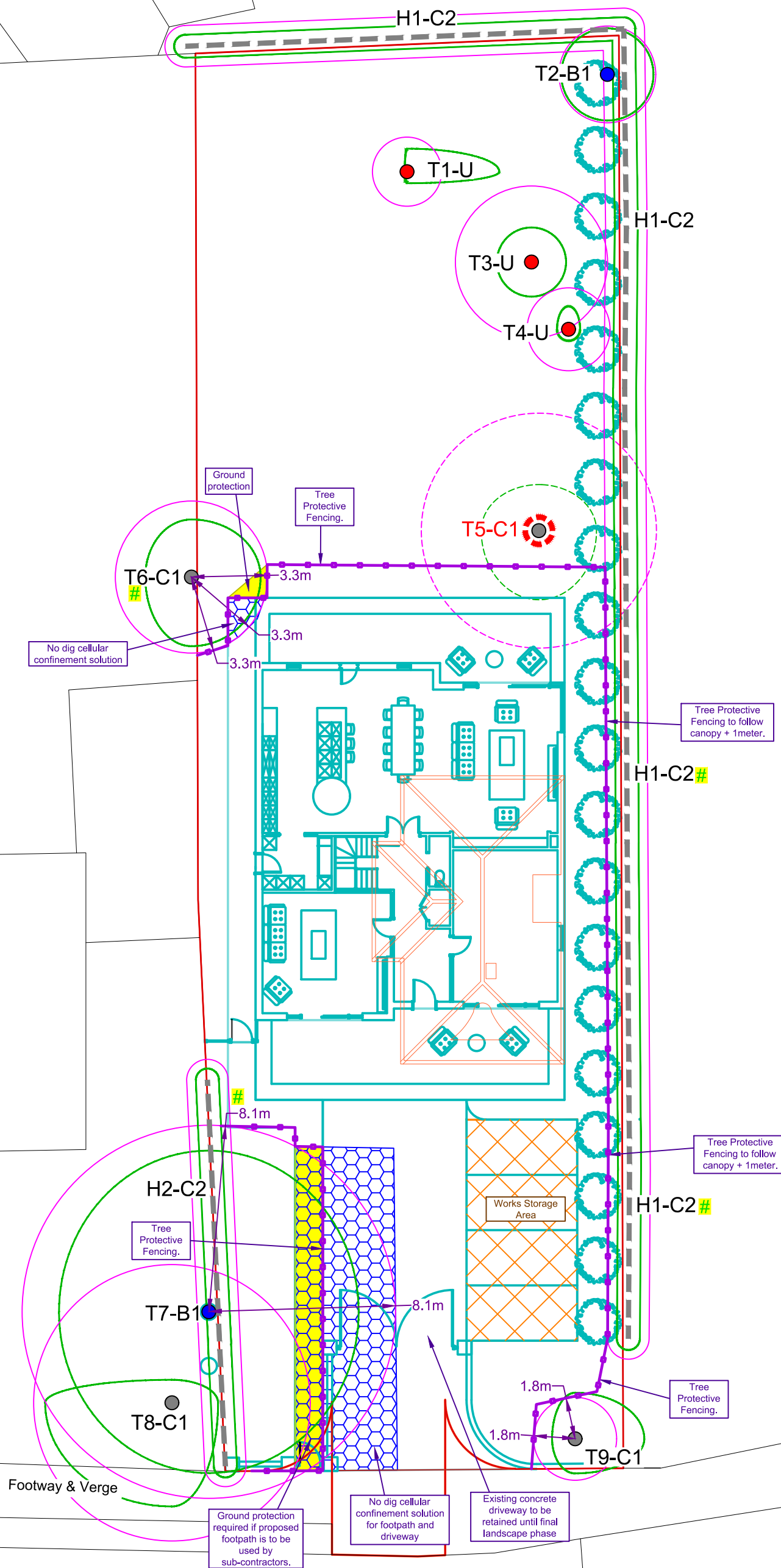


2 Daisy Lane, Locks Heath,
Hants. SO31 6RA.

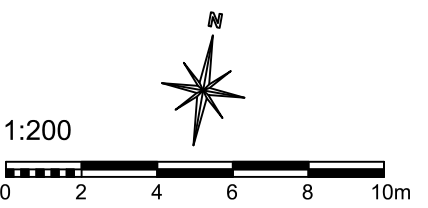
Email: arborecoconsultancy@gmail.com
Telephone: 07542 093882

