



ARBORICULTURAL IMPACT ASSESSMENT

At

**COCKLE POINT,
MARINE WALK,
HAYLING ISLAND, HAMPSHIRE**

For:

CAAD Ltd on behalf of MR STEWART JOHNSON

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*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.*

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

Mr S Johnson commissioned Arbor-Eco Consultancy to compile an Arboricultural Impact Assessment following the undertaking of an Arboricultural Survey of trees situated on land at Cockle Point, Marine Walk, Hayling Island. The site is within the administrative boundary of Havant Borough Council, at the fringes of an Area of Outstanding Natural Beauty (AONB) 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 proposed development of land is located within a sparsely populated residential area of the district of Selsmore and situated towards the eastern fringes of the settlement. The site is situated off a private, unadopted road, Marine Walk, minor trunk road. The site is dominated by existing residential building, areas of hard surfacing, defunct outhouses, dense areas of vegetation, a grass tennis court and a small copse. The trees and vegetation surveyed were growing throughout the site with a dominant copse to the western boundary.

The site is delineated from neighbouring land by a mix of fencing, land drains and vegetation. To the north, the site abuts a section of unmanaged land accessed off Marine Walk. The eastern boundary was demarcated by a land drain, beyond which was Chichester Harbour (open water). The southern boundary is delineated by a further land drain, a public right of way, beyond which was Chichester Harbour (open water). The western boundary met with Marine Walk, minor trunk road. The site is centred at National Ordnance Survey Grid Reference SZ 73958 99114.

The topography of the survey area is undulating with land drains, a pond and other such excavations that were typical of an active garden with formal gardens. It was evident that the site had been neglected and was overgrown with large sections of bramble and gorse.

Arbor-Eco Consultancy, Tree Constraints Plan, Drawing Number MB220108-01-01 in Section 5 indicates the location of the trees surveyed.

1.3 DEVELOPMENT PROPOSALS

It is understood that the site surveyed will be the subject of a planning application to include the realignment of the existing western elevation, the construction of a wrapped terrace section to the western elevation to permit access for a wheelchair and other such mechanically operated or assisted vehicles for the owners to meet with Equality Act 2010 (formerly Disability Discrimination Act). In addition, associated hard and soft landscaping of the site will also be undertaken to accommodate the accessibility proposals.

It is worthy of note that the trees identified within the Arbor-Eco Consultancy Tree Constraints Plan, Drawing Number MB220108-01-01, are the only trees likely to be impacted or, deemed to be in conflict with, the proposed development. All remaining trees will be protected and retained.

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	Document Number	Date
CAAD Ltd	Proposed Layout	-	Jun 2022
CAAD Ltd	Proposed Floor Plans	22020-405	Mar 2022

Table 1.1: Documentation Provided

2. STATUTORY PROTECTION

2.1 TREE PRESERVATION ORDER AND CONSERVATION AREA DESIGNATIONS

Examination of Havant Borough Council interactive mapping system

<http://maps.havant.gov.uk/havant.aspx> accessed on 29th June 2022, indicated that the copse trees are the subject of a Tree Preservation Order (TPO) along with 11 (eleven) individual trees. All other trees are deemed to be outside of the Order.

It is worthy of note that the author was unable to locate tree numbers T3 to T10 (inclusive during the survey) and these have likely been previously removed / died. It is therefore requested that the Tree Officer review and amend the TPO to reflect what is growing at this site. It is also noted that the copse is the subject of an Area TPO and this should be amended to reflect only those trees worthy of TPO as an Area TPO is considered a temporary condition in accordance with the Regulations.

The Town and Country Planning (Tree Preservation) (England) Regulations 2012, Part 4 – Applications for Consent under Tree Preservation Orders states that an application for consent to the cutting down, topping, lopping or uprooting of any tree in respect of which an order is for the time being in force shall be made in writing to the authority on a form published by the Secretary of State for the purpose of proceedings under these Regulations.

Until such time as the application has been granted no works must be undertaken on the trees identified as being subject to TPOs that contravene the order. Works include pruning, topping, lopping, uprooting or wilfully damaging these trees. Any proposed pruning works will need to be fully specified and agreed within any planning application. If works are not included within the planning application, a separate TPO application will be required to be submitted to the Local Authority for permission to undertake any works (approximately an 8-week process).

Apart from [limited exceptions](#), permission must be sought from the local planning authority by submitting a standard application form. The form is available from the Local Authority [Planning Portal](#). It is important that the information on the form makes clear what the proposed work is and provides adequate information to support the case.

The authority's consent is not required for carrying out work on trees subject to an Order so far as such work is necessary to implement a full planning permission. For example, the Order is overridden if a tree has to be removed to make way for a new building for which full planning permission has been granted. Conditions or information attached to the permission may clarify what work is exempt.

