

Tree Survey, Arboricultural Impact Assessment and AMS

for

Cowplain School Playing Field, Waterloooville

On behalf of

Frontier Estates Ltd

October 2022

Planning

The Landscape Partnership Ltd is a practice of Chartered Landscape Architects, Chartered Ecologists and Chartered Environmentalists, registered with the Landscape Institute and a member of the Institute of Environmental Management & Assessment & the Arboricultural Association
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1 Introduction

- 1.1 The Landscape Partnership was commissioned by Frontier Estates Ltd to carry out a tree survey at a site Cowplain School Playing Field, Waterloooville.
- 1.2 The site is not within a conservation area and none of the trees are known to be subject to a TPO.
- 1.3 The proposals are for a detention basin to the south of the sports field with associated pipes and 160mm collectors.
- 1.3 The site visit was carried out by David Paginton M.Arbor.A in October 2022.

2 Site Description

- 2.1 The site comprises the grounds of Cowplain School. The area of interest to this report lies to the west of the existing sports courts within an area of amenity grass which forms part of the schools playing field.
- 2.2 The trees are located to the site's boundaries. The surveyed trees are mature trees with dense mixed woody vegetation at the base. All RPAs were measured and have been accurately plotted.
- 2.3 The quality of the trees is generally moderate category B.

3 Trees/Groups

- 3.1 A total of six survey items were recorded as part of the tree survey. Full details of species and characteristic are set out in the accompanying tree survey schedule.
- 3.2 Site photos are included on the following pages.



Photo1:



Photo 2:



Photo 3:



Photo 4:



Photo 5:



Photo 6:



Photo 7:



Photo 8:



Photo 9:



Photo 10:



Photo 11:

4 Arboricultural Impact Assessment (AIA)

- 4.1 The AIA uses information provided in the tree survey to identify areas where the proposed development construction may be at odds with accepted standards, in terms of a tree's requirements for soil volume in which to maintain existing roots and shoots and soil volume for future growth.
- 4.2 Details of the trees surveyed are given in the accompanying Tree Survey Schedule. Tree locations are shown on the accompanying Tree Survey and Protection Drawing B21016-601.
- 4.3 The quality and relative importance of each is shown as coloured polygons. The colour used relates to the British Standard categories as follows: A, green; B, blue; C, grey and U, red. Red trees are discounted as they are recommended for removal. In general, the design process will try to retain at least A and B category trees. Proposed construction will therefore normally be excluded from the root protection area of A and B category trees.
- 4.4 The root protection area (RPA) is shown as a default pink dashed circle on the Tree Survey and Protection Drawing B21016-601.
- 4.5 The AIA considers existing site conditions and the effect that they may have on the development of the surveyed tree root systems. Hard structures such as buildings and paved roads and paths can influence the root activity of trees by reducing the availability of both moisture and nutrients.

5 Impact of Proposed Development on Retained Trees

- 5.1 Refer to the accompanying AIA drawing B21016-601 for the relationship between the proposals and the trees on the site.
- 5.3 The proposals do not require the removal of any trees, nor any tree works. The proposals relate to the installation of a detention basin and associated pipes and collectors.
- 5.4 The detention basin is located outside of any RPAs.
- 5.5 The blue dashed drainage pipes run alongside G3/G4, with most of the pipes located well outside of any RPAs. There is one location where the proposed pipes are outside of, but located close to the edge of the RPA of one of the trees within G3. There are two further instances where the pipes cut through the outer edge of two RPAs of trees within G3. If a mini digger were to be used to excavate the trench for the pipes, any roots in the trenches would be cut and removed, and a mini digger bucket may well tug at the roots and cause more damage by ripping through them. The method for installation of the pipes in these areas will be set out in the services section of this report. There is another instance where the proposed outfall in a thick red line seeks to connect to an existing chamber as shown in photo 4. There is only a small area of woody shrubs surrounding the chamber which can be cut back and no permission is required. The proposed outfall pipes do run 2 linear metres into the outer edge of the RPA of G2. The woody vegetation can be cut back, and the same technique for the pipe installation will be as set out in the services section of this report.

