

# Trees and Construction

## BS5837:2012 Tree Survey, Arboricultural Implications Assessment & Method Statement

**Site:** Land at Barry Waterfront, CF62 5AT

**Ref:** 20386.S1/23/AIA/A2

**Client:** WEPCo (Welsh Education Partnership)



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**-Jan 2024 -**

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<b>Revision</b>	<b>Description</b>	<b>Date</b>
/	Tree Survey Advice (20386_S1_23/A1)	9/01/2024
A	Minor amendments to client name references and further clarifications	16/01/2024

## 1. INTRODUCTION

1.1 **Instruction:** This advice has been prepared for WEPCo (hereafter; client) and is in respect of the tree related planning considerations at the Land at Barry Waterfront, CF62 5AT (hereafter; site).

As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).

1.2 **BS5837:** The scope of BS5837 is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.

1.3 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is intended to demonstrate the site's realistic arboricultural constraints and assist with the design process. The objective is to systematically assess the site and provide suitable recommendations regarding the proposal's potential impact on trees and vice versa.

1.4 Following instruction the consultant surveyed the site on the 1st July 2020 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group.

1.5 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.

1.6 The survey data and site observations use the supplied topographical survey to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP); the TCP and the tree survey data table are at Appendix III

## 2. SITE INFORMATION & TREE ASSESSMENT

- 2.1 The site currently comprises a dis-used parcel of land with associated access and parking areas. The site access is via a road off Fford Y Mileniwm.
- 2.2 **Proposal:** The ground floor general arrangement drawing of a new college building with open spaces, associated car parking, Ancillary buildings and open spaces has been provided. The drawing number is VG0201-ALA-00-XX-M2-L-00002-Landscape General Arrangement GF
- 2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the potential construction area.
- 2.4 The trees -
- 2.4.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'B - moderate' and 'C - low' being attributed to trees/tree groups.
- 2.4.2 The BS5837 tree survey is a means of objective assessment and reflects the trees' condition, quality contribution, remaining life expectancy and spatial considerations (stem, crown and roots). On this basis and in order to consider the trees' accurate constraints, the survey data has the crown extents for north, east, south and west, the stem diameter measurement, and the calculated root protection areas (hereafter; RPAs). Hereafter, the trees are therefore reviewed and considered on their own merits and in line with the guidance of BS5837.

### 3. FINDINGS & RECOMMENDATIONS

3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (20386.S1/TCP/01) and scheme overlay (20386.S1/23/TCP/02).

#### 3.2 General Considerations for Tree Retention / Removal

3.2.1 There are smaller scale trees and those with defects or limitations on the useful remaining life expectancy, these are categorised as 'C - low'.

These 'C' category trees should not constrain nor significantly guide a scheme, although protection may be preferable to retain landscape maturity. For any proposed tree removals, mitigation tree planting is recommended as part of a landscape scheme and can suitably replace and enhance the initial loss of canopy cover.

3.2.2 The moderate quality 'B' category trees are noted as such due to their fair future potential and/or good current amenity contribution. These should be retained and protected where possible as part of the site's development.

Whilst the retention and protection of 'B' category trees is recommended, the removal of some may also be mitigated. Subject to supplementary details for tree selection as part of a well delivered landscape scheme, proposals of this nature may then be accepted by the council. However, this will require higher grade larger nursery planting stock than that to mitigate the removal of 'C' category trees.

3.2.3 There are also potential minor impingements to the RPA's of T1 and T2 which are both offsite trees and assumed to be retained and protected. It is also noted that their locations shown on the TCP are not definite as no location was produced on the topographical survey. In this case it should be insured that the existing soil levels are maintained within the trees RPA's that project on site.