Further examination of Havant Borough Council interactive mapping system

<http://maps.havant.gov.uk/havant.aspx> accessed on 29th June 2022, indicated that the site is not 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 MB220108-01-01 in Section 5.

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 not require the removal of any of the trees or groups of trees across the site to permit its successful implementation.

Since the survey of January 2022, a single tree has been removed. Tree number 8, Silver Birch, and is shown as a *stump* on the Tree Constraints Plan for continuity.

In accordance with the Town and Country Planning (Tree Preservation) (England) Regulations 2012, Part 4 – Applications for Consent under Tree Preservation Orders, this report represents the necessary submission to carry out tree works to trees that are the subject of a Tree Preservation Order to permit the successful implementation of the proposed development. Any tree works that are subsequently required shall be applied for in accordance with current guidance.

Proposed Tree Works

To permit space for the extension of the existing buildings, construction of the new terracing and to provide working space for the hard and soft landscaping improvements it will be necessary to carry out minor pruning works to the trees and groups of trees on this site prior to any other works being carried out. The proposed tree works are detailed in Table 3.1.

The original survey was carried out in January 2022, there were no leaves on the deciduous trees and it is therefore very difficult to assume the new canopy heights due to leaf and fruit weights and also to determine the extension growth that has occurred. Therefore, the assumption is that all trees may require pruning works once the project date is set. Once this date has been agreed it is recommended that a tree schedule is raised with the Local Authority.

Tree No	Species	BS5837 Cat	Works Required and Reason
1	Hawthorn	C	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
2	Holly	C	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
3	Oak	B	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
4	Scots Pine	B	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
5	Oak	C	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.

Table 3.1: Proposed Tree Works (To be confirmed at project start)

Tree No	Species	BS5837 Cat	Works Required and Reason
6	Oak	C	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
7	Scots Pine	C	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
9	Alder	C	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
10	Alder	C	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
11	Holm Oak	C	Carry out branch tip pruning to facilitate the proposed development.
12	Oak	B	Carry out branch tip pruning to facilitate the proposed development.
13	Oak	B	Carry out branch tip pruning to facilitate the proposed development.
G1	Mixed Species	B	Carry out facilitation works to the branches overhanging the driveway access to permit vehicular access without conflict with the tree.
G3	Mixed Species	C	Carry out branch tip pruning to facilitate the proposed development.
Key #: Quantity and quality to be confirmed by engineer surveyor once site has been marked out.			

Table 3.1: Proposed Tree Works (To be confirmed at project start)

In addition to the proposed tree work to facilitate the proposed development there may be a requirement to carry out an element of facilitation pruning works or works to meet with the Highways Act 1980. Until such time as the project build date has been set then the works to the retained trees has yet to be determined. Once the date has been set then a tree works schedule should be developed and an Addendum to this report filed to indicate the work required. In the meantime, it is worthy of note that a number of trees on this site overhang a highway and a public footpath.

Trees and vegetation that overhang the highway should be crown-lifted to at least 5.2 m above ground level to allow safe passage of high sided vehicles as well as being cut back sufficiently from the edge of the carriageway to allow clearance for wing mirrors. Trees and vegetation that overhang footways and footpaths should be crown-lifted to at least 2.5 m above ground level and cut back to ensure the footpath/way is at least 1.2 m in width. This is to allow safe passage for all footpath/way users including wheelchairs, mobility scooters, etc.

These heights have been selected as an acceptable standard and any vegetation below this may be deemed to be an obstruction. The local authority may enforce Section 154 of the Highways Act (1980) which allows a Local Authority to serve notice upon the owner of the trees / vegetation informing them that they need to clear any obstructions safely.

Mitigation/Avoidance

An addendum shall be submitted detailing the necessary tree works that may fall outside of that which is within Table 3.1 to avoid the requirement to submit a Planning Application once all construction requirements are known.

Any 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

It is evident that an existing tree management regime existed, as was evident during the survey, in the form of pruning and pollarding, and 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. 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 the tree.

Shading

It is very unlikely that the property will experience significant shading during the day as the sun tracks across the horizon. The orientation of the building and aspects of the windows would suggest that this may be felt in the late afternoon. Therefore, it can be assumed that no significant shading of primary living spaces within the proposed new buildings is likely to occur due to existing or proposed trees.

Leaf Litter, Fruits, Pollen, Sap etc.

Whilst the majority of the retained trees are species associated with significant fruit fall, leaf and branch drop or sap exudate problems the inconvenience experienced can be overcome by implementing good housekeeping.

Mitigation/Avoidance

Trees across this site have been and will continue to be the subject of cyclical pruning as the trees continue to grow. Further works will 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 trees.

