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**ARBORICULTURAL IMPLICATIONS ASSESSMENT
FOR PROPOSED EXTENSION TO
EXISTING COMMERCIAL UNIT**

AT

**UNIT 19
BOLNEY GRANGE BUSINESS PARK
STAIRBRIDGE LANE
BOLNEY
RH17 5PB**

BY

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**Our ref: J66.12
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1. INTRODUCTION

- 1.1 Broad Oak Tree Consultants Ltd. received instructions from Mr R. Gamble to undertake an inspection of trees located on and immediately adjacent to the site referred to as Unit 19, Bolney Grange Business Park, Stairbridge Lane, Bolney, RH17 5PB. The purpose of the inspection was to produce a base inventory of the tree stock and an Arboricultural Implications Assessment of redevelopment proposals.
- 1.2 The proposals are for the construction of a rear extension to the existing commercial unit of similar form and design utilising a suspended floor off screw piles, culverting over the existing drainage ditch. The existing rear wall will be removed and a mezzanine floor installed to the office area. Details of the proposals will have been submitted by DJM Town Planning and others.
- 1.3 The trees were inspected in October 2024 by Tim Laddiman, BSc.(Hons) M.I.C.For. M.Arbor.A., Chartered Arboriculturist and Principal Consultant of Broad Oak Tree Consultants Ltd.

2. GENERAL SITE DESCRIPTION

- 2.1 Unit 19 is the right hand half of a pair of commercial units within a business park setting. To the front is surfaced parking with an open plan internal layout for storage with an office space to the front left.
- 2.2 To the rear is a drainage ditch, beyond which are the foundations of an old outbuilding with young trees and shrubs to either side and beyond a rear chainlink fence.

3. SCOPE OF TREE SURVEY

- 3.1 All trees and shrubs of 75mm diameter or more at 1.5m above ground level were included in the survey. This included trees immediately adjacent to the site.
- 3.2 For the offsite trees estimates of location, dimensions and condition had to be made.

4. DATA COLLECTION

- 4.1 All trees were inspected from the ground and no climbing or specialist investigations were undertaken. Only those trees within the site boundary could be basally inspected, with the structural integrity of the trees located outside the site unconfirmed. Each tree was inspected to the requirements of Section 4.4 "Tree Survey" of BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations".
- 4.2 The tree survey followed the numbered sequence from T1 – T6 inclusive. Tree numbers, together with BS recommended colour coding of condition, have been added to the Tree Constraints Plan, our drawing no. J66.12/01 Rev A in Appendix 2. This drawing also includes crown spreads based on four compass points and BS calculated root protection areas.

- 4.3 The following categories of information were obtained for each tree. A separate detailed tree survey sheet is attached in Appendix 1, together with comprehensive explanatory sheets which cover the details of the categories listed below.

- (1) Tree reference number
- (2) Species
- (3) Height in metres
- (4) Stem count
- (5) Stem diameter or equivalent in millimetres
- (6) Branch spread in metres
- (7) Age class
- (8) Height of crown clearance in metres
- (9) Physiological condition
- (10) Estimated remaining contribution in years
- (11) Category grading
- (12) Structural condition
- (13) Preliminary management recommendations

- 4.4 Within the assessment of physiological condition and remaining contribution, a visual inspection of each tree was undertaken to assess the crown and stem for any weak structures, deadwood, hollows, forks or other defects that might affect its stability and safety. The base of each tree was also visually inspected, together with tapping and probing, to search for signs of root lifting, bark death or decay. Where stems were heavily ivy clad, no full assessment of structural integrity could be undertaken. Clearance of the ivy would be necessary for confirmation of tree condition.

5. RISK ASSESSMENT - INFORMATIVES

- 5.1 Although the potential risk to someone passing beneath a tree when the tree or part of it fails is relatively remote, the risk is present. This increases significantly in areas of consistent and regular usage on a year round basis, such as footpaths, gardens and roadways. Where static structures exist, the risks become constant and an assessment is made as to whether complete or partial failure of a tree could potentially cause physical damage to such structures.
- 5.2 Within the scope of any tree survey it is a fact that not all risks of stem or crown failure can be covered, particularly in relation to freak occurrences of weather when even healthy trees can suffer stem snap or windblow. There is also a well known propensity for mature trees to occasionally shed limbs for no discernible reason, even on calm days. Although relatively rare, limbs may occasionally be shed and this should be acknowledged as a risk that cannot entirely be mitigated.