6 Arboricultural Impact Assessment and Tree Protection

- 6.1 The Arboricultural Impact Assessment provide the means by which areas of construction activity or working space requirements identified in the AIA as being within or close to the RPA of retained trees, can be achieved whilst minimising the impact of that construction activity on the affected trees.

7 Site Preparation/Demolition and Construction Close to Retained Trees

- 7.1 There are no requirements for demolition or site clearance. Only minimal removal of woody shrubs surrounding the existing chamber opposite G2 are required.

8 Services

- 8.1 To avoid damage to any roots, where installation passes through an RPA (and cannot be re-located) works should be carried out using a trenchless method - directional drilling as a first preference. Launch and receiver pits should be excavated outside of any RPA. A trenchless method such as directional drilling / thrust boring is the preferred option where drainage passes through an RPA.
- 8.2 Where continuous directional drilling is not achievable, installation should revert to the section of drainage run which passes within the RPA of a tree will be hand dug in accordance with 'broken trenches' 'broken trenches' NJUG 4 section 4 (copy set out in Appendix 4)
- 8.3 When excavating the drainage run in an RPA, the following method should be followed:
- Ensure high visibility mesh is in place (consult with project arboriculturist).
 - Mark out the alignment of the drainage run on the ground.
 - Remove the turf layer.
 - Excavate using handheld tools (hand digging or use of air-spade). The priority is to remove soil without damaging or severing significant roots or damaging roots in the immediate area of excavation. Preference should be paid to using an air-spade to minimise damage to roots. However, if the ground is sufficiently compacted that air-spade excavation is not possible or not possible for another reason, excavation should be carried out using hand tools.
 - Where digging by hand as opposed to air-spade, a fork should be used to loosen soil and help locate any significant roots. Loosened soil can then be lifted out using a spade.
 - During excavation, roots under 25mm are to be pruned back to the edge/face of the excavation using a sharp cutting tool such as saw or secateurs. If smaller roots under 25mm are sufficiently flexible and can be temporarily or permanently displaced, then the default should be to retain.
 - Roots over 25mm or large fibrous mass are to be retained. Retained roots must not be served. Once roots have been located, a smaller tool such as a trowel should be used to clear soil away from the retained roots to avoid damaging its bark.
 - Retained roots must not be exposed for long periods of time (over a few hours) without protection. Therefore, any exposed retained roots are to be covered with damp hessian sacking or boards to prevent drying out and protect from direct sunlight until they can be recovered with soil/backfill.
 - Excavated soil should be temporarily stored outside of the RPA within the sports field, where there is plenty of space.
 - Once excavation is complete and the drainage pipes are installed, the excavation is to be backfilled and any roots protected with hessian sacking this will need to be removed prior to back filling.

9 Tree Protection

- 9.1 Heras barriers are not considered required nor proportionate given the nature of the proposals.
- 9.2 High visibility mesh is considered proportionate to be installed in the location shown on drawing B21016-601. The grounds team will be carefully undertaking the required works for the school, and it is the desire of the school to not cause any damage to any retained trees.
- 9.3 High visibility mesh will be set out to keep the areas of work away from the plotted RPAS, as shown on the survey and protection plan. The mesh will be set out before any site works commences and remain in place until the works are completed.

10 Conclusions

- 10.1 The survey items are being retained and protected as part of the proposals. Provided the proposed method for pipe installation is implemented, it is feasible to install the proposals without impact to retained trees.

11 Recommendations

- 11.1 This report should be read in conjunction with the B21016_601 Tree Survey and Protection Plan.

12 Project Contact Details

Client:	Cowplain School
Arboriculturist:	David Paginton, The Landscape Partnership Tel: 01234 261315
Local Planning Authority:	Havant Council

Appendix 1

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U 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	- 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) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - 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 <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	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)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	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	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	Trees with material conservation or other cultural value	See Table 2
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	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	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	Trees with no material conservation or other cultural value	See Table 2