With respect to leaf litter, it is noted that the sweeping up of leaves and cleaning of gutters, which may become blocked by falling leaves, is considered to be routine seasonal household maintenance and, as such, no notable conflict with the proposed development is considered to occur. 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.

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 deconstruction and 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 exist 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. 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. For the benefit of this report, it is assumed that conflict with the roots of retained trees will be insignificant and that the roots shown within the site will be protected.

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.

In accordance with BS5837:2012, Section 4.6.2, an allowance for the modification can be made to the RPA of trees located adjacent to man-made or naturally occurring hard structures. For example, highways, access routes, footpaths (especially those that are kerbed) and underground services will affect the morphology of roots. The morphology of the roots is such that they are likely to have formed a fan shape with many roots running parallel to the hard structures rather than being offset in to the site. To determine the exact location of the roots of a tree it would be necessary to employ a root-radar for this work.

Section 7.4.2, Para 7.4.2.3 of BS5837:2012 permits the construction of new hard surfacing within the unmade ground of the RPA of a retained tree of no greater than 20%. This does not apply to the A category trees.

The RPA and canopy spread of each tree to be retained is shown on Drawing Number MB220108-01-01, 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 no major works are required within the RPAs of the retained trees. Whilst the Tree Protection Plan, Drawing Number MB220108-01-02 may indicate otherwise, it should be noted at this early stage that the terracing is supported upon stilts as a flood defence system and therefore only 'piles' will intrude into the ground.

The protection of trees during demolition or deconstruction work is discussed within Section 3.3.6.

The construction works to develop the extended terracing and balcony has the greatest potential to cause harm to the retained trees. It is considered that the trees identified on Tree Protection Drawing MB220108-01-02, Section 5, will not be so significantly impacted upon with the adoption of tree protection measures, the installation of suitable ground protection and good working practices as described within Sections 3.3.6 and 3.3.8. In addition, the methodology for a safe solution to insert new piles or posts is described within Section 3.3.9.

Where there is a likelihood of conflict and in areas where construction is required within the RPAs of retained trees 11, 12 and 13 the adoption of good working practices and the development of recognised technical solutions will reduce the impact to the trees' health and vitality (See Section 3.3.8 for more details).

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 and erection of protective barriers to exclude access from vulnerable sections of trees RPAs.

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 demolition or 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 a combination of tree protection barriers and ground protection (specified in accordance with BS5837:2012).

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.

Drawing Number MB220108-01-02, in Section 5, provides a Tree Protection Plan indicating the potential location of 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 off Marine Walk. Until such time as permission is given from the local authority, no access shall occur from any other entry point. To minimise the potential for harm to occur to the crowns of the retained trees which overhang the route further access facilitation pruning works may be required over time due to seasonal extension growth to the existing vegetation. The extent of such pruning works should be revised prior to any construction traffic entering the site. Maximum heights of vehicles should also be investigated to ensure crown height is sufficient throughout the various phases of the development. The tree works shall be issued as an Addendum to this report and form part of the Planning Application in order to permit works to trees that are the subject of a Tree Preservation Order.

Additionally, where vehicles need to pass within close proximity to retained trees protective barriers or tree stem boxes should be installed to prevent vehicles accidentally encroaching into areas where retained trees are situated to minimise the potential for collision damage to trees stems occurring.

Mitigation/Avoidance

All trees surrounding the potential access routes should be adequately fenced to ensure that no damage to these specimens occurs during construction.

The retained Arboricultural Consultant shall submit a summary written report or email to the local authority confirming that all tree protection measures are in place, fit for purpose and adequately signed prior to construction or demolition works being carried out. This will be accompanied with photographic evidence.

3.3.3 Contractors Parking

Impacts

The location of contractor parking has been identified on the Tree Protection Plan, Drawing Number MB220108-01-02, in Section 5, and located at a distance on existing hard surfacing to protect the RPAs of retained trees.

Mitigation/Avoidance

No contractor parking is to occur at this site except upon existing hard surfacing. The Contracts Manager is to ensure that all highway laws are respected and no parking is to occur on any highway verge or obstruct neighbouring properties. It is worthy of note that Marine Walk, minor trunk road is narrow with no passing places large enough for HGVs. A traffic plan should be commissioned.

3.3.4 Site Cabins and Welfare Facilities

Impacts

The location of the Site Cabins and Welfare Facilities is yet to be determined; however, it is understood that it will occur in locations well away from the RPAs of 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 a Site Cabins and Welfare Facilities.

