

Arboricultural Method Statement

Protected Status Of Trees

Trees may be legally protected. This may either be in the form of a Tree Preservation Order (TPO) or that the trees are located within a Conservation area. In addition some tree felling may require a felling licence from the Forestry Commission.

Potentially large penalties may be enforced for illegally carrying out works on protected trees. It is recommended that checks are made before any works are undertaken and no work should commence until permission has been granted. Please note that there are a number of exemptions from the requirement to obtain a felling licence including land on which afforestation permission has been granted by the local authority, however this exemption does not cover land where only outline planning permission has been granted, or on land which has been allocated for residential development within local authority urban and local development plans.

Tree Works

The first arboricultural works on site will be the removal of all conflicting trees (Trees 6-7 & 8-11, groups 2, 7d, 11 and parts of groups 5, 6 and 10) which are identified on the Tree Protection Plan (TPP) by the broken black ring surrounding the tree centre and referred to in appendix 1 of this report.

The stumps may either be ground out using a stump grinding machine or removed as part of the ground excavation works.

Details of any proposed pruning works are included within Appendix 1 of this report. The tree works should whenever possible be carried out in accordance with BS3998:2010 Tree Work - Recommendations.

Wildlife Habitats

Consideration must be given to wildlife when conducting tree works, particularly birds and bats.

Bats

All UK bats and their roosts are protected by law. The legislation protecting bats are:

- The Wildlife & Countryside Act 1981 (WCA)
- Conservation of Habitats and Species Regulations 2010

For all countries of the UK, the legal protection for bats and their roosts may be summarised as follows:

- You will be committing a criminal offence if you:
 - Deliberately or recklessly kills a bat
 - Intentionally or recklessly disturbs a bat in its roost or deliberately disturbs a group of bats
 - Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
 - Possess or advertise for sale a bat (dead or alive) or any part of a bat
 - Intentionally or recklessly obstruct access to a bat roost

"In a court, 'deliberately' will probably be interpreted as someone who, although not intending to capture/kill or kill a bat, performed the relevant action, being sufficiently informed and aware of the consequence of their action will most likely have."

Penalties on conviction - the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

No visual signs were found to indicate the presence of bats in the surveyed trees though a number of the mature trees within the site display characteristics favourable to bats and as such caution must be exercised.

When carrying out tree works it is essential that the contractor or other competent person carries out a specific bats in trees risk assessment which can be obtained from the Arboricultural Association or the Bat Conservation Trust (BCT). Any work on trees should be stopped immediately and Natural England Batline contacted (0845 1300 228). A further inspection may well be required by a licensed bat handler on roost visits.

Birds

In the UK, all wild birds, their nests and their eggs are protected by law.

In England, Scotland and Wales the legislation that protects wild birds is:

- The Wildlife and Countryside Act 1981
- The Countryside (or CRO) Act 2000

No nesting birds were present at the time of inspection though given the scope of the site and the extent of vegetation potential exists for birds to nest and as such caution must be exercised. As with bats the contractor has an obligation to carry out visual checks prior to works. Where possible tree works should be carried out in the period from August to the end of February in order to avoid the bird nesting season.

Protective Barrier Erection

The protective barriers are to be erected prior to the commencement of site works including demolition, soil stripping or movement, bringing onto site of materials, supplies or machinery. Tree works can be undertaken prior to the erection of the barriers.