6. RESULTS OF TREE INSPECTIONS

- 6.1 A total of 6 individual trees were inspected, all of which appear to have self seeded since the business park was established. Five are located to the rear of the site comprising developing young Oaks and thorns with intense inter tree crowding. T6 Grey Willow is located to the side of the unit in adjoining grounds. This has been cut back to the west in the past and has a second dead Willow immediately adjoining.
- 6.2 Overall the trees appear in reasonable health with future growth potential for the Oaks, though only the offsite Oak T2 is well formed with a balanced canopy.

- 6.3 Of the trees inspected, the following is a breakdown of the various numbers of trees and groups in each BS category.

BS Category	Tree No.	Sub Total
A	-	-
B	T2	1
C	T1, T3, T4, T5, T6	5
U	-	-
	TOTAL	6

6.4 *Interpretation of table*

Category A	Retention most desirable. Of high quality and value and in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
Category B	Retention desirable. Of moderate quality and value and in such a condition as to make a significant contribution (a minimum of 20 years is suggested).
Category C	Could be retained – of low quality and value. Poor crown form, heavily asymmetric, large numbers of similar species/size. Currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested) or young trees with a stem diameter below 150mm.
Category U	Trees for removal. Dead/dying/dangerous trees due to structural defects, fungal decay or root plate uplift. Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

7. **BS CALCULATED ROOT PROTECTION AREAS (RPAs)**

- 7.1 To provide an indication of the critical areas of root plate necessary for tree survival and longevity, BS 5837:2012 requires the calculation of RPAs for trees in the BS Categories A, B and C. Calculations are not made for Category U trees which will require removal on safety grounds within 10 years.
- 7.2 The table below has been calculated using the measured stem diameters and the formula as described in Section 4.6 in BS 5837:2012. These are represented as basic circles on the Tree Constraints Plan. Where buildings, walls, services and hard surfacing exist within the indicated RPAs it is likely that the architecture of root systems will have been affected. Foundations to walls and buildings can completely obstruct root development, depending on their depth and the nature of the underlying soils. In the absence of detailed site investigations the indicated RPA circles should be used for guidance only within any redevelopment proposals.

Tree no.	Species	BS Category	Stem diameter or calculated equivalent (mm.)	BS calc. radial equiv. root protection area (m.)	BS calc. total RPA (m ²)
T1	Blackthorn	C2	c200	c2.4	c18
T2	Common Oak	B2	c300	c3.6	c41
T3	Common Oak	C2	c350	c4.2	c55
T4	Hawthorn	C2	c450	c5.4	c92
T5	Hawthorn	C1	100	1.2	5
T6	Grey Willow	C1	230	2.8	25

ARBORICULTURAL IMPLICATIONS ASSESSMENT

8. REDEVELOPMENT PROPOSALS

- 8.1 The proposals are for the construction of a rear extension to the existing commercial unit of similar form and design utilising a suspended floor off screw piles, culverting over the existing drainage ditch. The existing rear wall will be removed and a mezzanine floor installed to the office area. Details of the proposals will have been submitted by DJM Town Planning and others.
- 8.2 The supplied proposed site layout has been used as the base for the Broad Oak Tree Consultants Ltd. Tree Protection Plan, drawing no. J66.12/02 Rev B in Appendix 3. This indicates measures to protect retained trees in accordance with BS5837:2012 requirements.

9. TREE SURGERY REQUIREMENTS

- 9.1 To allow for the building footprint and construction space the following tree works will be required.

Table: Tree Surgery Requirements

Tree No.	Species	Works required
T3	Common Oak	Remove lowest long bowed out limb to east
T4	Hawthorn	Cut back outer fine branches to east to 3m radius from stem
T5	Hawthorn	Cut back outer fine branches to east to 1m radius from stem

- 9.2 All of the above are relatively minor works to BS Category C Thorns and one young Oak, none of which have public visual amenity value. Pruning of Thorns commonly occurs in hedgerow settings with no detriment to health and longevity. The one branch for removal from the Oak T3 is slender and bowed and likely to snap in the future. As such these limited works should not represent a constraint to the proposals.

