ARBORICULTURAL REPORT

Bridgewater Primary School

REF: 12-2866/3614/D01/R V1
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Prepared For
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Northampton Schools – Wave 2

Arboricultural Implications and Tree Protection Scheme

CONTENTS

1 BRIDGEWATER PRIMARY SCHOOL 3

1 APPENDIX 1 - GENERIC ARBORICULTURAL METHOD STATEMENT 5

2 APPENDIX 2 - TREE PROTECTIVE FENCING 12

3 APPENDIX 3 - FENCING STABILISATION 13

4 APPENDIX 4 - FENCING SIGNS 14

5 APPENDIX 5 – GROUND PROTECTION SYSTEM 15

This report must be read in conjunction with the relevant tree plans and schedules for each school.

A generic arboricultural method statement is provided in Appendix 1 to address the process of tree protection on all sites covered by this report.

Attachments

<table>
<thead>
<tr>
<th>School</th>
<th>Tree Schedule</th>
<th>Tree Constraints Plan</th>
<th>Tree Protection Plan</th>
</tr>
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<td>12-1954 061212 v1</td>
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1 Bridgewater Primary School

This section should be read in conjunction with the relevant tree protection plan (12-2865 TPPv1)

1.1 Arboricultural Implications

The development proposal for Bridgewater Primary School is for new classroom facilities and additional parking for staff.

The new classrooms are located internally to the site and will not impact on any trees within or in close proximity the school boundary.

The new car parking area is to be an extension of the existing car park on the north eastern side of the school. The car parking will be extended down the eastern boundary. There are several mature trees in the location that pose a constraint to the plans and therefore special protection measures will be required to ensure that there are no adverse impacts on the trees, either during the construction process or post construction once the car parking is operational.

A key consideration during design and layout of this scheme has been for the retention of the trees on the eastern boundary. These serve an important function in screening the school from the allotment gardens and the neighbouring properties on Milverton Crescent. This scheme will not require the removal of any trees.

The trees on the eastern boundary have all been inspected in accordance with the requirement of BS5837:2012 and of the seven trees included, six have been categorised as Grade C trees. These are trees will little arboricultural merit and are deemed to have a useful life expectancy of between 10-20 years. The remaining tree (T1 - Lombardy poplar) has been categorised as Grade B tree. This is deemed to have moderate arboricultural value and a useful life expectancy of between 20-40 years. The protection of this tree is the primary consideration in the development of this plan.

The new proposed foul and storm water drainage scheme will not encroach the RPA of any retained tree on this site.

Details of the site access and compound will be confirmed and detailed in the Construction Management Plan, but a separate tree protection plan is detailed in the following section.

1.2 Tree Protection Scheme

Written confirmation has been provided that the proposed site works will take place within a secure compound in order to exclude pupils and staff at the school from the areas of construction. These areas have been defined on the attached plan by a red dotted line. All construction activity will take place within these areas and as such, the compounds will form the tree protective fence line. For the removal of doubt, a dashed black line has been marked on the plan indicating the location of the tree protection fencing, in the event that site compound fencing is not erected.
The timing of the construction works has not yet been determined, and it is possible that
works will take place in the school holidays. In this situation, it is unlikely that a secure
compound will be erected around the construction zone, and consideration needs to be
given to specific tree protection measures. In this eventuality, the dashed black line marking
the tree protective fencing will need to be used to define the extents of the protective
fencing.

The trees to the east of the proposed new car park must be protected by fencing to exclude
any activity, person, material or machine associated with the construction tasks. For a site
such as this, Heras fencing (Appendix 2) will be sufficient to provide this protection, provided
that it is securely attached and cannot be moved. Appendix 3 provides a recommended
method of stabilising such a fencing system as detailed by figure 3 of BS5837:2012. The
feet must be anchored to the ground and the panels must be joined using a minimum of 2
brackets. Warning signs must be attached to the fencing stating its purpose. Appendix 4
gives an example of such signage.

The location of the fencing has been marked approximately on the tree protection plan but
the final placement of this fencing will be supervised by the retained arboriculturist prior to
the commencement of any construction activity, and with the agreement of the county
council senior environmental planner.