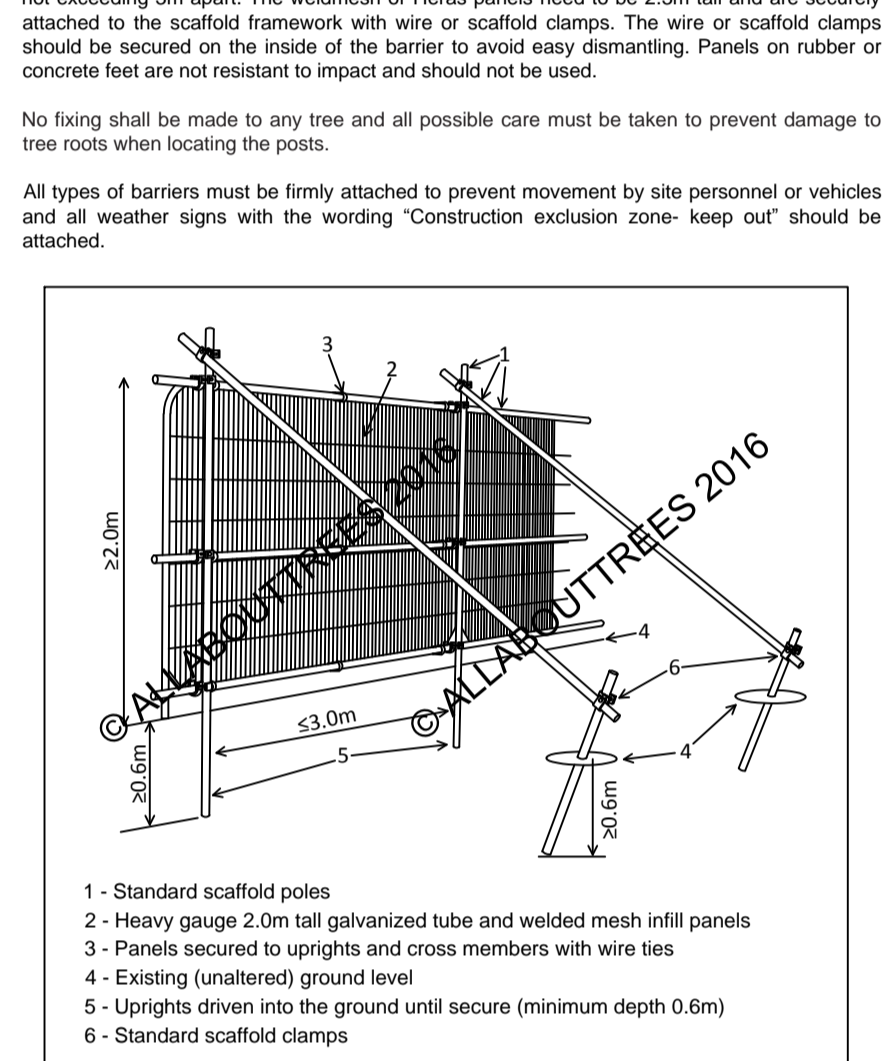
The barriers must be erected in the position indicated on the Tree Protection Plan (TPP) by the dark blue line and be constructed as per the following specification:

The barriers should be considered essential and should not be removed or altered without prior consultation by an Arboriculturalist and approval of the local planning authority.

The barrier should consist of a vertical and horizontal framework of scaffolding tubing which is adequately braced to resist impacts. The vertical scaffold tubes need to be placed at a distance not exceeding 3m apart. The weldmesh or Hera panels need to be 2.3m tall and be securely attached to the scaffold framework with wire or scaffold clamps. The wire or scaffold clamps should be secured on the inside of the barrier to avoid any dislodging. Panels on rubber or concrete feet are not resistant to impact and should not be used.

No firing shall be made to any tree and all possible care must be taken to prevent damage to trees when locating the posts.

All types of barriers must be firmly attached to prevent movement by site personnel or vehicles and all weather signs with the warning 'Construction exclusion zone- keep out' should be attached.



Location of Site Compound & Storage Areas

The contractor's site compound, storage & parking areas must be located outside of the root protection areas (RPAs) of the retained trees.

All site storage areas, especially cement mixing and washing points for plant and vehicles must also be situated outside of the root protection areas (RPAs). Where there is a possible risk of polluted water runoff heavy duty plastic sheeting and sand bags must be used to contain spillages and contamination.

No-Dig Tree Friendly Porous Surfacing

The development requires the installation of tree friendly no-dig porous surfacing in the areas shown by the green hatching on the TPP adjacent to tree 6.

If the principles of the no-dig construction are followed, no significant permanent damage should occur to the retained trees.