- 9.3 All tree work will need to be carried out by a competent tree surgeon to comply with BS3998:2010 "Tree Work - Recommendations".
- 9.4 All trees recommended for tree surgery works will need to be checked for the presence of bats or nesting birds prior to works commencing. Disturbance to bats or nesting birds could contravene the Wildlife and Countryside Act 1981 and result in prosecution.

10. POTENTIAL IMPACT OF PROPOSALS ON RETAINED TREES

- 10.1 Whilst the footprint of the proposed extension would theoretically be within the outer RPAs of trees T3 and T4 in reality any impacts will be minimal. The Unit is occupied by Helix, which specialise in screw piles and these will be utilised to minimise ground disturbance with the floor of the extension suspended above the existing ground level. A cross section of the proposals is included in Appendix 4.
- 10.2 By suspending the floor of the extension this will allow continued gaseous exchange with the soils. Roof drainage will be fed into three above ground attenuation tanks located outside tree RPAs. As a result, apart from the small cross-sectional dimensions of the screw piles there will be no adverse impact on roots or soils. This approach accords with the requirements of section 7.5 'special engineering for foundations within the RPA' of BS5837:2012 and should therefore be acceptable to the council. This design approach is also indicated on the TPP.

11. TREE PROTECTION MEASURES – FENCING

11.1 *Location of fencing*

- 11.1.1 The Tree Protection Plan indicates the proposed location of protective fencing based on the calculated tree protection areas and space available.

11.2 *Design of fencing*

- 11.2.1 Protective fencing to comprise weldmesh panels securely fixed together with scaffold ties set within rubber/plastic feet to form a continuous barrier. Feet to be pinned to the ground with road pins/short scaffold bars or panel joins back braced. Waterproof signs to be attached to every 5th panel declaring "TREE ROOT PROTECTION ZONE – KEEP OUT" or similar wording. Fencing to be constructed in accordance with Fig 3 of Section 6.2 of BS5837:2012.

11.3 *Timing of fencing*

- 11.3.1 Protective fencing is to be erected prior to commencement of site works and remain in place until completion of construction. The location and suitability of the fencing can be confirmed to the local authority by an arboricultural consultant prior to commencement of construction. Any tree surgery works will need to be undertaken prior to fence installation to minimise risks to operatives. All tree surgeons' vehicles will be kept outside the indicated protection zones utilising existing areas of hard standing and drive.

11.4 Additional precautions

- 11.4.1 Potentially injurious materials such as fuels, oils, chemicals and cement will be stored at least 20m from any stem, or in a bunded storage vessel. No fires will be lit within 5m of the drip line of any retained tree. No level changes will occur, either raising or lowering within the protected areas. A list of these additional precautions are included on the Tree Protection Plan.

12. GROUND PROTECTION MEASURES

- 12.1 In areas within root protection zones where access around the new extension footprint will be required during construction, specific ground protection measures will be required. For machinery access these should comprise interlocking, specifically designed load bearing temporary roadway plates, commonly made of steel or specialised plastics. For foot access only for cladding the building ground protection measures should comprise a geotextile base with 100mm woodchip over, topped by side butting scaffold boards. The ground protection measures will be installed prior to construction commencing and remain in place until works are completed.
- 12.2 It is understood that the construction will involve removing the rear wall and accessing the extension footprint through the existing building, minimising the need for machinery access around the outside and minimising risks to tree RPAs.

13. SITE OPERATIONS AND MATERIALS STORAGE

- 13.1 Details of site zoning cannot be specified by an Arboriculturalist as these are commonly determined by contractors on the basis of Health & Safety Assessments. However, the robust protective fencing will define the remaining site space available for storage and operations. It is anticipated that the surfaced parking to the front of the unit will be utilised for all materials storage, or within the unit itself, with concrete deliveries for the floor also accessing through the existing building, avoiding potential tree impacts.