3.3.5 Delivery and Storage of Materials

Impacts

The proposed locations for site deliveries and materials storage during the development is yet to be determined; however, it is understood that it 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. A suitable location has been identified and is shown on the Tree Protection Plan, Drawing Number MB220108-01-02, in Section 5

3.3.6 Demolition of Existing Structures

Impacts

The proposed development of the site will require the demolition or deconstruction of the existing wrapped terracing and balcony. It will also require some of the outer elevations to be removed to tie-in with the proposed changes submitted. So long as good working practice is adopted in conjunction with suitable tree and ground protection utilising a top-down, pull-back demolition technique then the impact to the retained trees will be significantly reduced.

Mitigation/Avoidance

To prevent any ancillary works associated with the demolition or deconstruction of the terracing and elevations of the building from harming trees it will be necessary to install protective barriers and ground protection prior to commencement of these works.

Additionally, where the use of 360-degree traversing vehicles is used, then they will be supervised by a banksman to ensure that any traversing arm shall not be in proximity to any retained tree.

The location of the tree protection barriers and ground protection is shown on Tree Protection Plan Drawing Number MB220108-01-02, Section 5.

3.3.7 Construction of Terracing and Extension to the Building

Impacts

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

Where the scaffold towers are erected within the RPAs of the retained trees the following approach should be adopted;

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.
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 as defined by the tree protection barriers as shown on Tree Protection Plan Drawing Number MB220108-01-02, Section 5.
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 if the specification has been detailed within the Tree Works Addendum as discussed in Section 3.2.1. If this is not the case then the Contracts Manager shall seek 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 retained Arboricultural Consultant will be contacted to confirm the suitability and location.

The existing terrace or balcony was constructed upon stilts and is elevated above ground level to avoid flood risk. So long as the proposed terracing or balcony is constructed using the same configuration then it is very unlikely that any harm will come to the retained trees.

The locations of the tree protection barriers and ground protection is shown on Tree Protection Plan Drawing Number MB220108-01-02, Section 5.

Mitigation/Avoidance

To minimise the risk of damage occurring to the tree'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 foundations for the terracing or balcony extension have yet to be declared, however, with the flood risk construction to be mirrored it is anticipated that no conflict will occur. The remaining extension works to the property can be carried out internal to the property and finished once the terracing has been completed.

As tree roots are normally only found in the top 600 mm to 1m of soil, small bore pile and beam foundations can be designed to retain the majority of the rooting environment of the retained tree while supporting the structure way below the rooting system. This is achieved by drilling holes into the soil or driving piles into the ground.

This can be achieved using a hand auger or utilising a mini-piling rig. Due to the access restrictions to the rear of the property, a small tracked vehicle would be the most suitable.

Once installed in position, the piles support ground beams, which in turn hold up the building. The beams are placed above existing ground level to avoid damage to the rooting systems of the trees. This method of foundation construction will also permit adjustment to the height of the terracing to meet the internal floor levels of the existing building. The use of pile and beam foundations offers an effective way of constructing whilst minimising root disturbance to the retained trees.

See Section 3.3.9 with regards to concrete infilling or foundation supports around retained trees.

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 MB220108-01-02, Section 5.

3.3.8 Construction of New Hard Surfacing

Impacts

There has been no indication whether there is to be any replacement hard surfaces at this site.

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. This will be carried out under the supervision of the retained Arboricultural Consultant 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 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 and examples that are commonly in use and 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 (other contractors provide similar products which are available in the marketplace) to provide for load suspension above the existing soil structure and therefore 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.

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.

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.

An appropriate method statement and protection plan should be developed to ensure all retained trees are suitably protected during the development. In accordance with BS5837:2012 all areas of construction activity within the RPA should be supervised by the retained Arboricultural Consultant (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 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 piles should not be installed 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. See Section 3.3.7 for ground protection options.

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

3.3.10 Site Gradients

Impacts

There have been no indications of any gradient changes across the site.

Mitigation/Avoidance

No required.

3.3.11 Service Requirements

Impacts

As the site was previously developed there are existing service connections throughout part of it and it as such it is considered that various opportunities to create new service connections (should they be required) 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.

It is advised that the installation of any new services and drainage occur outside the RPAs of the retained trees. It is also advised that CCTV and lighting columns should not be situated in locations which will place future pressure on trees for crown pruning due to visibility/shadowing. Any lighting bollards, road signage or similar structures that require to be fixed to the ground with underground services shall be fitted outside of the RPAs of retained trees.

All areas of construction activity within the RPA of a retained tree should be supervised by the retained Arboricultural Consultant (See Section 3.3.13 for contact details).

3.3.12 Preconstruction Recommendations

Auditable systems of site monitoring should be made available to the Local 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 should be convened to confirm;

- Confirmation of Tree Works Schedule and submission of Addendum;
- Demolition or deconstruction process.
- Phased Construction.
- Confirmed location for Tree Protection Measures;
- Confirmed location for Ground Protection Measures;
- Underground Services Installation Methodology if required;
- Site Compound location and set-up;
- Parking locations;
- Audit and Periods of Supervision.