#### 4. SCHEME / IMPLICATIONS ASSESSMENT

- 4.1 For this assessment, the proposed scheme has been considered (see; s.2.2 herein). This includes consideration for arboricultural management / tree works for H&S tree risk management, tree removal and pruning options, design solutions, tree protection and sensitive measures to account for trees. As per s.1.6 and s.2.2 herein, The TCP scheme overlay illustrates the proposed scheme.
- 4.2 The following trees will require to be removed in order to facilitate the scheme; G2, T5, T6, T7 and T8 are to be removed for arboricultural reasons;.
- 4.3 The remaining trees will be retained and protected throughout the development. The specific considerations and implications for these are as follows. The drawings referred to can be found in Appendix III. This information has been prepared for the planning submission to demonstrate that construction can be achieved inline with the recommendation set out in the AIA. Further design development that is in line with AIA recommendations is possible through detailed design.
- 4.3.1 *Consideration for T1 and T2*
- 4.3.3 Within the RPA of the above trees is within the development and it is proposed to construct fencing as well as open space sports facilities. The post holes for the fence should be hand dug within the RPA of the tree as per the locations shown on the TPP. The existing levels are to be retained within the RPA of the these trees. Tree work will be required to accommodate the height of the proposed fence and be clear by 1m
- 4.3.4 *Consideration for Remaining trees*
- 4.3.5 All remaining trees will be retained and protected by avoidance and protective fencing.

## 5. ARBORICULTURAL METHOD STATEMENT (AMS) 'CONSIDERATIONS'

### 5.1 Arboricultural Construction Restrictions

5.1.1 The following restrictions are considered relevant for tree protection purposes which are illustrated on the appended Tree Protection Plan (TPP):

- a) **Tree Works** - are to be completed prior to any and all site works: no tree works not specified within this AIA (or leaning against or attaching of objects to a tree) are permitted unless agreed in writing by the council (subject to standard exemptions).
- b) **Tree Protection** - a site compound will be set up within the application boundary, excluding the surveyed trees as per the TPP, or Protective Barrier Fencing (PBF) is to be installed as per the TPP with works clearance, i.e. 1.5-2.0m around the hard landscape extents, existing boundary walls retained and supplemented to prevent RPA, stem or crown impact; to be installed after tree works and prior to site works.
- c) **Construction Exclusion** - the fenced off areas are Construction Exclusion Zones (CEZ).
- d) **Site Restrictions** - no chemicals/materials are to be transported/stored/used/mixed within the CEZ, and no fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of the tree's canopy or in a CEZ.
- e) **Ground Works** - during site works RPAs/CEZ may not be breached, i.e. no surface works, without the consultant's prior advice and council consent, and no mechanical digging or scraping is permitted within RPAs/CEZ;
- e) **Sensitive Landscape** - the PBF may be temporarily moved to allow pedestrian access to start sensitive soft landscape works within RPA, i.e. turf removal, retained soil levels, new planting, mulch borders.
- a) **Completion** - only following construction and hard landscape completion can PBF be removed and remaining soft landscape works undertaken within RPAs / CEZ (ground levels to be retained and works undertaken manually with non driven machinery).

### 5.2 Arboricultural Site Monitoring / Supervision

5.2.1 The council will typically request 'a scheme of supervision for the arboricultural protection measures' to confirm tree protection and adherence to working methods around trees and so we set this out below.

5.2.2 The appointed site contractor and project manager will be provided with an approved AMS and TPP and will need to be briefed as to prohibited works and tree protection.

5.2.3 A record of each site visit will be kept and a summary letter drafted for the client, the site manager and the local authority (to be sent to the client for distribution), thus -

- (1) ***Pre-commencement*** to confirm approved tree works, site hoarding / tree protection fence line, ground protection and construction restrictions for ground works.
- (2) ***After-main construction*** to confirm excavations of existing hard surfaces and discuss tree protection requirements with the landscape phase team.
- (3) **Supervision of Works** within the RPA's of T1 and T2, This requires individual supervision for the operations required for each tree named. Namely fence installation by hand and retention of existing levels.
- (4) **Development completion** after all hard landscape works and tree and shrub planting are complete to sign off the site as having adhere to the AMS.



### 5.3 Tree Works

5.3.1 All approved tree works must be undertaken with the council’s written permission (subject to statutory exemption) and undertaken to BS3998 by a tree service contractor who is suitably qualified, experienced and insured to for arboricultural contracting.

5.3.2 In accordance with the approved scheme the following tree works are recommended in conjunction with the scheme (additional tree works must only be undertaken with the full and written permission of the council):

#### **TREE WORK SUMMARY**

<b>NUMBER</b>	<b>TREE REMOVALS / PRUNING WORKS</b>	
T5, T6, T7, T8 and G2	Remove	Remove in conjunction with the scheme: Replacements to be provided within the landscape scheme.
T1 and T2	Pruning	Trees to be crown lifted the accommodate the height of the proposed fence.
Retained trees		Protection by placement of fixed BS5837 specification frame work panels around the crown / RPA extents to have no access during construction and manually operative sensitive surface works and retained soil levels within RPAs.