14. SUMMARY

- 14.1 The proposed extension to the existing commercial unit would not require any tree removals and only limited cutting back of mainly fine outer branches of Thorns and one bowed out slender Oak limb. All of the trees/shrubs requiring works are BS Category C, of no public visual amenity and the works will not adversely affect their longevity.
- 14.2 The extension foundations are to utilise screw piles and a suspended floor to avoid adverse impacts on tree root systems, in accordance with BS5837 recommendations. The design will also avoid changes in soil hydrology and gaseous exchange, ensuring minimal impact on the surrounding trees.
- 14.3 The Tree Protection Plan can be referred to as an approved drawing or in a specifically worded condition to ensure that the retained trees are appropriately protected during the demolition and construction works.

APPENDIX 1

TREE SURVEY EXPLANATORY SHEET

Height	in metres (estimated where ground uneven or access restricted).
Stem count	number of stems
Stem diameter	in mm. at 1.5m. above ground level.
Branch spread	radial spread in metres at four main compass points (estimated where no access).
Age class	Young - Y Semi Mature - SM Mature - M Over mature - OM Veteran - V
Height of crown clearance	in metres. Normally range of heights of outer branches above ground level, e.g. 2-4m.
Physiological condition	Good, Fair, Poor, Dead, Variable
Estimated remaining contribution	in years e.g. less than 10, 10-20, 20-40, 40+
Category grading	see attached sheet
Structural condition	comment on presence of defects, decay, crown form, past management, deadwood, other features worthy of note. N.B. If trees are ivy clad, no full structural assessment will have been possible.
Preliminary management recommendations	requirements of further investigations, works necessary to alleviate potential hazards based on current setting and levels of access. NB: Works that may be necessary in relation to development are not included here

CASCADE CHART FOR TREE QUALITY ASSESSMENT

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
Category U Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	- 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 R category trees (i.e. 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 (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree.)			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	Criteria - Subcategories			Identification on plan
	1. Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation	
Category A Those of high quality and value: in such a condition as to be able to make a substantial construction (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodland, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm.	Trees not qualifying in higher categories	Trees present in groups or woodland, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.	Trees with very limited conservation or other cultural benefits	GREY
NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation				

Tree ref. no.	Species	Height (m.)	Stem Count	Stem diameter or equivalent (mm.)	Branch spread (m.)				Age class	Ht. of crown clearance (m.)	Physiological condition	Estimated remaining contribution (years)	Category grading	Structural condition and Notes	Preliminary management recommendations
					N	E	S	W							
T1	Blackthorn	7	1	c200	2	1.5	3.5	1	SM	1.3+	Fair	20-40	C2	Crowded. Heavily ivy clad. Slight lean to E	
T2	Common Oak	11	1	c300	c6	5.5	5.5	6.5	Y	5.5+	Unconfirmed	40+	B2	Raised crown. Fine dieback and deadwood	
T3	Common Oak	13	1	c350	c6	7	2.5	2	Y	5.5+	Fair	40+	C2	Heavily ivy clad. Crowded. Long slender limbs to E. Twin stemmed at 2.5m	
T4	Hawthorn	8	Multi	c450	c5	5	6	c5	M	0+	Unconfirmed	20-40	C2	Multi-stemmed <1m. Heavily ivy clad	
T5	Hawthorn	3	Multi	100	0	2.5	4	2	Y	0+	Poor	10-20	C1	Part collapsed to S. Multi-stemmed from ground level	
T6	Grey Willow	7	Multi	230	3	c3.5	3.5	3	SM	1.3+	Poor	10-20	C1	Twin stemmed from ground level. Dead Willow immediately adjoining to E. Cut back to W	