3.3.13 Contact Details

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4. ARBORICULTURAL METHOD STATEMENT

An Arboricultural Method Statement is considered not to be required for the site as the various aspects of the proposed demolition and construction phases can be monitored by the retained Arboricultural Consultant where works are to be undertaken within the RPAs of retained trees.

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

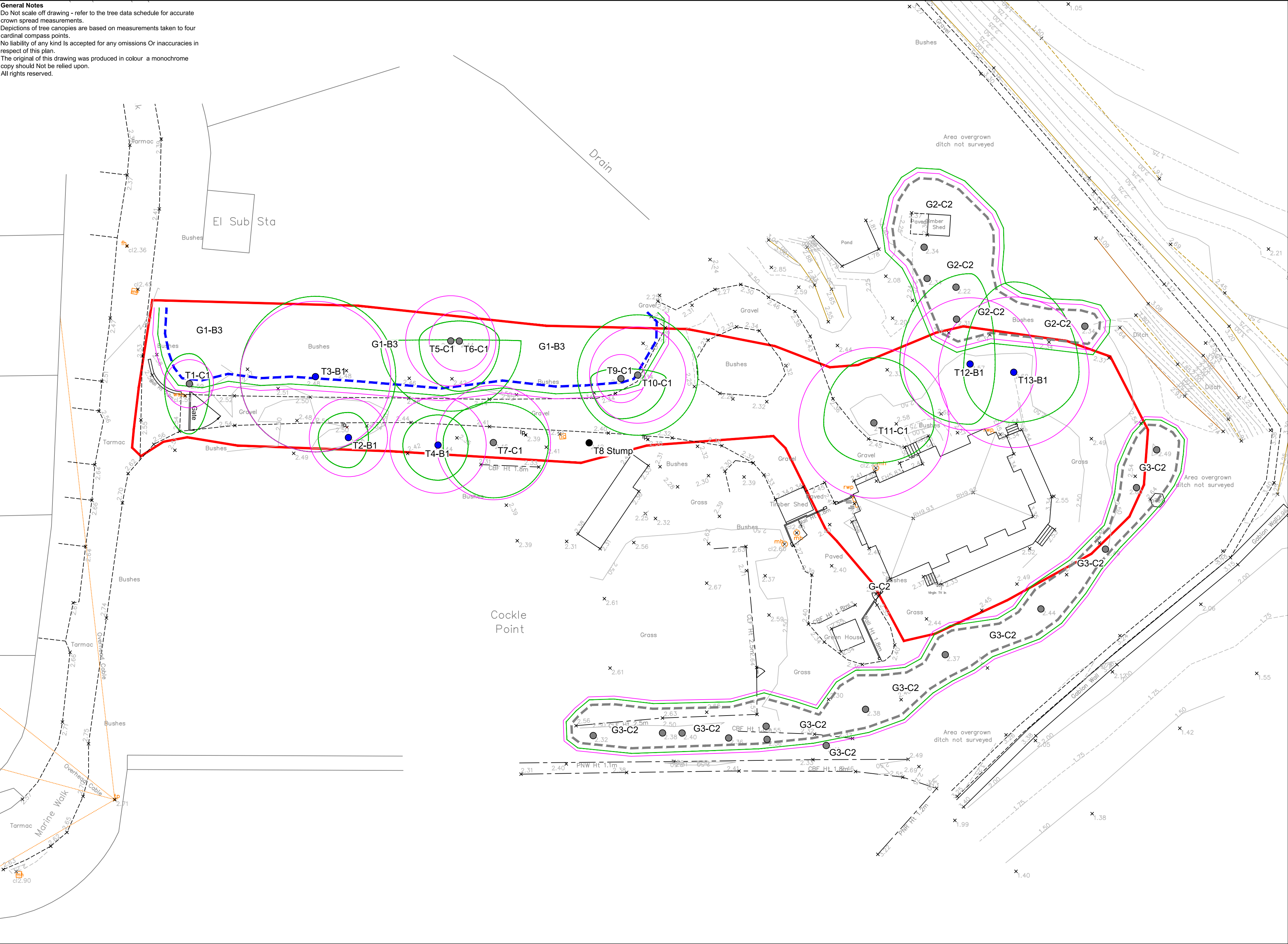
It is worthwhile noting that the trees can intercept many of the hostile elements humans and animals need shelter from. Trees provide shading and offer significant humidity regulation and a cooling effect felt at ground level. All trees will consume a considerable amount of ground water that will regulate 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 MB220108-01-01 Tree Constraints Plan
2. Drawing MB220108-01-02 Tree Protection Plan

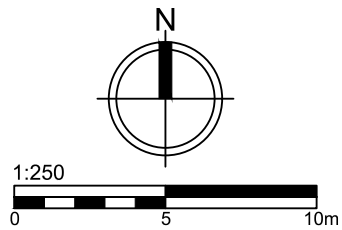
Drawing MB220108-01-01 Tree Constraints Plan

General 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.
The original of this drawing was produced in colour a monochrome copy should Not be relied upon.
All rights reserved.