All fencing must erected prior to any construction activity commencing, and must not be
removed until all construction works have been completed. This means that all construction
machinery and materials are removed from the site before the fence is removed. Once the
fencing has been erected, there must be no access into the protected area (CEZ). Further
details are provided in the generic method statement that accompanies this report.

The root system of the trees in this area that will be encroached by the new car parking
(Bays 1, 2, 3, 8, 9, 10, 21, 26, & the southern disabled bay) will be protected by the
installation of a permanent load bearing surface that will spread the load of any pedestrian or
vehicular movement in the area laterally rather than horizontally into the soil. Appendix 5
provides an example of a ground protection system that can be installed on a permanent
basis. The finished surface must remain porous and permeable for the diffusion of gases
and water through its surface. The location of this ground protection is marked on the tree
protection plan with blue cross hatching. This protection system will be laid top of the
existing ground level, raising it by approximately 200mm. The remaining car parking area
must be brought up to match this level as there can be no excavation within the RPA of any
retained tree.

The installation of the ground protection system will be supervised by the retained
arboricultural consultant providing Arboricultural Clerk of Works (ACoW).
1 Appendices

1 Appendix 1 - Generic Arboricultural Method Statement

1.1 Overview

The following explanations relate generically across all the sites covered in Wave 2 of the Northampton School development programme. This AMS should be read in conjunction with the Tree Protection Plan (TPP) for each school.

A copy of this report must be kept on site and be permanently available of the duration of the development. It can be:

- Included in the tender documents to identify and quantify the tree protection and management requirements;
- Used to plan the timing of site operations to minimise the impact on trees, and;
- Referenced on site for practical guidance on how to protect trees.

1.2 Arboricultural Supervision

An arboricultural consultant will be appointed by the developer to advise on the tree management for each site where tree protection is required. The consultant will attend:

- The pre-commencement meeting before any works start;
- Regular supervision as agreed; and
- As needed to oversee specific works that could affect trees

Additionally the consultant may have a supervisory input into the following operations:

- Site preparation, including tree works
- Installation, maintenance and removal of barriers
- Installation, maintenance and removal of ground protection
- Installation of new surfaces
- Installation of new structures
- Installation of new landscaping

1.3 Sequencing and timing

Effective tree protection relies upon following a logical sequence of events and arboricultural inspection/supervision.

The retained arboricultural consultant’s initial role is to liaise with the developer and LPA to ensure the tree protection measures are fit for purpose and in place before any works commence on the site. Once the site is working that role will switch to monitoring compliance with arboricultural planning conditions and advising on any tree problems that arise or modifications that become necessary.

It is the developer’s responsibility to ensure that details of this AMS and any agreed amendments are known and understood by all site personnel.
The final details of supervision and the frequency of inspection visits will be agreed at the pre-commencement meeting. The supervision arrangement will be sufficiently flexible to allow the supervision of all sensitive works as they occur.

The arboricultural consultant will make a record of the visits and these will be attached to the site copy of the AMS for inspection. A further copy will be sent to the LPA. The purpose of these written records is firstly to provide proof of compliance that will allow the developer to robustly demonstrate adherence to best practice in the event of any dispute. Secondly it will help the LPA efficiently discharge the relevant planning conditions.

**Table 1 - Sequencing and Supervision**

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</table>

1.4 Pre-commencement meeting

A pre-commencement site meeting involving the land owner, architect, arboricultural consultant, contractors and engineers (as appropriate), and relevant LPA officers will be held to ensure that all aspects of the tree protection processes are understood and agreed.

The meeting is where the details of the programme of tree protection will be agreed and finalised, which will then form the basis of any supervision arrangements between the arboricultural consultant and the developer.

The arboricultural consultant will send a record of the meeting to all parties.

1.5 Tree Removal and Works

The day to day running of the site will take full account of the tree protection measures set out in this document. All site personnel will be briefed on the tree protection requirements as part of the site induction procedure.