APPENDIX 2

TREE CONSTRAINTS PLAN

T1 - T6 Tree numbers

BS Category of Condition

BS Condition A

BS Condition B

BS Condition C

BS Condition U

Crown spread

BS Calculated root protection areas

The root protection areas have been calculated using the measured stem diameter and the crown spread recorded in Section 4.6 in BS4387:2012. These are

approximated at basic scale on the Tree Constraints Plan and shown within the

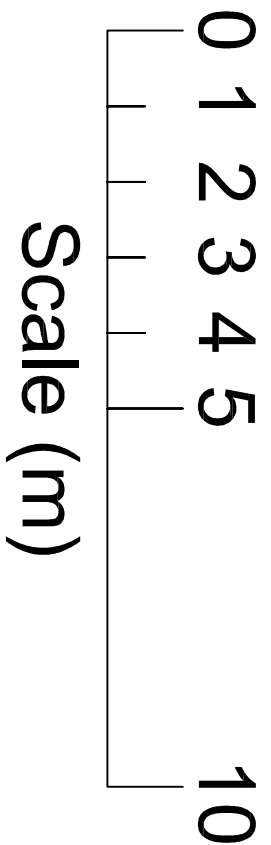
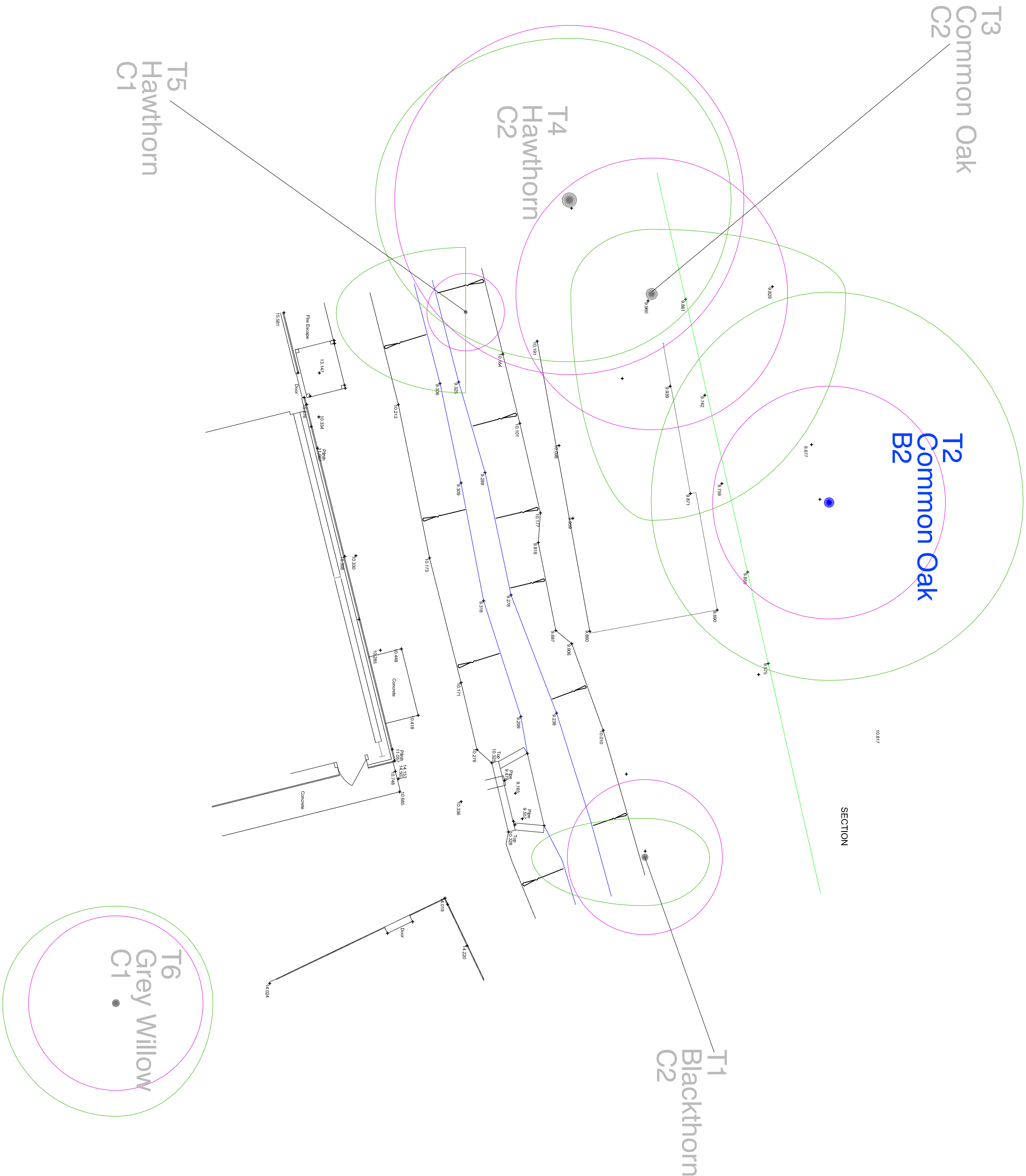
services and hard surfacing exist within the

