



BS 5837:2012 Arboricultural Survey, Impact Assessment and Method Statement

Premier Inn Welwyn Garden City
for:

Whitbread Plc

SHF.1483.003.Ar.R.001.B



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BS 5837:2012 Arboricultural Survey, Impact Assessment and Method Statement

Project:	Premier Inn Welwyn Garden City
For:	Whitbread Plc
Status:	Revision C
Date:	May 2018
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1.0 Objectives

1.1 Introduction

- 1.1.1 Enzygo Limited [Enzygo] have been commissioned by Whitbread Plc to prepare an Arboricultural Report for the Premier Inn site in Welwyn Garden City in support of a planning application for the extension of the hotel facilities.
- 1.1.2 The report includes a tree survey and an assessment of the impact the development proposals may have on existing trees (Arboricultural Impact Assessment) including the expected loss of trees and potential impact on trees to be retained. Based on that it specifies methodologies which will minimise the potential effects on trees and makes recommendations on how any residual effects can be mitigated (Arboricultural Method Statement).
- 1.1.3 The following section describes the existing site and the development proposals and is followed by a summary for the structure of this report.

1.2 Site Overview

- 1.2.1 The site is located approximately 1km south of the town centre in a suburban location. The main railway line to London runs along the eastern site boundary, the western boundary is formed by the Stanborough Road (A6129). To the north lies the residential site on Stanborough Mews and to the south is Gosling Sports Park. The site falls within the Welwyn Hatfield district of Hertfordshire.
- 1.2.2 The application boundary for the site is approximately 0.95ha. It is broadly trapezoid with the hotel and adjacent restaurant located in the centre of the site and car parking to the west, north and east of the main building. Access is from Stanborough Road in the west. Amenity grass and ornamental planting surround the car parking bays, and trees form a visual screen between the hotel and the railway line in the east.

1.3 Project Description

- 1.3.1 It is understood the planning application is for the erection of a three-storey extension to the north-east of the existing three storey hotel to provide an additional 24 bedrooms and the reconfiguration of the car park (increasing the car park by 12 spaces).
- 1.3.2 Further details regarding the proposed development can be found in the information submitted with the planning application.

1.4 Structure of the Report

- 1.4.1 **Chapter 2.0** describes the methodology adopted for the Arboricultural Survey as well as for the assessment of the Arboricultural Impact.
- 1.4.2 **Chapter 3.0** summarises the findings of the Arboricultural Survey, describing the overall species mix, age, condition and value of the trees recorded on site. A full tree survey schedule is included in [Appendix 1 - Arboricultural Survey Schedule](#).
- 1.4.3 **Chapter 4.0** describes the results of the Arboricultural Impact Assessment and outlines the significance of the impacts both within the site and the local landscape.
- 1.4.4 **Chapter 5.0** specifies any methodologies to be adopted to minimise the effects of the development on trees to be retained and makes recommendations on mitigating any residual effects on the trees on site.

2.0 Methodology

2.1 Introduction

2.1.1 This report and all methodologies adopted to carry out the Arboricultural Survey, the Arboricultural Impact Assessment and Arboricultural Method Statement are based on recommendations outlined in *British Standard (BS) 5837:2012 Trees in relation to design, demolition and construction- Recommendations*. This was published by BSI Standards Limited and came into effect on 30th April 2012. It supersedes BS 5837:2005 which is withdrawn.

2.2 Arboricultural Survey

2.2.1 A tree survey or arboricultural survey is a ground-based visual assessment of existing trees and tree groups on a site. It records the location of trees, the species, the estimated height and canopy spread, the stem diameter, and the tree's life stage, remaining useful life expectancy (RULE) and overall condition. Any distinctive features and abnormalities such as structural defects and physiological condition which may or may not have an adverse effect on the health or stability of the tree are also recorded, together with any signs of nesting birds and bat roost potential. Where ground conditions may influence the tree's growth, health and stability, such as water logging, ground compaction and severe level changes, this would also be recorded.

2.2.2 The site walkover includes an assessment of the overall value and quality of the trees on site by assigning a retention category to each tree and tree group. This assists stakeholders in deciding which trees should be removed or retained in the event of development occurring. There are four categories: A (high quality), B (moderate quality), C (low quality) and U (unsuitable for retention). For trees in categories A to C, these should qualify under one or more subcategories: 1 (mainly arboricultural qualities), 2 (mainly landscape qualities) and 3 (mainly cultural values).

2.2.3 The findings of the tree survey are recorded in [Appendix 1 - Arboricultural Survey Schedule](#).

2.2.4 The survey includes all trees which have a stem diameter of at least 75mm at 1.5m height or measured in accordance with BS 5837:2012 Annex C.

2.2.5 The tree survey usually records individual trees (labelled "T" on the Tree Survey Plan and in the Tree Survey Schedule), but may also group trees of similar age, species and condition into Groups (labelled "G"). Trees may also be grouped where they form a homogeneous unit (e.g. tree belts and woodland groups) which is unlikely to be directly affected by the development

(labelled “G” for small groups or “W” for Woodland Groups, as appropriate). Hedgerows are also recorded where present (labelled “H”).