Arboricultural Consultant
Marco Bartolini

Client			
HOP Architects Ltd			
Project			
Laetare, Selmore Road, Hayling Island.			
Drawing Title			
Tree Protection Plan			
Scale	Date	DB	CB
1:200@A3	Sep 2021	CS	MB
Drawing Number		Rev	
MB210128-01-01		A	



SELSMORE ROAD



REFERENCES AND BIBLIOGRAPHY

Arboricultural Advisory Information Services. (2007) 'Practice Note 12. Through Trees to Development'.

Arboricultural Association. (2009) Guidance Note 7. *Tree Surveys: A guide to Good Practice*. The Arboricultural Association, Stonehouse.

British Standards Institution. (2010) *British Standard 3998:2010; Tree work – Recommendations*. British Standards Institution, London.

British Standards Institution. (2012) *British Standard 5837:2012, Trees in relation to design, demolition and construction – recommendations*. British Standards Institution, London.

British Standard Institution. (2014) *British Standard 8545:2014 Trees: from nursery to independence in the landscape – Recommendations*. British Standards Institution, London.

Grace, *Pers comm* (2021), Environmental Services, Havant Borough Council.

Johnson & More (2004) *Tree Guide*, Collins. London.

Lonsdale, D. (1999) *Principles of Tree Hazard Assessment and Management*. DETR, London.

National House Builders Council (NHBC) (2017) *Standards Part 4.2, Building Near Trees*. Milton Keynes.

National Planning Policy Framework (2021). Department for Communities and Local Government.

NJUG Volume 4 (2007) *Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees*.

Planning Practice Guidance. (2021). *Tree Preservation Orders and trees in Conservation Areas*. <http://planningguidance.planningportal.gov.uk>. Accessed 10/02/21.

Phillips, R. (2006) *Mushrooms. A Comprehensive Guide*. MacMillan Publishers Ltd, London.

Roberts *et al.* (2013) *Tree Roots in the Built Environment. Research for Amenity Trees No.8*. Arboricultural Association, Stonehouse.

APPENDICES

APPENDIX 1:	Table A1.1 – Tree Survey Schedule
APPENDIX 2:	Table A2.1 – Root Protection Areas of Category A, B and C Trees
APPENDIX 3:	Headings for Tree Protection Signs and Example Sign
APPENDIX 4:	Tree Protection Barriers (Default and Variant)

APPENDIX 1

Table A1.1 – Tree Survey Schedule

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	Ht 1 st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management Recommendations
						N	E	S	W	N	E	S	W							
1	Eucalyptus	1	120	9.0	1.5 W	1.0	4.0	0.5	0.0	1.5	1.5	1	1	EM	F	P	<10	U	- Root heave evident. - Tree leans to east >30 degrees.	Advise removal.
2	Oak	1	160	5.5	1.0 W	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	EM	G	G	20+	B1	- Deadwood stubs. - Old pruning wounds occluding. - Poor past management.	-
3	Apple	2	270	2.5	0.0 E	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	OM	P	F	<10	U	- Dryads saddle fungus on stem. - Bifurcated at 0.5 m above ground level. - Poor past management. - Old pruning wounds occluding with decay pockets.	-
4	Apple	1	130	2.5	0.0 W	1.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	M	F	P	<10	U	- Tree leans to north due to root heave. - Poor past management. - Old pruning wounds occluding with decay pockets.	-
5	Apple	4	410	2.5	1.0 S	2.0	2.5	3.0	2.5	1.0	1.0	1.0	1.0	OM	F	F	10+	C1	- Multi-stemmed at 0.5 m above ground level. - Poor past management. - Old pruning wounds occluding with decay pockets.	-
6	Holm Oak	1	260	8.0	2.0 N	2.5	3.0	3.0	<u>2.0</u>	2.0	2.0	2.0	2.0	EM	G	F	10+	C1	- Off-site tree. - Restricted access prevented detailed assessment. - Bifurcated at 1.5 m above ground level. - Overhangs site 3.0 m. - Deadwood stubs.	-
7	Maritime Pine	1	<u>660</u>	16.0	6.0 W	7.0	6.5	<u>7.0</u>	<u>6.5</u>	4.0	4.0	5.0	4.0	M	G	G	20+	B1 Int	- Off-site tree. - Ivy on stem and in crown limited access to survey. - Restricted access prevented detailed assessment – unable to verify health and safety. - Hanging deadwood in crown. - Overhangs site 6.0 m. - Hard surfacing within RPA.	Sever and remove ivy to permit further inspection. Crown clean deadwood.