Appendix 2

Project:		Cowplain School Playing Field			BS 5837 2012 Trees in relation to construction - recommendations											
Ref:		B21016														
Date:		October 2022														
Client:		Frontier Estates Ltd														
Surveyed by:			DP/MP													
Weather:			Sunny													
Tagged:			No													
Type	No.	Common Name	Height (m)	DBH (mm)	Canopy Spread				Height of branch clearance N,S,E,W	Height of crown clearance	Age class	Physiological Condition	Structural condition problems	Preliminary management	Estimated remaining contribution years	BS Category
					N	E	S	W								
G	1	Oak	13.0	520	As shown.				N/A	2.0	M	Fair	Minor deadwood, typical of age and species.	None at time of survey.	20+	B1
G	2	Oak	8.5	690	As shown.				N/A	2.0	M	Fair	Typical of age and species.	None at time of survey.	20+	B1
G	3	Oak, ash	15.0	700	As shown.				N/A	4.0	M	Fair	Line of mainly oak, ash tree identified with bracket fungus on stem. Dense woody shrubs at base. Minor deadwood. Typical of age and species.	Further inspection of ash with fungus.	20+	B1
G	4	Hazel, oak, dogwood, brambles blackthorn	7.0	100	As shown.				N/A	0.0	M	Fair	Dense woody shrubs, mixed species.	None at time of survey.	20+	C1

Project:		Cowplain School Playing Field			BS 5837 2012 Trees in relation to construction - recommendations							 thelandscapepartnership landscape architecture urban design environmental planning				
Ref:		B21016														
Date:		October 2022														
Client:		Frontier Estates Ltd														
Surveyed by:			DP/MP													
Weather:			Sunny													
Tagged:			No													
Type	No.	Common Name	Height (m)	DBH (mm)	Canopy Spread				Height of branch clearance N,S,E,W	Height of crown clearance	Age class	Physiological Condition	Structural condition problems	Preliminary management	Estimated remaining contribution years	BS Category
					N	E	S	W								
G	5	Ray wood ash, dogwood, hawthorn, horse chestnut, mana ash,	11.0	290	As shown.				N/A	0.0	M	Fair	Line of trees with woody shrubs at base. Good shape, of age and species.	None at time of survey.	10+	B1
G	6	Oak	9.0	200	As shown.				N/A	2.0	EM	Fair	Area of small trees. Typical of age and species.	None at time of survey.	20+	B1

Appendix 3

- Tree Category A - High Quality
- A Category - Hedgerow, Group, Woodland
- Tree Category B - Moderate Quality
- B Category - Hedgerow, Group, Woodland
- Tree Category C - Low Quality
- C Category - Hedgerow, Group, Woodland
- Tree Category U - Unsuitable for Retention
- Default Root Protection Area to BS:5837:2012
- Adjusted Root Protection Area to BS:5837:2012
- Shrub Mass / Offsite Tree
- High Visibility Mesh



Job Number: **B21016** Drawing Number: **601** Revision: **-**

Appendix 4

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

Telecommunications Code (Schedule 2). Paragraph 19 of the Telecommunications Code enables operators to require the lopping of trees which overhang the street and obstruct or interfere with the working of their lines.

4. HOW TO AVOID DAMAGE TO TREES

This section gives general guidance on methods of work to minimise damage to trees. The local authority (or for privately owned trees, the owner or their agent), should be consulted at an early stage prior to the commencement of any works. This will reduce the potential for future conflict between trees and apparatus.

4.1 Below Ground

Wherever trees are present, precautions should be taken to minimise damage to their root systems. As the shape of the root system is unpredictable, there should be control and supervision of any works, particularly if this involves excavating through the surface 600mm, where the majority of roots develop.

4.1.1 Fine Roots

Fine roots are vulnerable to desiccation once they are exposed to the air. Larger roots have a bark layer which provides some protection against desiccation and temperature change. The greatest risk to these roots occurs when there are rapid fluctuations in air temperature around them e.g. frost and extremes of heat. It is therefore important to protect exposed roots where a trench is to be left open overnight where there is a risk of frost. In winter, before leaving the site at the end of the day, the exposed roots should be wrapped with dry sacking. This sacking must be removed before the trench is backfilled.

4.1.2 Precautions

The precautions referred to in this section are applicable to any excavations or other works occurring within the Prohibited or Precautionary Zones as illustrated in Figure 1 – ‘Tree Protection Zone’.

4.1.3 Realignment

Whenever possible apparatus should always be diverted or re-aligned outside the Prohibited or Precautionary Zones. Under no circumstances can machinery be used to excavate open trenches within the Prohibited Zone.