arbitrated. Foundations to walls and buildings

depending on their depth and the nature of

the underlying soils. In the absence of

PPA, details should be used for guidance only within any redevelopment proposals.



APPENDIX 3

TREE PROTECTION PLAN

T1 - T6 Tree numbers

BS Category of Condition

BS Condition A

BS Condition B

BS Condition C

BS Condition U

Crown spread

BS Calculated root protection areas

Tree to be removed for safety/short lifespan

Tree to be removed for development

Protective fencing location

Ground protection

TREE PROTECTION INFORMATION

Protective fencing and ground protection measures to be installed at locations specified prior to commencement of any demolition works.

Protective fencing to comprise rubber/plastic feet to form a continuous barrier. Fences to be placed to the ground level and be supported by a 100mm x 100mm timber post. Fences to be supported by a 100mm x 100mm timber post. Fences to be supported by a 100mm x 100mm timber post.

Ground protection measures to be installed to protect the ground surface from damage caused by machinery and vehicles. Ground protection measures to be installed to protect the ground surface from damage caused by machinery and vehicles.

Buildings in proximity to protected trees shall be protected by a 100mm x 100mm timber post. Buildings in proximity to protected trees shall be protected by a 100mm x 100mm timber post.

The fenced protection zones around retained trees, hedges and shrubbery must be maintained in good condition. The fenced protection zones around retained trees, hedges and shrubbery must be maintained in good condition.

Within these areas:

- Storage or disposal of any soil, building materials, machinery, fuel or waste residues of any description.

- Siting of any temporary structures of any description including site offices/ site buildings, temporary car parking facilities, portable toilets, storage containers or temporary hard standing areas.

- Excavations, soil/lift slippage, or any other activity which may cause alterations to the existing natural surface/ground conditions of any other description.