Key

- Trees
Showing Canopy extents, category colour and tag number (with category).
- Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
- Category U
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Groups
Shown as dashed centre/boundary line. Colour represents category (see above)
- BS 5837:2012 Root Protection Area
- Tree Survey Area



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Client
Mr S Johnson

Project
Cockle Point, Hayling Island

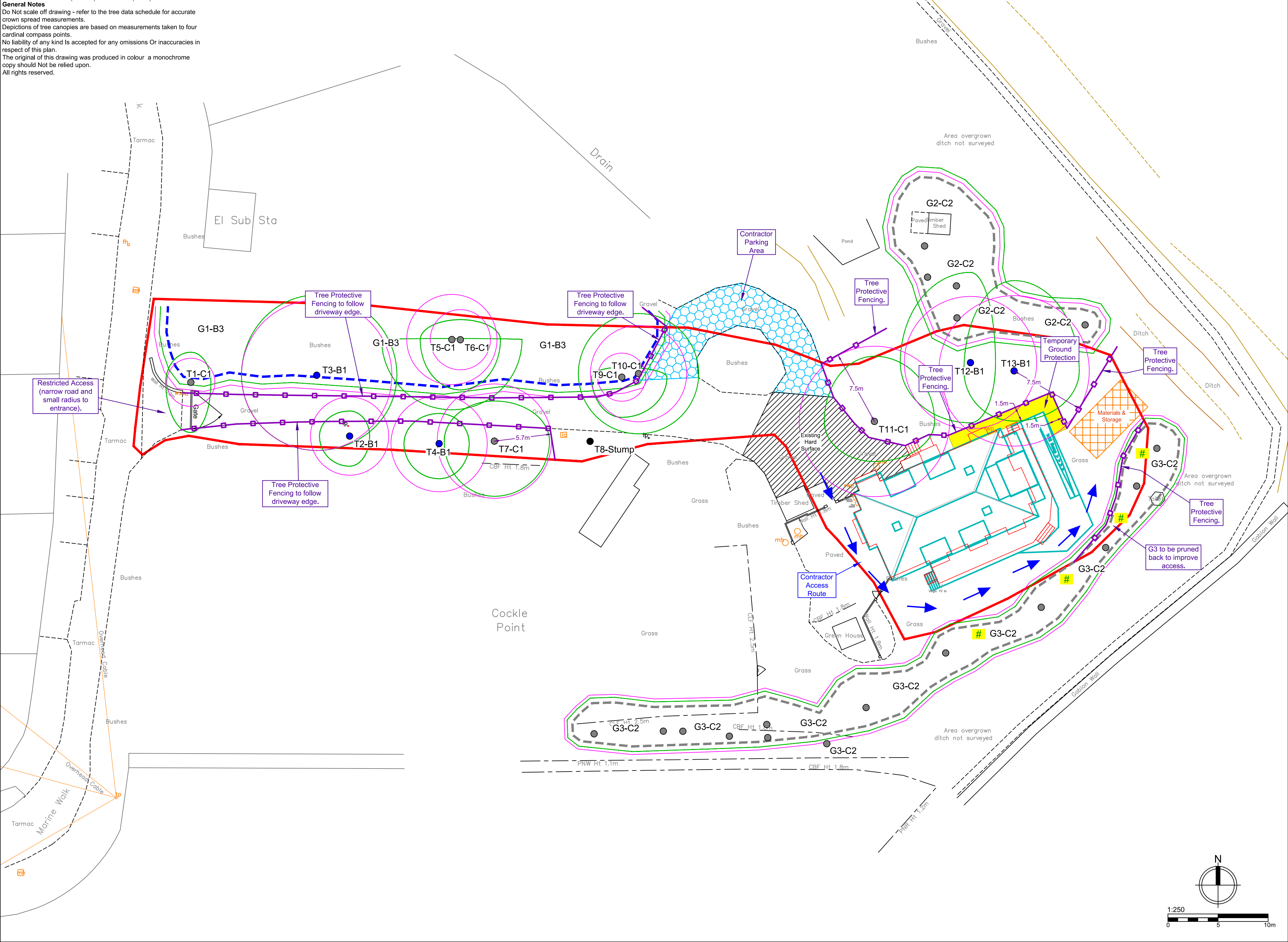
Drawing Title
Tree Constraints Plan

Scale	Date	DB	CB
1:250 - A2	24/01/2022	CS	MB

Drawing Number	Rev
MB220108-01-01	A

Drawing MB220108-01-02 Tree Protection Plan

General 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.
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Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Groups
Shown as dashed centre/boundary line. Colour represents category (see above)
- BS 5837:2012 Root Protection Area
- Tree Protective Fencing
- Ground Protection and Suspended Scaffold Walkway
- Materials Storage Area
- Contractor Parking Area
- Existing Hard Surface
- Facilitation Pruning Required
- Tree Survey Area Extents
- Contractors Access Route