- No roots are to be severed because of hand digging to remove rocks or protrusions that pose a risk to sewer any roots over 2.5m in diameter
- The soil must not be compacted
- Organic matter must be able to diffuse into the soil beneath the engineered surface
- The construction of the root, footpath or parking bay will be above existing ground level and at least 1m away from the trunks of the retained trees.

The method of construction is:

- Ideally construction should be undertaken between the months of May and October when the ground is at its driest and less prone to compaction
- Ground vegetation should be carefully removed with any organic material being removed from the surface which will damage the tree roots
- No rigging should take place within the protective zone except for the careful removal of organic matter by hand tools. Any hollows must be filled with sharp sand, any digging to remove rocks or protrusions must be by hand taking care not to sever any roots over 2.5cm in diameter. Shanks should be ground out rather than excavated by mechanical means to the retained tree roots.



Photo 1 - Use of wire mesh prior to the commencement of works. Photo 2 - Laying of Fibres F4M non-woven geotextile material onto existing subgrade.

The method of providing a permeable surfacing is as follows:

- Lay a Fibres F4M non-woven geotextile material directly on the existing subgrade. Overlay by 200mm
- Lay and expand the cellular confinement system (e.g. Cellweb by Geosynthetic Ltd) and anchor open during filling. As a general indicator only, a depth of at least 100mm is required for domestic traffic, up to approximately 300mm. A 200 mm depth should accommodate vehicles up to approximately 9 tons.
- The three dimensional cell structure is formed by ultrasonically welding polyethylene (polyweld) strips and panels together to create a three dimensional network of interconnecting cells. A high degree of frictional interaction is developed between fill and cell wall, increasing the stiffness of the system. The use of cellular confinement reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between cellular confinement and traditional aggregate and grid reinforced structures demonstrate a 50% reduction in construction thickness.



Photo 1 - Ultrasonic welding of the Cellweb system. Photo 2 - Final cellular confinement system (polyweld) in situ aggregate in the fill.

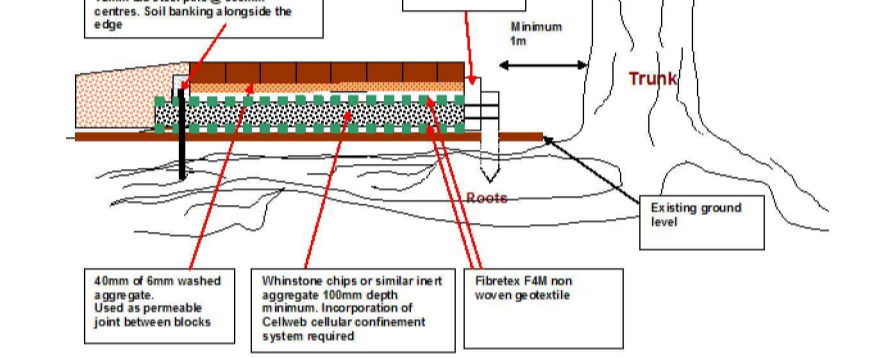
- Fill the cellular confinement system with a minimum of 100mm of aggregate (the amount is dependent on the depth of the Cellweb employed). The aggregate should not contain any fines and be of an inert type material such as subgrade Proton or Manbatts are particularly free flowing and allow natural rainfall to reach the root zone. As most urban soils are already alkaline in nature, the use of dolomite, limestone or crushed concrete is not suitable for this application as it can react with rain water with the potential to change the soil pH and form impermeable layers which impede water movement and gaseous exchange.

Final surfacing options

- Block Paving** will require the laying of a second layer of Fibres F4M Geotextile separation fabric over the filled Cellweb sections. Then lay 40mm depth of firm washed gravel. These pavements as per the manufacturer's instructions using the firm washed aggregate as the bedding material. The use of porous blocks such as Storm Proton or Manbatts are particularly free flowing and allow natural rainfall to reach the root zone.
- Porous Interlock** - place 50mm subgrade of the granular material above the Cellweb system and lay the bitumen based wearing course.
- Grass Green** - Place a second layer of Fibres F4M Geotextile separation fabric over the filled Cellweb sections. Place decorative aggregate to the required depth. A treated inert edge should be provided to resist gravel movement.
- Grass blocks or gravel infill blocks** - Lay a second layer of Fibres F4M Geotextile separation fabric over the filled Cellweb sections. Place 50mm moisture bedding layer to the required depth. Lay recycled Duo Block 500 Grass protection system infill with 5000 nozzles/m². Seed as required. Alternatively the grass blocks may be infill with gravel.