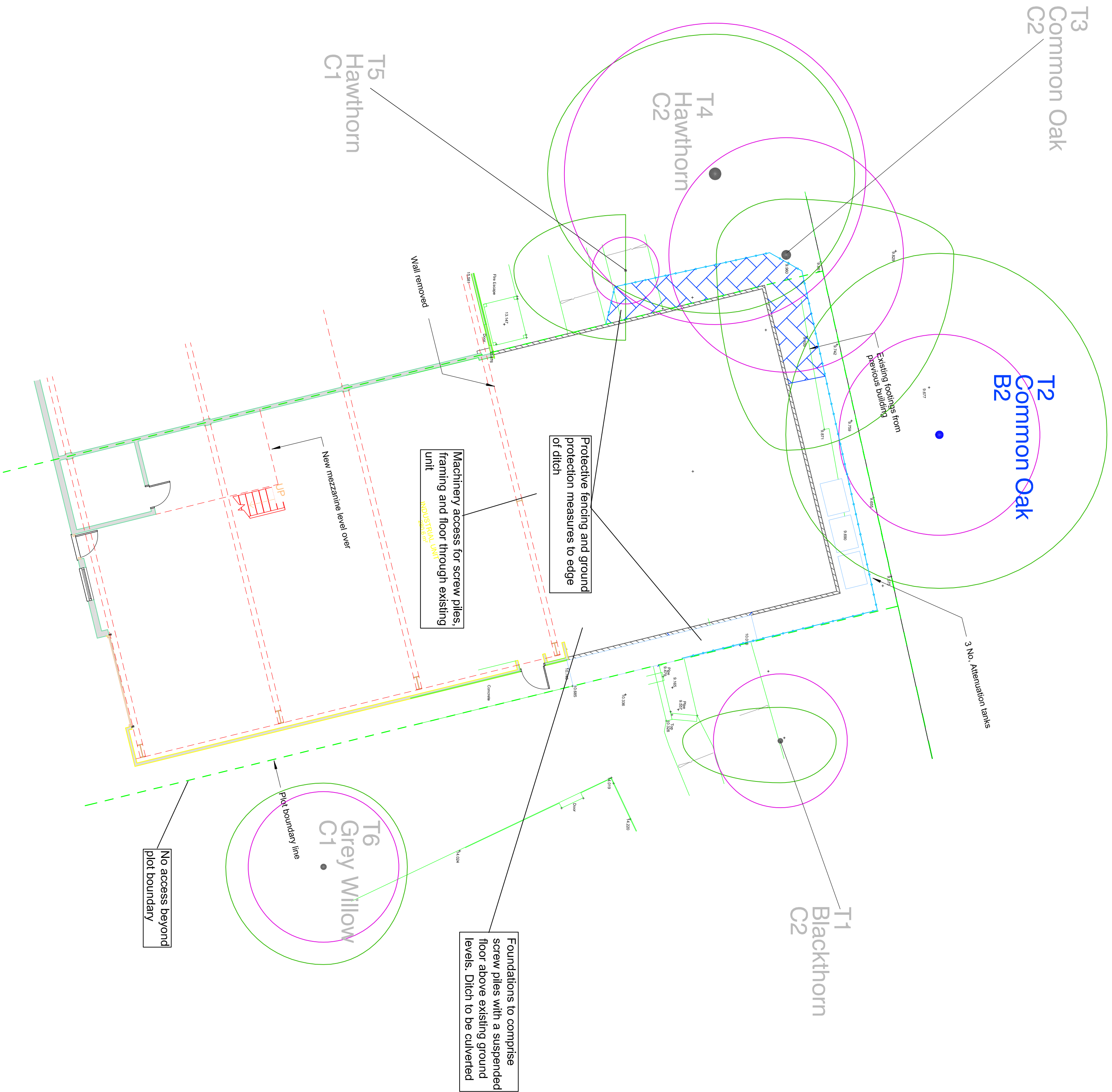
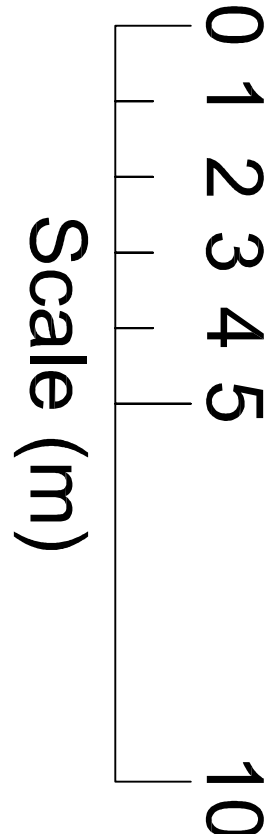
- Location of temporary drainage, water supplies or any other temporary underground services.

- No use, movement or parking of any machinery or vehicles of any description.

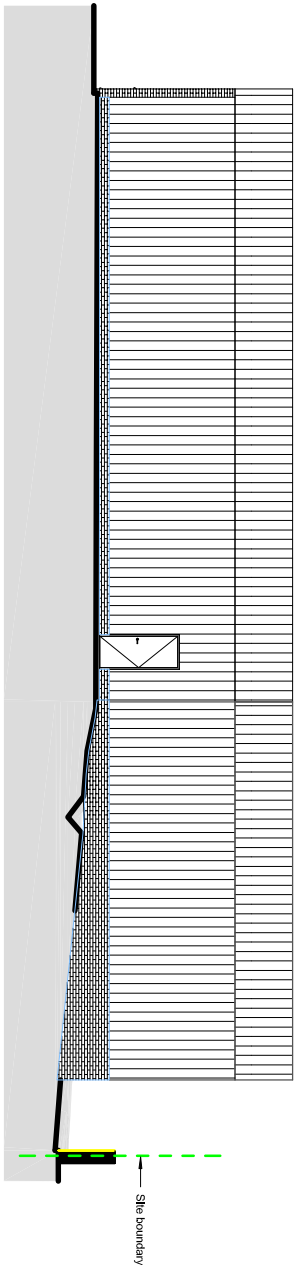
- Additionally, no fires shall be lit within 20m. of the trunk of any tree or the centre of any hedge/row to be retained.