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Client	Mr S Johnson		
Project	Cockle Point, Hayling Island		
Drawing Title	Tree Protection Plan		
Scale	Date	DB	CB
1:250 - A2	1/07/2022	CS	MB
Drawing Number	Rev		
MB220108-01-02	A		

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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	Hawthorn	2	200	6.0	1.0 W	3.0	2.0	1.5	2.5	1.0	1.0	1.0	1.0	M	F	F	10+	C1	- Artificial structures within RPA. - Overhangs entrance to site.	-
2	Scots Pine	1	310	10.0	1.0 S	2.5	2.0	3.0	3.0	1.5	1.0	1.0	1.5	EM	G	G	20+	B1	- Artificial structures within RPA. - Dense understorey restricted survey.	-
3	Oak	1	620	10.0	2.0 N	8.0	8.0	7.5	7.5	3.0	3.0	3.0	3.0	EM	G	G	20+	B1	- Artificial structures within RPA. - No visible significant defects.	-
4	Scots Pine	1	380	12.0	4.0 E	3.0	3.0	3.5	3.5	4.0	4.0	5.0	3.0	EM	G	G	20+	B1	- No visible significant defects. - Artificial structures within RPA.	
5	Oak	1	370	8.0	3.0 W	0.0	7.0	7.0	7.0	5.0	4.0	3.0	5.0	EM	F	F	10+	C1	- Suppressed tree. - Major deadwood in crown. - Dieback in canopy. - Artificial structures within RPA.	Crown clean deadwood.
6	Oak	1	240	8.0	4.0 W	2.0	4.0	5.0	4.0	2.0	3.0	2.0	2.0	EM	F	F	10+	C1	- Artificial structures within RPA. - Suppressed at edge of group. - Major deadwood in crown.	Crown clean deadwood.
7	Scots Pine	1	460	12.0	4.0 E	4.0	5.5	5.5	5.0	3.0	3.0	3.0	3.0	EM	F	F	10+	C1	- Tall and etiolated due to group pressure. - Deadwood stubs in canopy. - Artificial structures within RPA.	-
8	Silver Birch																		Removed since survey.	-
9	Alder	1	190	6.0	3.0 S	1.0	4.5	4.0	3.0	2.0	2.0	2.0	2.0	EM	F	F	10+	C1	- Group edge tree. - Poor past management. - Tall and etiolated. - Artificial structures within RPA.	-
10	Alder	1	380	8.0	2.0 W	6.0	6.0	6.0	6.0	1.0	1.0	1.0	1.0	EM	F	F	10+	C1	- Group edge tree. - Poor past management. - Tall and etiolated. - Artificial structures within RPA.	-
11	Holm Oak	2	610	12.0	4.0 E	6.5	6.0	4.0	5.0	5.0	5.0	5.0	5.0	M	F	F	10+	C1	- Poor past management. - Bifurcated at 0.5 m above ground level. - Asymmetrical crown. - Cavity at base of stem. - Artificial structures within RPA.	-
12	Oak	1	550	8.0	3.0 E	9.0	2.5	6.0	7.0	4.0	4.0	4.0	4.0	EM	F	G	20+	B1	- Artificial structures within RPA. - Major deadwood in crown. - Stunted and sculptured by prevailing winds.	Crown clean deadwood.

Table A1:1 Tree Survey Schedule (continues)

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							
13	Oak	1	620	10.0	4.0 W	9.0	6.5	5.0	5.0	4.0	4.0	4.0	4.0	EM	F	G	20+	B1	- Artificial structures within RPA. - Major deadwood in crown. - Stunted and sculptured by prevailing winds.	Crown clean deadwood.
G1	Mixed Species	1	400	12.0	0.0 N	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	Y EM M	F	F	20+	B3	- Artificial structures within RPA. - Managed in part. - Major deadwood in crowns – limited access; low risk. - Tall and etiolated due to group pressure.	-
G2	Mixed Species	1	200	8.0	0.0 S	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	Y EM M	F	F	10+	C2	- Major deadwood in crowns. - Wind sculptured trees and shrubs. - Part managed. - Artificial structures within RPA.	-
G3	Mixed Species	1	200	5.0	0.0 W	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	Y EM M	F	F	10+	C2	- Part managed group adjacent to public footpath. - Dead trees in group. - Artificial structures within RPA.	Remove dead trees.
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 = shows signs of retrenchment and in decline. 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 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 Trees Surveyed