It is important that the edging material used does not encroach into the protected area and the use of conventional kerbing is not possible as the depth of excavation required for their installation will sever the tree roots.

Edging supports such as angled steel sections or precast edges are advised as shown in the following drawing although there are a number of edging kerbing options available which do not require any excavation and could be used above the existing ground level.



Drainage Runs/ Underground Services

It is assumed that the existing service runs will be explored where possible, but if new works are required it is important that they comply with the National Joint Utilities Group (NJUG) Guidelines for the planning, installation and maintenance of utility services in proximity to trees and BS 5837:2012. The excavation of open trenches by machine will be unacceptable within the protective zone of any of the retained trees.

Wherever possible, services should be routed outside of any retained trees RPA. When this is not possible apparatus should be routed together in a common duct and any inspection chambers sited outside the RPA.

Acceptable techniques for the laying of services in order of preference are:

- Trenchless** - by use of thrust boring or similar techniques. The pit excavations for starting and receiving the machinery should be located outside of the root protection area. To avoid root damage the hole should not be a depth of at least 500mm.
- Use of external lubricants on the hole other than water (eg oil or bentonite) should be avoided.

Use of external lubricants on the hole other than water (eg oil or bentonite) should be avoided.

Method	Accuracy/Service (MM)	Maximum diameter (mm)	Maximum installation length (m)	Applications	Not advised for
Monotrenching	<20	100 to 300	40	Gravity fed pipes, open excavation, watercourse, trenching under coverings	Low cost projects due to relative inexperience
Surface launched directional drilling	+100	25 to 1200	150	Pressure rooms, cables including fibre optic	Gravity fed pipes, e.g. drains and sewers (R)
Pipe jacking	+100	150 to 1000	70	Any large pipes and ducts	Sticky and other heavily obstructed soils
Impact boring (C)	+50 (B)	30 to 180 (B)	40	Gas, water and cable connections, 8" min street to property	Any applications that require accuracy over distances in excess of 5m.

- (A) Dependent upon strata encountered
- (B) Impact boring (also known as thrust-bore) generally requires soft, cohesive soils.
- (C) Impact boring (also known as thrust-bore) generally requires soft, cohesive soils.
- (D) Substantial inverse relationships between accuracy and distance.
- (E) Figures given relate to single pipes, up to 300mm bore achievable with multiple passages.

If trenchless insertion is not feasible the alternatives are detailed below in order of preference.

Broken trenches - by using hand dug trench sections together with trenchless techniques. It should be limited to practical access and installation above or below the roots. The trench must be dug by hand (see following comments re continuous trenching) and only be long enough to allow access for linking to the next section. The open sections should be kept as short as possible.

Continuous trench - the trench is excavated by hand and retains as many roots as possible. The surface layer is removed carefully and hand digging of the trench takes place. No roots over 2.5cm diameter or damage of smaller roots (including fibrous) should be allowed. The bank surrounding the roots must be maintained. Cutting of roots over 2.5cm diameter should not be attempted without the advice of a qualified Arboriculturalist.

If roots have to be cut, a sharp tool (defined as spade, narrow spade, fork, breaker bar, secateurs, hand saw, post hole shovel, hand trowel) should be used.

Backfilling

Replacement of street works must comply with the code of practice New Roads and Streetworks Act 1991 (Specification for the replacement of openings in highways), but where tree roots are involved backfilling should be carefully carried out to avoid direct damage to retained roots and excessive compaction of the soil around them.

The backfill should incorporate an inert granular material mixed with top soil or sharp sand (not builders sand) around the retained roots. This will allow a measure of compaction for resurfacing whilst creating an aerated zone around the roots.