All services to be installed to the satisfaction of the Planning Authority.

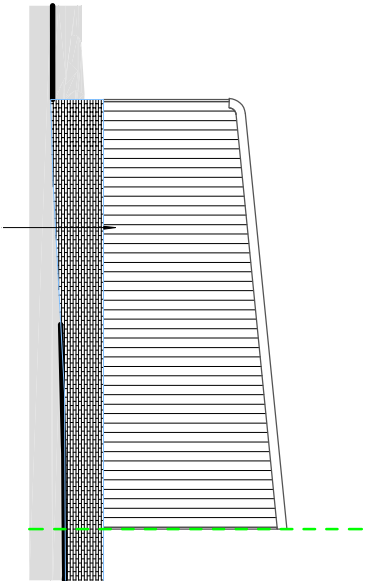
*Guidelines for the Planning Authority in Proximity to Trees - Any work to be carried out in the above areas to either be felled/removed or any hand excavation to be supervised by the Arboricultural Consultant.



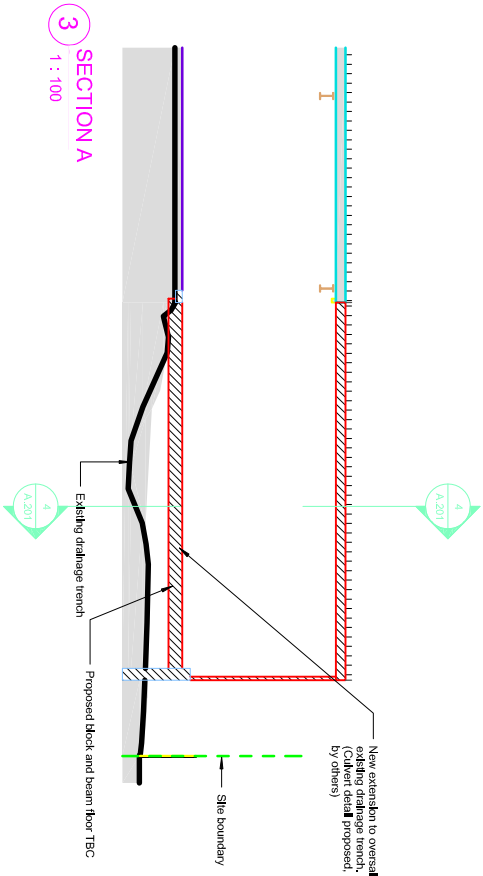
APPENDIX 4



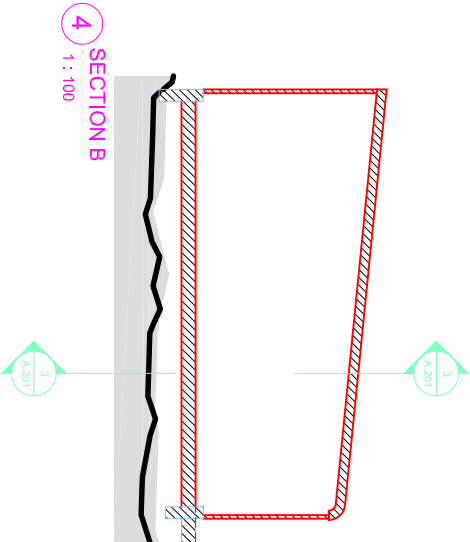
1 ELEVATION FACING EAST
1 : 100



2 ELEVATION FACING NORTH
1 : 100



3 SECTION A
1 : 100



4 SECTION B
1 : 100

Proposed Extension

ADDRESS
Unit 19
Bolney Grange Business
Park
Stairbridge Lane
Bolney
RH17 5PB

TITLE
Proposed Elevations
& Section

CLIENT
UK Helix

DRAWN
JLB
STATUS
Planning
DATE
01/11/24

SCALE (@ A2)
1:100
PROJECT NUMBER
KD.1634/1

DRAWING NUMBER
A.201

REV