### 5.4 Protective Barrier Fencing (PBF) Specification

5.4.1 Barrier fencing is to be installed (and signed off by way of arboricultural supervision in all 3 phases Demolition Construction and Landscape and first installed for the demolition phase following the completion of the tree works. It is illustrated on the Tree Protection Plans 01, 02 and 03 and is to remain in situ for the entire duration of each phase’s configuration. Demolition, ground works/construction processes and Landscape phase unless otherwise agreed in writing by the council.

5.3.2 The barrier fencing is to consist of a series of Heras panels secured in place or fixed hoarding (ply / chipboard panels) to ensure that the fencing lines are well braced to resist impact, prevent access to the RPA/CEZ areas around the approved works.

5.3.3 PBF will be supplemented by ground protection, by way of retained hard surfaces, polythene layer for grounds outside of the PBF and ply boards for pedestrian access within the RPA. As per BS5837 illustrated below.

- 5.4 Sensitive Ground Works (within RPAs, post hole excavation)
- 5.4.1 Any excavations necessary within a RPA or designated CEZ (as illustrated on the TPP - each RPA and the areas enclosed by PBF) must:
- Only be undertaken when the construction works are completed; and
  - Retain the existing soil levels; and
  - Use sensitive excavation techniques to protect the tree roots and their existing growing conditions, i.e. sensitive manual excavations / air spade.
- 5.4.3 The RPA excavation area is to be marked out [as per the TPP] on the hard surface and undertaken by hand with the use of manually operated (hand held) tools.
- 5.4.4 The excavations are to be preventative and carefully avoid damage to tree roots; therefore, individual 50mm layers are to be excavated at a time within an RPA/CEZ. This is to ensure that excavations do not incur on the existing soil levels, i.e. no downward regrading of soil levels within RPAs.
- 5.4.5 Any exposed roots shall be packed with a clean damp sand (not builders' sand) and wrapped in hessian sacking to protect them from temperature changes and drying out.
- 5.4.6 Small roots (those less than 25mm in diameter) may be carefully pruned back with a clean sharp tree saw. However, pruning large roots (those greater than 25mm in diameter) will require the advice of the consultant and permission of the council; these may be necessary for a tree's health and stability.

## 5.5 Underground utilities

5.5.1 Any new underground utilities are to utilise the construction area for new installations and avoid the need for works in proximity to trees. Certainly, utility installations are to be:

- Located outside of RPAs and construction exclusion zones; and
- Installed only following the installation of the protective barrier fencing to ensure the retained trees and their RPAs are protected.

5.5.2 The following restrictions are recommended for underground utilities within RPAs:

- Any necessary excavations to be undertaken sensitively using either a no-dig method (e.g. Air-Spade) and/or under arboricultural supervision;
- Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them.
- Small roots which are identified (those less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw; and
- Larger roots which are identified (those greater than 25mm in diameter) are to be retained and protected as they may be necessary for a tree's health and stability.

## 5.6 Landscape Detail

5.6.1 Extensive landscape detail and replacement planting is to be provided by the client  
See the Design and Access Statement and the layout drawings for this.

## 5.7 Report Handling

5.7.1 This report is released to the client and architect to be distributed at their discretion  
and the consultant is available for queries relating to this report and/or trees.

5.7.2 The proposed scheme is reviewed in respect of the arboricultural constraints and is  
considered to be achievable in line with the BS5837 guidance. The tree protection  
methods herein may be approved by the council for which a planning approval will  
be subject to a final and detailed Arboricultural Method Statement based on the  
approved information and other detail perhaps not available at the pre-planning  
approval stage, i.e. final landscape plan.

5.7.3 This AMS and the TPP may be approved by the council in support of the application,  
subject to a conditioned final AMS and TPP as a means of authorised tree protection  
measures; all site personnel will have access to a copy and the tree work and  
protection details are to be inspected as per s.5.2 for '*Arboricultural Monitoring /  
Supervision*'.