The tree management has been specifically designed towards doing the minimum work necessary to accommodate the development structures, establish acceptable levels of safety and reduce the destructive impact of existing trees on adjacent, better trees.

All tree works will be carried out by a suitably qualified contractor, and in accordance with BS3998:2010 *Tree Works – Recommendations* and industry best practice.
1.5.1 Tree Removal
There are no trees that need to be removed at Bridgewater Primary School for the purpose of this development scheme.

1.5.2 Tree works
No tree works are required, but minor pruning may be necessary to address unanticipated local problems with individual branches. Any additional works will be assessed and authorised as necessary by the retained arboricultural consultant who will liaise as required with the county council senior environmental planner.

1.6 Barriers and Ground Protection

1.6.1 The Construction Exclusion Zone
The primary means of protecting the Root Protection Area (RPA) of trees is through the use of barriers formed by protective fencing. The enclosed area is the Construction Exclusion Zone (CEZ).

The CEZs are to be afforded protection at all times and will be protected by fencing. The type of fencing is detailed in section 1.6.2, below.

No works will be undertaken within any CEZ that causes compaction to the soil or severance of tree roots.

1.6.2 Tree Protective Fencing
A protective fence will be erected around the trees, prior to the commencement of any site works e.g. before any materials or machinery are brought on site, development or the stripping of soil commences.

The fence will have signs attached to it stating that this is a CEZ and that no works are permitted within the fence (see Appendix 4). No notice boards, cables or other services will be attached to any tree.

The fence is to be sited in accordance with the TPP provided for each site. This is shown as a pink dotted line with diagonal orange hatching indicating the enclosed CEZ (where necessary).

For a project of this nature, it has been determined that Heras fencing will provide the necessary level of protection to the trees, where circumstances require. Details of this type of fencing are provided in Appendix 2.

The protective fence may only be removed following completion of all construction works.

1.7 Construction of special surfaces

1.7.1 Temporary Ground Protection
If temporary access is required to a CEZ then access may only be gained after consultation with the Local Planning Authority and following placement of materials that will spread the weight of any vehicular load and prevent compaction to the soil.
For pedestrian movements within any CEZ then a single thickness scaffold board on top of a compressible layer (eg wood chip mulch) laid onto a geotextile fabric may be acceptable.

1.7.2 Permanent hard surfaces within the RPA
Where permanent hard surfaces are required within the RPA, there must be for no excavation into the soil, either through the lowering of levels and/or scraping, other than the removal of turf or other surface vegetation. All such works shall be carried out using hand tools only.

The structure of the surface is designed to avoid localised compaction by distributing the weight of pedestrians or vehicles evenly through the structure. Illustrative examples of types of permanent ground protection are included in Appendix 5. Whatever the choice of method, the end result must be that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots. The area for permanent ground protection has been highlighted on the TPP by blue cross-hatching.

1.7.3 Additional precautions outside the exclusion zone
Any risk from activities outside RPAs but close enough to have an impact will be assessed during the day-to-day running of the site, and appropriate precautions put in place to reduce that risk.

It is a presumption of this report that all RPAs that have been identified for protection but which lie outside of the protective fencing, will be protected from soil degradation at all times during construction activity.

1.8 Specific tree protection measures

1.8.1 Inspection
After the protective fencing and temporary ground protection has been erected, the retained arboricultural consultant will visit the site. The purpose of the visit will be to check that the fencing has been correctly installed so as to provide protection to the trees. The county council senior environmental planner will also be invited to inspect the tree protection measures prior to any works commencing.

The retained arboricultural consultant will provide a written report confirming satisfactory completion of this task. A copy of this report will be sent to the local planning authority.

1.9 Demolition
There are no demolition works required within or in close proximity to any retained trees on this site.

1.10 Development
Once all trees works and protective fencing have been completed, the developer can commence the on-site preparation works and construction can begin.

1.10.1 Site Storage, Cement Mixing and Washing Points
No storage of materials will take place within a CEZ.
No mixing or storage of materials will take place up a slope where they may leak into a CEZ. Where contours of the site create a risk of polluted water running into RPAs, precautionary measures of using heavy duty plastic sheeting and sandbags with the ability to contain accidental spillage will be put in place to prevent contamination.