Roots and in particular fine roots, are vulnerable to desiccation on exposure to air. The roots are at greatest risk when there are rapid fluctuations in the air temperature around them (especially water during temperatures). It is vital important that the roots are covered with sacking whilst the trench is open. The sacking should be removed once the trench is backfilled.

Arboricultural Supervision

The following programme of supervision is proposed to assist in the presentation and protection of the retained trees during all aspects of the proposed development.

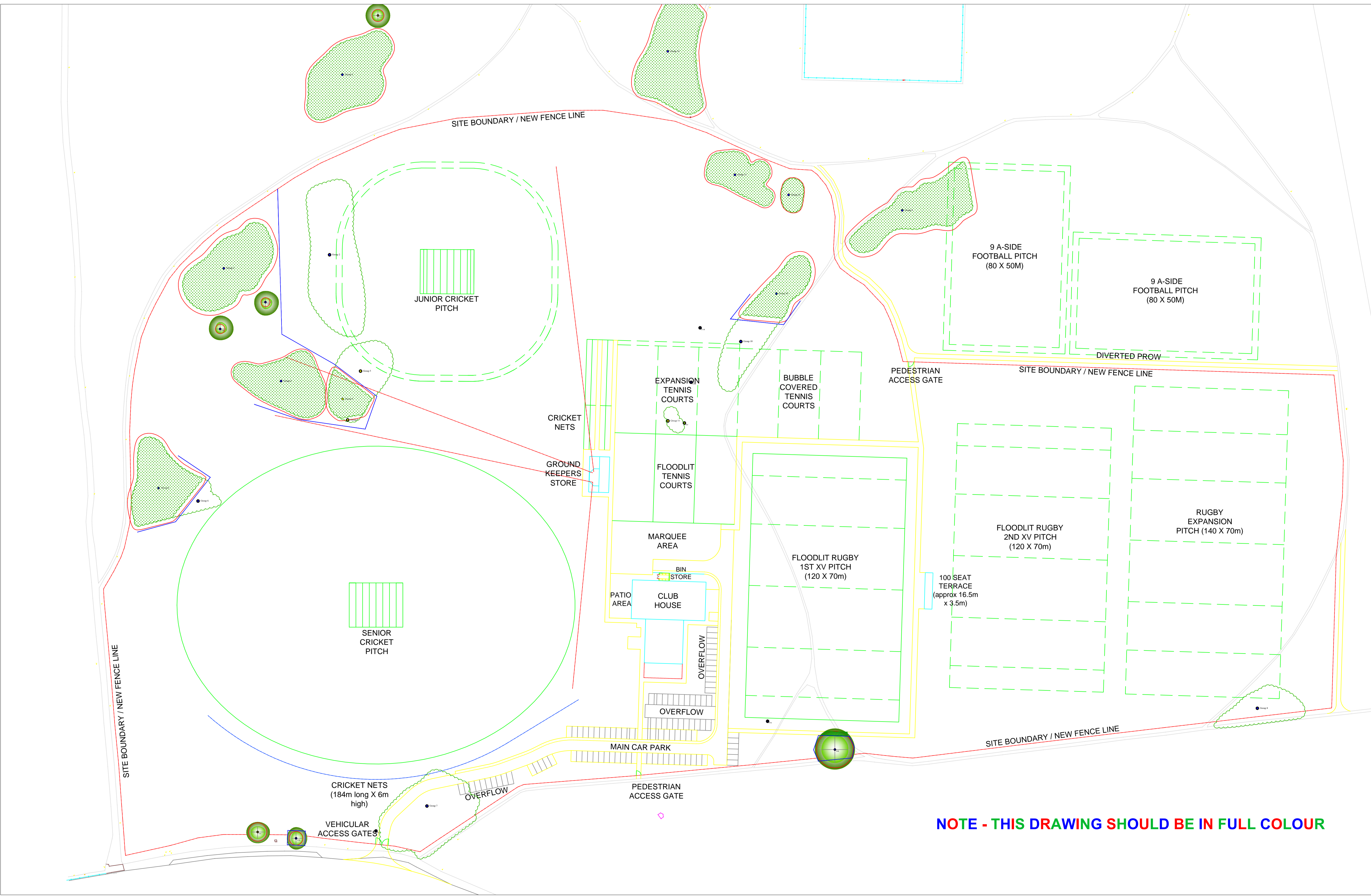
The supervision arrangements must be sufficiently flexible to allow for the supervision of all sensitive works as they occur. The Arboricultural Consultant's initial role is to liaise with the developer and the council to ensure that the appropriate protective measures are in place before any works commence on site and once the site is active monitor compliance with the Arboricultural conditions and advise on any tree problems that may arise.