**This concludes our advice.**

## Appendix I

### Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. | This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

## Appendix II

### Terms and Definitions

*“Arboriculturist”* - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

*“Competent Person”* - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

*“Topographical survey”* - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification Surveys of land buildings and utility services at scales of 1:500 and larger.*

*“BS5837 Tree survey”* - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

*“Tree categorisation method”* - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

*“Root protection area (RPA)”* - layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority, shown as an arboricultural constraint in m<sup>2</sup>. The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

*“Arboricultural implications assessment”* - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

*“Arboricultural method statement”* - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

*“Tree protection plan”* - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

## Appendix III

<b>Data Table:</b>	As appended (BS5837 Tree Survey Key & Table)
<b>Tree Constraints Plan:</b>	As appended (20386_S1_23/TCP/01)
<b>Tree Protection Plan:</b> (Application Stage)	As appended (20386_S1_23/TPP rev A)

**TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'**

CLIENT: WEPCo

PROJECT REF: 20386.S1

SITE: Land at Barry Waterfront, CF62 5AT

CONTACT: /

SURVEY DATE: 1 July 2020

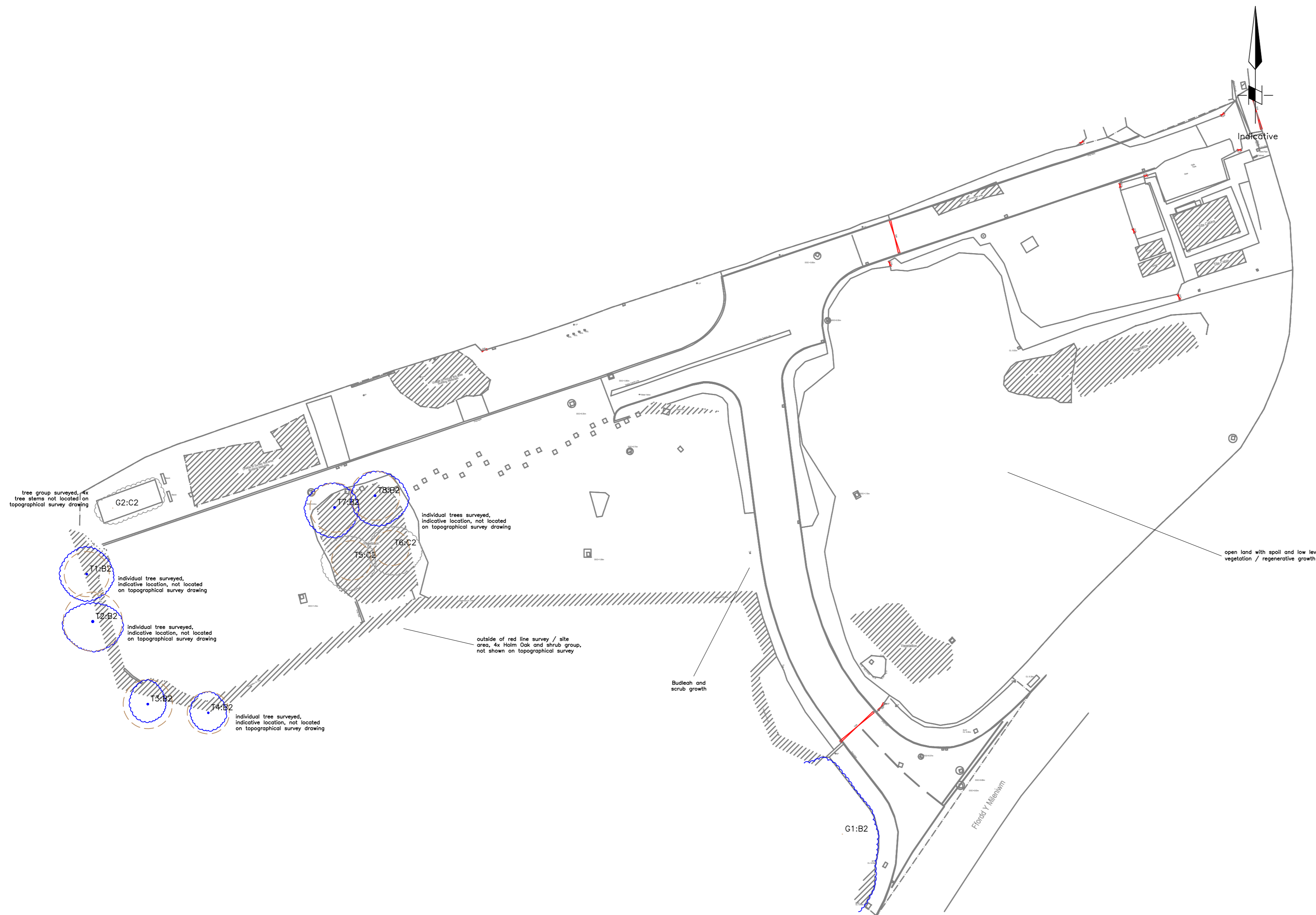
ARB CONSULTANT: Andrew Turnbull FDSc MArborA

TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m)				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPECT.	NOTES	BS CAT.	MANAGEMENT
				N	S	E	W									
G1	4x Pine; Pinus, Pinaceae	M	10	< 5.0m all round				260 - 410	3.1 - 4.9	0	/	Normal	40 +	In grass verge between fence and roadside path.	B 2	
T1	Pine; Pinus, Pinaceae	M	8	4.5	4.5	4.5	4.5	320	3.8	0	1m - all round	Normal	40 +	Planted in verge at edge of parking boundary and scrubland beyond, multiple stem upper crown, stout form.	B 2	
T2	Pine; Pinus, Pinaceae	M	8	3	5	5	5	420	5.0	0	1m - all round	Normal	40 +	Planted in verge at edge of parking boundary and scrubland beyond, multiple stem upper crown, stout form, included co-dominant union at 3m.	B 2	
T3	Pine; Pinus, Pinaceae	M	8	4	3	3	3	350 *	4.2	2	2m - all round	Normal	40 +	Inset to scrub, no direct base access.	B 2	
T4	Pine; Pinus, Pinaceae	M	6	3.5	3	3	3	300 *	3.6	0	1m - all round	Fair	20 - 40	In parking verge, multiple stem crown, low vigour.	B 2	
T5	Holm Oak; Fagaceae	SM	6	4	5	4	5	280	3.4	0	2m - all round	Fair	40 +	Planted with shrubs as walkway avenue, unmanaged for some time, stakes in place, dense and scrubby multiple stem growth at 2-3m.	C 2	If retained (and depending on site layout) - Remove stake and crown lift to provide pathway clearance of approx. 2.5m from ground level, and 5m over parking from ground level.
T6	Holm Oak; Fagaceae	SM	6	3.5	4.5	5	4	250	3.0	0	2m - all round	Fair	40 +	Planted with shrubs as walkway avenue, unmanaged for some time, stakes in place, dense and scrubby multiple stem growth at 2-3m.	C 2	If retained (and depending on site layout) - Remove stake and crown lift to provide pathway clearance of approx. 2.5m from ground level, and 5m over parking from ground level.
T7	Holm Oak; Fagaceae	SM	6	4	5	4	5	350	4.2	0	2m - all round	Normal	40 +	Planted with shrubs as walkway avenue, unmanaged for some time, stakes in place, dense and scrubby multiple stem growth at 3-4m+.	B 2	If retained (and depending on site layout) - Remove stake and crown lift to provide pathway clearance of approx. 2.5m from ground level, and 5m over parking from ground level.
T8	Holm Oak; Fagaceae	SM	6	4	5	5.5	4	350	4.2	0.5	4m - all round	Normal	40 +	Planted with shrubs as walkway avenue, unmanaged for some time, stakes in place, dense and scrubby multiple stem growth at 4m+.	B 2	If retained (and depending on site layout) - Remove stake and crown lift to provide pathway clearance of approx. 2.5m from ground level, and 5m over parking from ground level.
G2	4x Holm Oak; Fagaceae	EM	4 - 6	0.5 - 1.5m all round				75 - 100	1.0 - 1.2	0 - 1	/	Fair / Poor	10 - 20	Established ornamental feature, likely regrowth from being historically trained / topped, in gravel border, low vigour, leaf yellowing and sparse.	C 2	If retained - mulch ring around base to 1.0m width, and maintain (water regime).



**TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'**

<b>TPO/CA</b>	- On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;
<b>TREE REF. #</b>	- Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);
<b>SPECIES</b>	- Genus, species and/or common name;
<b>AGE</b>	- Age classification (NP - new planting, Y - young, EM - Early-Mature, SM - semi mature, M - mature, LM - late mature, OM - over mature);
<b>HEIGHT (in m)</b>	- Approximate height of tree in metres;
<b>CANOPY (in m) N - S - E - W</b>	- Approximate branch spread in metres of the four principal compass points;
<b>STEM (in mm)</b>	- Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;
<b>RPA (in m)</b>	- Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);
<b>CLEARANCE (in m)</b>	- Crown clearance in metres above the adjacent ground level;
<b>IST BRANCH (in m)</b>	- Clearance in metres to first significant branch and direction of growth (where relevant);
<b>VITALITY</b>	- Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);
<b>ESTIMATED REMAINING CONTRIBUTION</b>	- Approximate number of years a tree will continue to contribute without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;
<b>NOTES</b>	- Structural and physiological condition observations;
<b>BS CAT.</b>	- BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate useful life expectancy); - Standard retention category <b>U</b> : in such a condition that any existing value would be lost within 10 years; - Standard retention category <b>A</b> : high quality and value, in such a condition as to be able to make substantial contribution of 40+ years; - Standard retention category <b>B</b> : moderate quality and value, in such a condition as to make a significant contribution of 20+ years; - Standard retention category <b>C</b> : low quality and value, currently in adequate condition to remain until new planting could be established 10+ years; - Standard retention sub-category, mainly due to: <b>1</b> - Arboricultural values, <b>2</b> - Landscape values, <b>3</b> - Cultural values, including conservation;
<b>MANAGEMENT</b>	- Preliminary management recommendations (as appropriate);
<b>' * '</b>	- Within the survey schedule denotes an estimate



**KEY**

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.

**Tree Condition Category**

- A
- B
- C
- U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'

tree group surveyed, 4x tree stems not located on topographical survey drawing

G2:C2

individual trees surveyed, indicative location, not located on topographical survey drawing

T7:B2 T8:B2

T5:C2 T6:C2

individual tree surveyed, indicative location, not located on topographical survey drawing

T1:B2

individual tree surveyed, indicative location, not located on topographical survey drawing

T2:B2

individual tree surveyed, indicative location, not located on topographical survey drawing

T3:B2

individual tree surveyed, indicative location, not located on topographical survey drawing

T4:B2

outside of red line survey / site area, 4x Holm Oak and shrub group, not shown on topographical survey

Burdock and scrub growth

open land with spoil and low level vegetation / regenerative growth



DO NOT SCALE FROM DRAWING

The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

REV.	DESCRIPTION	DWN	CHK'D	DATE
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CLIENT  
HSP Consulting Ltd

PROJECT  
20386.S1  
Land at Barry Waterfront,  
CF62 5AT

TITLE  
Tree Constraints Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	4/6/2020	AT	06/07/2020			1:500



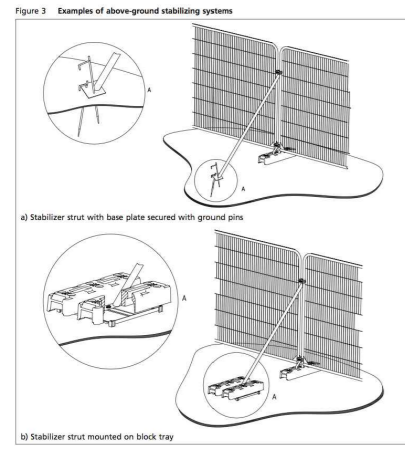
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Telephone: 0333 123 7080 www.indigosurveys.co.uk