1.10.2 Contractors Parking
Contractors parking will be off-site and will not be within or in close proximity to a CEZ.

1.10.3 Utility Services
All utility services will connect internally to the property. There is no requirement for any service to be installed within a CEZ.

1.10.4 Fires
No fires will be lit on this site.

1.10.5 Site Gradient
There will be no changes to any levels on this site.

1.10.6 Use of Herbicides
There is no requirement for any herbicide to be used on this site.

1.10.7 Use of Sub-contractors
The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

1.10.8 Contingency planning
Water will be kept readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots.

At the time of any spillage the main contractor will contact the retained arboricultural consultant for advice.

1.11 Post Development

1.11.1 Removal of temporary surfaces
All temporary surfaces will remain in place until all construction activity is finished and there is no realistic risk of damage.

Any ground protective measures will be removed progressively, starting at the furthest point from the temporary access road, and working backwards. All operations will take place from on top of the existing temporary surface. This will need to be done carefully to ensure that there is no excavation in the original surface level and there will be no damage to trees.

Once this material has been removed there will be no vehicular access to the site by this route.

1.11.2 Removal of protective fencing
When the development is complete, all drainage and service runs are in place and the main site machinery has been removed, the CEZ protective fencing will be dismantled.
This will be supervised by the retained arboricultural consultant to ensure that no damage to done to the protected areas during this process.

1.11.3 Landscaping within the RPA.

The final tidying up and reinstatement can only be carried out when all the protective measures have been removed. This means great care is required by the contractors to observe tree protection measures.

No machines can be used within the RPAs, which specifically excludes rotavators.

All new planting and soil level variations must be agreed and supervised by the retained arboricultural consultant.

1.11.4 Replacement planting and transplanting of existing trees

There is no replacement planting scheme for Bridgewater Primary School as no trees are being removed.

Any additional planting that may take place will be undertaken in accordance with the detailed recommendations laid down in Section 7 (Amenity Tree Planting) of BS4428 (1989) – *Code of practice for general landscape operations (excluding hard surfaces).*

1.12 Responsibilities

It is the responsibility of the main contractor to ensure that the planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.

The main contractor will be responsible for contacting the Local Planning Authority at any time issues are raised related to the trees on site.

If at any time pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS3998:2010 *Tree Works – Recommendations* and industry best practice.

The main contractor will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of ALL construction works on the site.

The fencing and signs must be maintained in position at all times and checked on a regular basis by an on-site person designated that responsibility.

1.13 Completion meeting

Upon completion of all works specified above and all procedures detailed, the Arboricultural Consultant will invite the county council senior environmental planner to meet on site to discuss the process and agree any final remedial works which may be required.
1.14 Contacts

Shows a list of all relevant contacts for this development:

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Contact No.</th>
<th>Email</th>
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<td>Landowner/Developer</td>
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<tr>
<td>Agent/Architect</td>
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<td>LPA Case Officer</td>
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<td>LPA Tree Officer</td>
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</table>

THIS AMS IS NOT A CONTRACT. THE RETENTION OF A QUALIFIED ARBORICULTURIST FOR SUPERVISION AND MONITORING MUST BE AGREED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.
Appendix 2 - Tree Protective Fencing

Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

- High visibility orange blocks
- Anti-tamper coupler
- Fully tested and certified health and safety compliant (HSG 151)
- Round top panel with anti-climb mesh
3 Appendix 3 - Fencing Stabilisation

Figure 3 Examples of above-ground stabilizing systems

a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray
4 Appendix 4 - Fencing Signs
5 Appendix 5 – Ground Protection System

CellWeb™
Tree Root Protection System

The CellWeb™ TRP cellular confinement system protects tree roots from the damaging effects of compaction and desiccation, while creating a stable, load-bearing surface for vehicular traffic.