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The appropriate method of working within the Precautionary Zone should be determined in consultation with the local authority (or for privately owned trees the owner or their agent) and may depend on the following circumstances;

- the scope of the works (e.g. one-off repair or part of an extensive operation)
- degree of urgency (e.g. for restoration of supplies)
- knowledge of location of other apparatus
- soil conditions
- age, condition, quality and life expectancy of the tree

Where works are required for the laying or maintenance of any apparatus within the Prohibited or Precautionary Zones there are various techniques available to minimise damage.

Acceptable techniques in order of preference are;

a) Trenchless

Wherever possible trenchless techniques should be used. The launch and reception pits should be located outside the Prohibited or Precautionary Zones. In order to avoid damage to roots by percussive boring techniques it is recommended that the depth of run should be below 600mm. Techniques involving external lubrication of the equipment with materials other than water (e.g. oil, bentonite, etc.) must not be used when working within the Prohibited Zone. Lubricating materials other than water may be used within the Precautionary Zone following consultation and by agreement.

b) Broken Trench - Hand-dug

This technique combines hand dug trench sections with trenchless techniques if excavation is unavoidable. Excavation should be limited to where there is clear access around and below the roots. The trench is excavated by hand with precautions taken as for continuous trenching as in (c) below. Open sections of the trench should only be long enough to allow access for linking to the next section. The length of sections will be determined by local conditions, especially soil texture and cohesiveness, as well as the practical needs for access. In all cases the open sections should be kept as short as possible and outside of the Prohibited Zone.

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

c) Continuous Trench - Hand-dug

The use of this method must be considered only as a last resort if works are to be undertaken by agreement within the Prohibited Zone. The objective being to retain as many undamaged roots as possible.

Hand digging within the Prohibited or Precautionary zones must be undertaken with great care requiring closer supervision than normal operations.

After careful removal of the hard surface material digging must proceed with hand tools. Clumps of roots less than 25mm in diameter (including fibrous roots) should be retained in situ without damage. Throughout the excavation works great care should be taken to protect the bark around the roots.

All roots greater than 25mm diameter should be preserved and worked around. These roots must not be severed without first consulting the owner of the tree or the local authority tree officer / arboriculturist. If after consultation severance is unavoidable, roots must be cut back using a sharp tool to leave the smallest wound.

4.1.5 Backfilling

- Any reinstatement of street works in the United Kingdom must comply with the relevant national legislation (see: **Volume 6 – ‘Legislation and Bibliography’**). In England this relates to the requirements of the code of practice – ‘Specification for the Reinstatement of Openings in Highways’ approved under the New Roads and Street Works Act 1991. Without prejudice to the requirements relating to the specification of materials and the standards of workmanship, backfilling should be carefully carried out to avoid direct damage to roots and excessive compaction of the soil around them.
- The backfill should, where possible, include the placement of an inert granular material mixed with top soil or sharp sand (not builder’s sand) around the roots. This should allow the soil to be compacted for resurfacing without damage to the roots securing a local aerated zone enabling the root to survive in the longer term.
- Backfilling outside the constructed highway limits should be carried out using the excavated soil. This should not be compacted but lightly “tamped” and usually left slightly proud of the surrounding surface to allow natural settlement. Other materials should not be incorporated into the backfill.

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

4.1.6 Additional Precautions near Trees

- Movement of heavy mechanical plant (excavators etc.) must not be undertaken within the Prohibited Zone and should be avoided within the Precautionary Zone, except on existing hard surfaces, in order to prevent unnecessary compaction of the soil. This is particularly important on soils with a high proportion of clay. Spoil or material must not be stored within the Prohibited Zone and should be avoided within the Precautionary Zone.
- Where it is absolutely necessary to use mechanical plant within the Precautionary Zone care should be taken to avoid impact damage to the trunk and branches. A tree must not be used as an end-stop for paving slabs or other materials nor for security chaining of mechanical plant. If the trunk or branches of a tree are damaged in any way advice should be sought from the local authority tree officer / arboriculturist.

See TABLE 1 –‘Prevention of Damage to Trees Below Ground’ below for summary details regarding causes and types of damage to trees and the implications of the damage and the necessary precautions to be taken to avoid damage.