Drawing Number  
20386.S1/TCP/01

A2  
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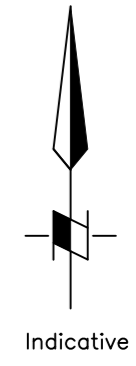
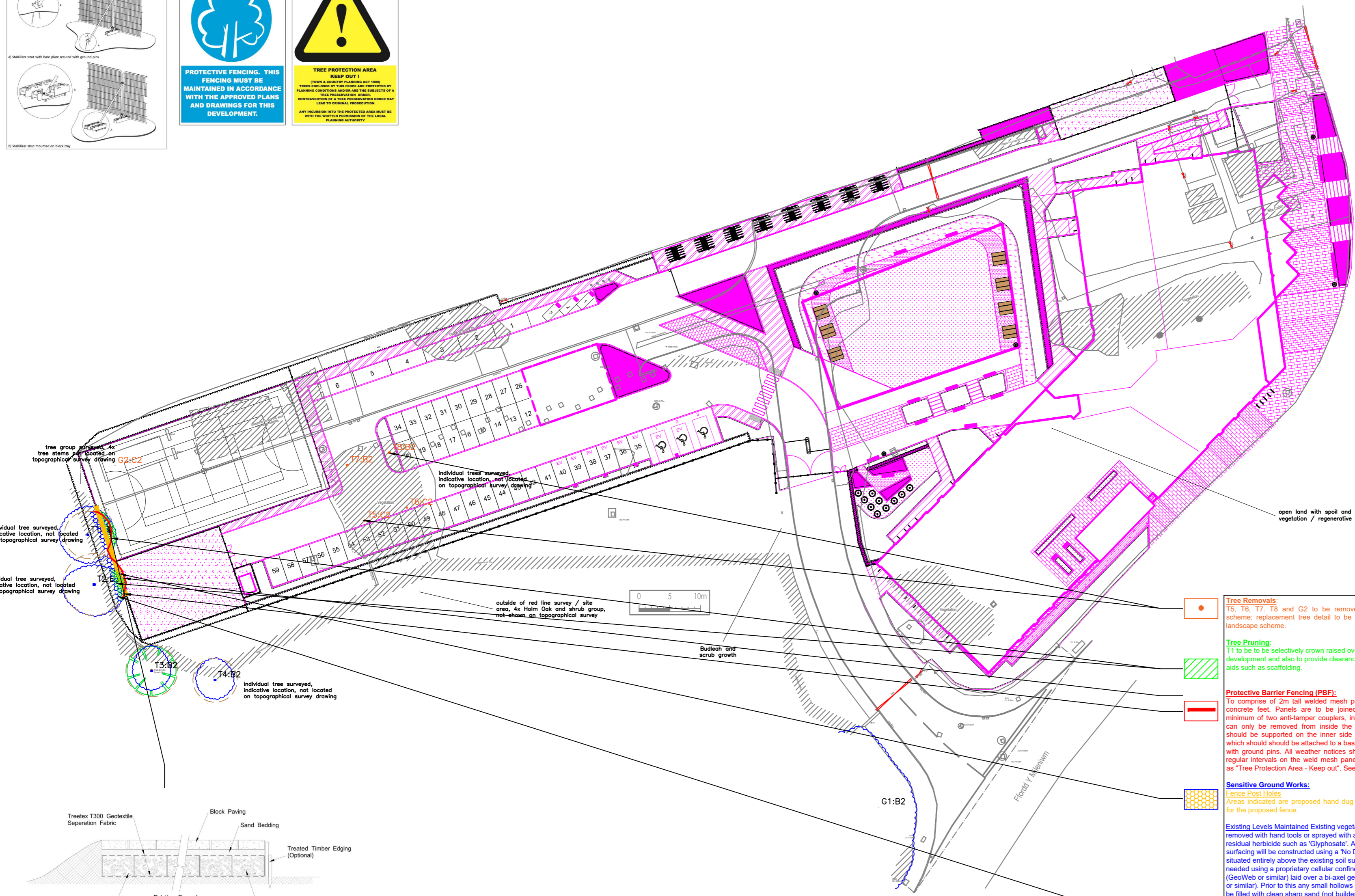
**KEY**

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.

**Tree Condition Category**

- A
- B
- C
- U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'



tree group proposed, 4x tree stems not located on topographical survey drawing G2:CEZ

Individual tree surveyed, indicative location, not located on topographical survey drawing T5:CEZ

Individual tree surveyed, indicative location, not located on topographical survey drawing T6:CEZ

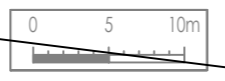
Individual tree surveyed, indicative location, not located on topographical survey drawing T7:CEZ

Individual tree surveyed, indicative location, not located on topographical survey drawing T8:CEZ