Table A1:1 Tree Survey Schedule (continues)

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	Ht 1st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management Recommendations
						N	E	S	W	N	E	S	W							
8	Maritime Pine	1	<u>500</u>	6.0	6.0 S	1.0	2.0	<u>4.5</u>	<u>5.5</u>	6.0	2.0	1.0	2.0	M	P	F	10+	C1	- Off-site tree. - Ivy on stem and in crown limited access to survey. - Restricted access prevented detailed assessment – unable to verify health and safety. - Hanging deadwood in crown. - Overhangs site 2.0 m. - Hard surfacing within RPA. - Poor past management. - Apical leader previously removed.	Sever and remove ivy to permit further inspection.
9	Mimosa	2	<u>150</u>	4.0	1.0 W	2.0	3.0	1.5	1.0	1.0	1.0	1.0	1.0	EM	F	F	10+	C1	- Bifurcated at 1.0 m above ground level. - Fasciated stems. - Poor past management. - Deadwood stubs.	-
H1	Blackthorn Bramble	1	50	1.0	0.0 E	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	Y EM	F	F	10+	C2	Recently flailed stock-proof boundary hedgerow.	-
H2	Euonymus Bramble Holly Privet	1	50	2.0	0.0 N	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	Y EM	G	F	10+	C2	- Boundary hedgerow. - On and off-site stems.	-
Key <u>Age Class</u> Y: Young = tree within first third of average life expectancy EM: Early mature = tree within second third of average life expectancy M: Mature = tree within final third of average life expectancy OM: Over mature = tree beyond average life expectancy V: Veteran status D: Dead <u>Physiological Condition</u> G: Good = no health problems F: Fair = symptoms of ill health that may be remedied P: Poor = poor health D: Dead <u>Structural Condition</u> G: Good = no structural defects F: Fair = remedial structural defects P: Poor = significant structural defects D: Dead <u>000</u>: Estimated measurement due to access restrictions RPA: Root Protection Area Int: Interim category due to access restrictions Major deadwood: branches in excess of 50 mm diameter Minor deadwood: branches/twigs less than 50 mm diameter																				

Table A1:1 (cont'd) Tree Survey Schedule

APPENDIX 2

Table A2.1 – Root Protection Areas of Category B and C Trees and Hedgerows

Tree No.	Species	Diam (mm)	Approximate Root Protection Radius (m)	Root Protection Area (m ²)
1	Eucalyptus	120	1.5	7
2	Oak	160	2.1	14
3	Apple	270	3.3	34
4	Apple	130	1.8	10
5	Apple	410	5.1	81
6	Holm Oak	260	3.3	34
7	Maritime Pine	660	8.1	206
8	Maritime Pine	500	6.0	113
9	Mimosa	150	1.8	10
H1	Blackthorn Bramble	50	0.9*	3*
H2	Euonymus Bramble Holly Privet	50	0.9*	3*
Key: *: Average measurement taken around centre of hedgerow				

Table A2-1: RPA and Approximate Root Protection Radius of Trees and Hedgerows Surveyed

APPENDIX 3

Headings for Protective Barrier Notices and Example Sign

Root Protection Area (RPA) Model Notice

DON'T excavate within this area

DON'T use any form of mechanical plant with this area

DON'T store materials, plant or equipment within this area

DON'T move plant or vehicles within this area

DO contact the Local Authority Arboricultural Officer or owner of the tree if excavation within this area is unavoidable