CellWeb™ offers an alternative to the traditional methods of constructing roadways and building foundations that involve excavation, which can result in tree root severance and soil compaction from the passage of vehicles. Such damage can severely influence tree health, and in extreme cases leads to death. CellWeb™ can be sensitively installed close to and under the canopy of trees without negative effects.

Trees are valuable landscape features and a vital environmental resource. Increasingly, contractors are being required to ensure the health and survival of trees during and beyond the construction period. Although this is mandated in many jurisdictions, it presents several issues when implementing construction projects near to trees:

- Root severance caused by excavation, leaving trees open to decay. This weakens and with a diminished capacity to utilise water and nutrients.

- Destruction of soil structure and compaction due to the passage of heavy vehicles, restricting the flow of water and air to tree roots.

- Need for construction access, new roadways and hard surfaces that require engineering-standard load-bearing foundations that meet building regulations.

- Need for high-performance, cost-effective driveways and roadways in the vicinity of tree roots.

The CellWeb™ system overcomes these issues and helps contractors to comply with tree health guidelines by creating a load-bearing base that is water-permeable, stable and durable.

Without need for excavation, the system is quick and easy to install, reducing construction time and saving costs and making it suitable for temporary and permanent solutions.

- Gypsum Wool:
Promotes plant transpiration and root health using a CellWeb™ foundation which was covered with Glass Fibre and then filled with wadding to create a porous surface.
Product features

CellWeb™ comprises an expandable cellular matrix that is then filled with a clean stone sub-base and above a 3mm thick static geotextile

The honeycomb-like structure is made of robust high-density polyethylene (HDPE) that is simply stretchered out and filled with clean angular material, just like traditional roadways, the strength of the structure comes from the binding together of the infill, but with CellWeb™ this is achieved without compaction and without reduction in permeability.

Perforated cell walls allow the regular infill to bond with the contours of the adjacent soil, but with sufficient space for the movement of water and air to nearby tree roots. As the infill contains no fines and the geotextile layers prevent clogging from particles washing into the system, the structure remains permeable to water over time and protects the roots for the lifetime of the tree.

As well as being quick and easy to install, CellWeb™ also dramatically cuts down the depth of sub-base required, in most cases by as much as 50%, further reducing costs. CellWeb™ significantly reduces surface runoff, increasing the long-term performance of the finished surface and ensuring the tree roots remain protected from vertical loads.

CellWeb can be used as a permanent solution or alternatively the system can be used in a temporary situation. In a temporary application the system can be used for the required period of time, then removed for use on another site or recycled, thereby adding to CellWeb’s green credentials.

Please call 01455 617 139 or email sales@gossyn.co.uk for further information.

Wide product range
Largo stock holding
Next day delivery
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<td>C1</td>
<td>40.7</td>
<td>3.6</td>
</tr>
<tr>
<td>7</td>
<td>Apple</td>
<td>5</td>
<td>270</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>Multi-stemmed at 1.5m with a balanced crown. Overhanging boundary. Minor deadwood. Snapped branches.</td>
<td>20-40</td>
<td>C1</td>
<td>33.0</td>
<td>3.2</td>
</tr>
</tbody>
</table>
### Table 1  Cascade chart for tree quality assessment

<table>
<thead>
<tr>
<th>Category and definition</th>
<th>Criteria (including subcategories where appropriate)</th>
<th>Identification on plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trees unsuitable for retention (see Note)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category U</td>
<td>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</td>
<td>See Table 2</td>
</tr>
<tr>
<td></td>
<td>- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong> Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trees to be considered for retention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category A</td>
<td>Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)</td>
<td>See Table 2</td>
</tr>
<tr>
<td></td>
<td>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</td>
<td></td>
</tr>
<tr>
<td>Category B</td>
<td>Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation</td>
<td>See Table 2</td>
</tr>
<tr>
<td></td>
<td>Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trees with material conservation or other cultural value</td>
<td></td>
</tr>
<tr>
<td>Category C</td>
<td>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</td>
<td>See Table 2</td>
</tr>
<tr>
<td></td>
<td>Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trees with no material conservation or other cultural value</td>
<td></td>
</tr>
</tbody>
</table>