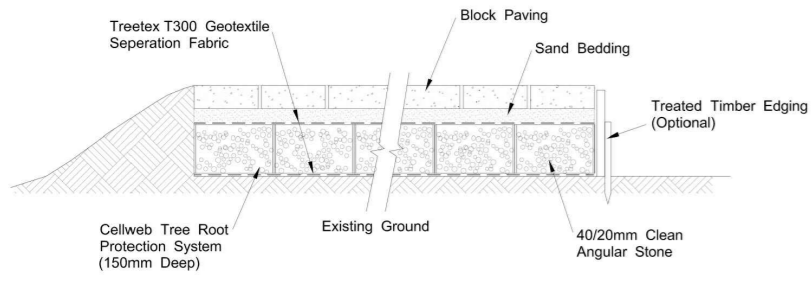
Individual tree surveyed, indicative location, not located on topographical survey drawing T13:CEZ

Individual tree surveyed, indicative location, not located on topographical survey drawing T14:CEZ

outside of red line survey / site area, 4x Holm Oak and shrub group, not shown on topographical survey



- Tree Removals:** T5, T6, T7, T8 and G2 to be removed to facilitate the scheme; replacement tree detail to be included within the landscape scheme.
- Tree Pruning:** T1 to be selectively crown raised over the proposed development and also to provide clearance for construction aids such as scaffolding.
- Protective Barrier Fencing (PBF):** To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should be attached to a base plate and secured with ground pins. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Tree Protection Area - Keep out". See example on TPP.
- Sensitive Ground Works:** Fence Post Holes. Areas indicated are proposed hand dug post hole locations for the proposed fence.
- Existing Levels Maintained:** Existing vegetation may be removed with hand tools or sprayed with an approved non residual herbicide such as 'Glyphosate'. Any new hard surfacing will be constructed using a 'No Dig' surfacing situated entirely above the existing soil surface and where needed using a proprietary cellular confinement system (GeoWabs or similar) laid over a bi-axial geo-grid (Tensar TriAx or similar). Prior to this any small hollows on the surface may be filled with clean sharp sand (not builders sand) to a maximum depth of 150mm. The 'GeoWeb' is to be back filled by hand with a no-fines aggregate of 20mm - 30mm. The area of 'GeoWeb' will be covered with a permeable geotextile fabric and the finished wearing course laid on top. Edge supports of an appropriate size and strength should be set above ground level and secured with haunching or steel pins driven into the ground, the outer edge of the supports may be banked up with clean top soil. Please example on the TPP for the principle.



**Tree Protection Specification**

The tree protection measures outlined within the Arboricultural Method Statement (ref: 20386\_S1\_23A2 AIA\_AMS) are to be adhered to as illustrated on this Tree Protection Plan (ref: 20386\_S1\_23A2-TPP-01), and the additional details below, thus:

- Tree works are to be completed prior to commencement of any and all site processes; no additional tree works (not specified in the method statement), or leaning against or attaching of objects to a tree, are permitted.
- Protective Barrier Fencing (PBF), with Tree Protection Signs fixed at least every 5m (see detail and illustration on this TPP), is to be installed prior to the site works commencing.
- Hard Surfaces within RPAs are to be retained where ongoing access is required and supplementary Ground protection is to be installed for exposed soft surfaced RPA sections for material drop-off and storage (needs to be load bearing and prevent chemical run-off or leaching into soils).
- No chemicals or materials are to be transported or stored or used or mixed within a RPA or Construction Exclusion Zone (CEZ).
- No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy or in a CEZ.
- During site works RPAs and CEZs may not be breached, i.e. no surfacing works, without the prior advice of the consultant and the consent of the council.
- No mechanical digging or scraping is permitted within a RPA or CEZ.
- When all construction works are completed the PBF can be removed however, should be realigned consistent with the final landscape design to allow for the hard landscape improvement works to be undertaken ahead of the soft landscape shrub and tree planting works.

A	Minor amendments	RB	TB	16/1/24
	Based on T2P 20386_S1 & V02031-AIA-01-21-02-1-0002-Landscape General Arrangement 01	RB	TB	8/1/24
REV.	DESCRIPTION	DWN	CHK'D	DATE

**CLIENT**  
HSP Consulting Ltd

**PROJECT**  
20386\_S1 23  
Land at Barry Waterfront,  
CF62 5AT

**TITLE**  
Tree Protection Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RB	8/1/24	AT	08/01/2024			1:500

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Drawing Number  
20386\_23/TPP/01

A2  
REV. A

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