DO protect any exposed roots uncovered within this area with dry sacking

DO backfill with a suitable inert granular and top soil material mix as soon as possible on completion of work

ANY WORK in this area requires permission from the Local Authority Arboricultural Officer



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS 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**

APPENDIX 4

Details of Protective Barrier (Default and Variant)

Figure 2 Default specification for protective barrier

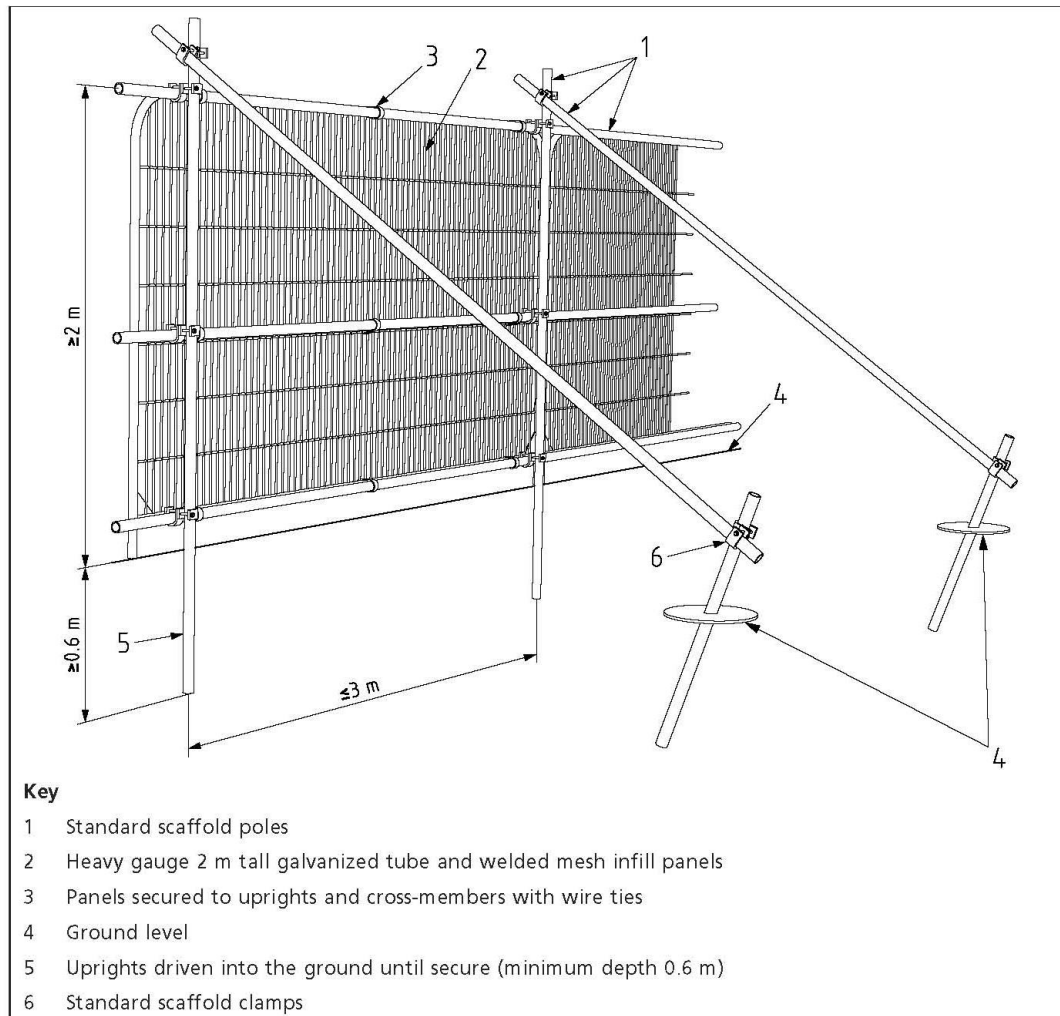


Figure 3 Examples of above-ground stabilizing systems