Activity	Programme	Timing of supervision	Method of supervision
The construction meeting with site manager / Council	Before any site activity commences	Meeting on site	Meeting on site or email confirmed results of meeting distributed to relevant parties
Tree works meeting with tree works contractor	Prior to commencement of tree works	Meeting on site to confirm position of the protective barriers have been marked and comply with the Tree Protection Plan (TPP)	Site marking & letter or email confirmed results of meeting distributed to relevant parties
Tree works undertaken	Before any plant enters site or demolition/ construction work commences	Monitoring on site to ensure compliance with the TPP	Site marking & letter or email confirmed results of meeting distributed to relevant parties
Finalising tree protection barrier installation	Prior to installation of no-dig porous surfacing	Meeting with contractor prior to installation and during installation and during finalising and commissioning of services within root protection areas	Site marking & letter or email confirmed results of meeting distributed to relevant parties
Removal of protective barriers	Once construction activities have finished	Meeting with contractor for finalising before removal of barriers	Site marking & letter or email confirmed results of meeting distributed to relevant parties

Site Management

It is the developer's responsibility to ensure that the details of the Arboricultural method statement and any agreed arrangements are known and understood by all relevant site personnel. Copies of the agreed documents must be kept on site at all times and the site manager or other appropriate person must tell all personnel who could impact the trees on the specific tree protection requirements.

This should form part of the site induction procedure and be written into the appropriate site management documents.



NOTE - THIS DRAWING SHOULD BE IN FULL COLOUR

©This document should only be used for the purpose for which it is issued. All rights are reserved and it should not be reproduced without written permission. All information should be checked as far as possible and any discrepancies, omissions or errors should be reported to the issuing office. The issuing office will not be responsible for any loss or damage caused by the use of this document.

The original of this document was produced in colour. A colour version can be downloaded from: www.allabouttrees.co.uk

Key:

- Tree Number
- Tree Crown (Tree Shape) (Shaded Light Green)
- Predicted Future Growth (if canopy shaded Dark Green & Surrounding Crown Green Shape)
- Trees to be Retained (Hatched Black Ring Surrounding Crown)
- Tree Quality Assessment (Crown Colours As Below)
- Green Centre = High Quality (Shaded by Letter A)
- Blue Centre = Moderate Quality (Shaded by Letter B)
- Yellow Centre = Low Quality (Shaded by Letter C)
- Red Centre = Unsuitable To Retain (Shaded by Letter D)
- IR Root Protection Area As Shown by the Red Circle Around the Tree
- Tree / Woodland Groups
- Position Of Protective Barrier (Continuous Blue Line)
- Special No-Dig Tree Friendly Construction Required Areas Indicated by Green Hatching

Institute of Chartered Foresters Registered Consultant

Arboricultural Method Statement Tree Protection Plan (AMS TPP)

Retained Trees Shown On Proposed Layout With Protective Measures Indicated

Temple Park, South Shields

For Tolent Living Ltd

AllAboutTrees Ltd
Arboricultural & Ecological Consulting
Chartered Arboriculturalist & Environmentalist
The Old Bank, Quarry Lane, Butterknowe, Co. Durham, DL13 5LN
Tel: 0191 379848 (0800 770481)
email: info@allabouttrees.co.uk www: www.allabouttrees.co.uk

Not To Scale at A0 Date 22.09.17

Registered Chartered Arboricultural Consultants
Planning & Development of Urban Forestry
Ecological Consultants

Drawing Ref. AMS TPP