Tree No.	Species	Diam (mm)	Approximate Root Protection Radius (m)	Root Protection Area (m ²)
1	Hawthorn	200	2.4	18
2	Holly	310	3.9	48
3	Oak	620	7.5	177
4	Scots Pine	380	4.8	72
5	Oak	370	4.5	64
6	Oak	240	3.0	28
7	Scots Pine	460	5.7	102
8	Silver Birch	270	3.3	34
9	Alder	190	2.4	18
10	Alder	380	4.8	72
11	Holm Oak	610	7.5	177
12	Oak	550	6.6	137
13	Oak	620	7.5	177
G1	Mixed Species	400	4.8*	72*
G2	Mixed Species	200	2.4*	18*
G3	Mixed Species	200	2.4*	18*
Key: <u>000</u> : estimated dimensions due to access restrictions *: Average measurement taken around centre of group				

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

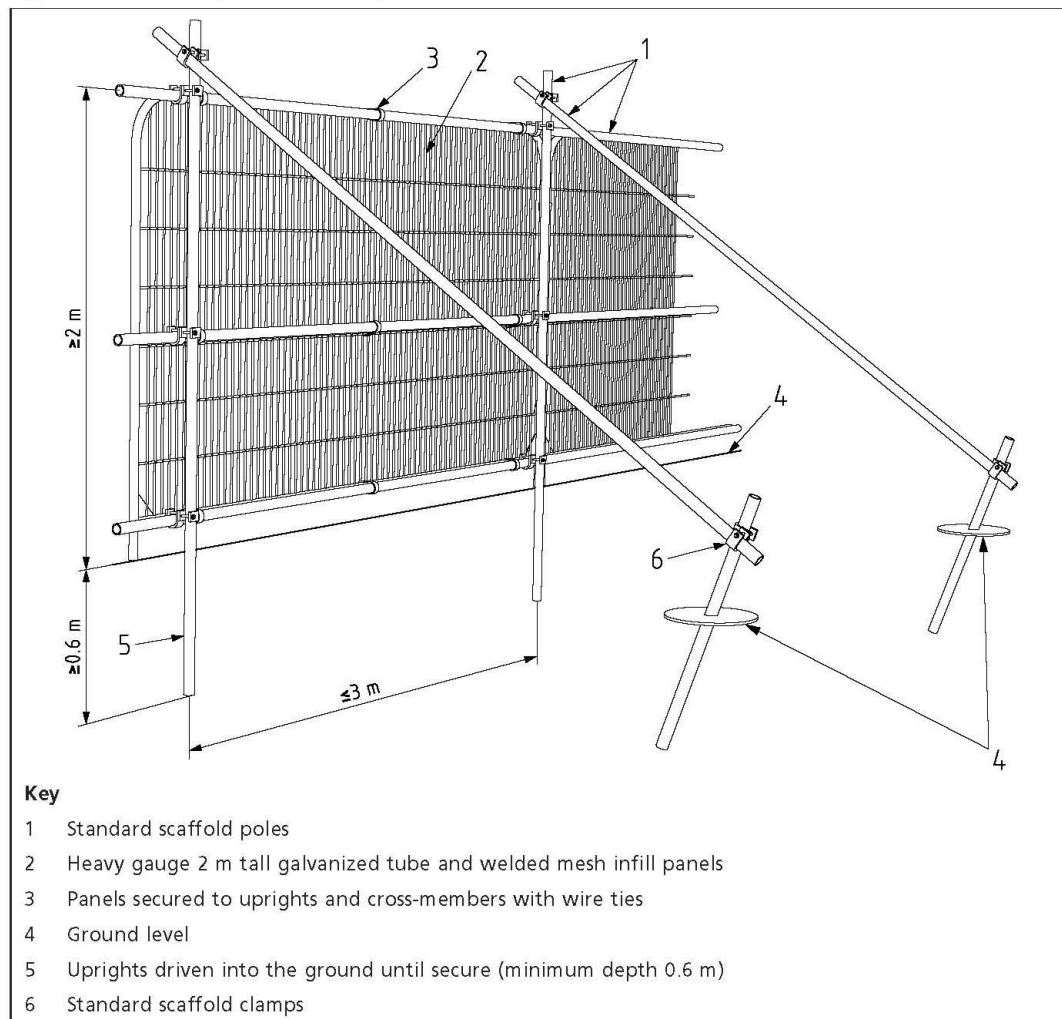


Figure 3 Examples of above-ground stabilizing systems