- 2.2.6 To determine the location of trees, groups and hedgerows on site, an “Existing Site Plan” was provided by CQH Architects which formed the basis of this survey. This only includes trees within the hotel premises therefore the position of tree outside the site boundary are estimated with an accuracy of +/-1m.
- 2.2.7 The survey includes any trees outside the site boundary which may be affected by any development proposals by overhanging canopies or by Root Protection Areas which are likely to extend into the site. These trees are normally found within 12m from the site boundary.
- 2.2.8 In addition to a site walk-over survey, a desk-study is carried out which includes the calculation of Root Protection Areas (RPA) in accordance with BS 5837:2012 clause 4.6 as the minimum area of land around the stem of a tree which should be protected during construction.
- 2.2.9 In a second step, the relevant local authority is contacted (or their online mapping tool is checked where this is available) to establish whether any of the trees on site are protected by Tree Preservation Order (TPO) or whether Conservation Areas affect the legal status of any trees.

2.3 **Arboricultural Impact Assessment (AIA)**

- 2.3.1 Once a Tree Survey and Tree Constraints Plan has been prepared and a site layout is available, these are superimposed to establish the potential impact of the development, including the construction phase, on the existing tree stock.
- 2.3.2 The requirement for tree removal is ascertained where tree stems are located within or very close to proposed building footprints and hard landscape and/or within areas with significant proposed level changes and other works requiring soil movement (incl. excavations).
- 2.3.3 In a second stage an assessment is carried out of the impact both the construction operations and the development proposals may have of retained trees, including hard landscape in RPA, vertical structures and tree canopies
- 2.3.4 Using information provided by the client on construction operations, including site access, construction vehicle and plant movement and location of the site compound and material storage areas, the potential impact on both below and above ground parts of retained trees is assessed.
- 2.3.5 In addition to assessing the impact of the development on existing trees, Enzygo also include an assessment of the impact of existing trees on the future use of the site, including shading,

spatial constraints and the use of gardens, open spaces, paths and roads. Potential conflicts between trees and the safety of the site have also been analysed.

2.4 **Arboricultural Method Statement (AMS)**

- 2.4.1 The Arboricultural Method Statement (AMS) gives an overview on all methodologies to be adopted to minimise the effects the development, including construction operations, are expected to have on retained trees.
- 2.4.2 The AMS further includes a full specification for all methodologies which are necessary to protect retained trees.
- 2.4.3 Methodologies include protective barriers installed to create a Construction Exclusion Zone (CEZ) around retained trees, temporary ground protection where Root Protection Areas (RPA) cannot be fully fenced off, access facilitation pruning where there are conflicts between parts of the canopy and the development, specialist construction methods for buildings within the RPA and any methodologies to be adopted for utilities within the RPA.

3.0 Arboricultural Survey

3.1 Overview

3.1.1 Most trees included in this survey are located along and outside the eastern boundary, forming part of a 20m wide deciduous woodland strip between the hotel and the railway line in the east. A small number of trees are scattered within the car park and along the western boundary.

3.1.2 The arboricultural survey was carried out by Verena Meyer, MArborA CMLI, in March 2018. At the time of the survey the trees were not in leaf. Five groups and 12 individual trees were recorded and a full schedule of all trees and tree groups recorded can be found in [Appendix 1 - Arboricultural Survey Schedule](#).

3.2 Tree species

3.2.1 With the exception of the Himalayan birch (*Betula utilis jaquemontii* 'Doorenbos', G10) planted within the hotel car park, the mixed ornamental screen planting outside the northern boundary (G11) and maple T16 and T17 (*Acer sp.*) all tree species recorded on site are of native origin and include pedunculate oak (*Quercus robur*) and ash (*Fraxinus excelsior*).

3.3 Tree age and quality

3.3.1 The trees recorded within the woodland strip and along the eastern boundary are generally mature, whereas along the northern boundary and within the centre of the site the trees are relatively new additions to the area. Most trees are regularly managed and in good condition.

3.3.2 The mature oak as well as the mature trees along the eastern boundary play an important role in providing screening for the site from the surrounding road and railway infrastructure. They have therefore been assessed as being of moderate landscape value (BS category B2). All other trees are relatively young and of limited value within the local landscape (Category C).

3.4 Root Protection Areas (RPA)

3.4.1 The Root Protection Areas for each Category A to C tree and tree group has been calculated based on measured stem diameters. Both the radius and the area of each RPA are listed in [Appendix 1 - Arboricultural Survey Schedule](#) and shown on the plan included in [Appendix 3 – Tree Survey and Tree Constraints Plan](#).

3.5 Tree Preservation Orders (TPO) and Conservation Areas

3.5.1 Welwyn Hatfield Council have confirmed that none of the trees included in this survey are protected by Tree Preservation Order. The site is not located within a Conservation Area.

4.0 Arboricultural Impact Assessment (AIA)

4.1 Development proposals

4.1.1 This AIA is based on the development proposals as shown on CHQ Architects Proposed Site Plan ref. CHQ.15.11456-PL05 dated January 2018. They show a three-storey building extension to the north-east of the main hotel and modifications of the hotel and restaurant car park, including the addition of new car parking spaces in the north-west corner of the site.

4.2 Tree removal

Building construction and hard landscape installation

4.2.1 All three trees within group G10 (Himalayan birch) will need to be removed to facilitate the construction of the hotel extension and the construction of additional car parking spaces. Although in good condition, these are located in the centre of the site and their removal is not expected to have any impact on the local landscape. They are also relatively young, therefore replacement tree planting is expected to quickly mitigate the loss of these trees.

4.3 Residual impact of development on retained trees

4.3.1 Unless adequate protection is provided, construction operations near retained trees are likely to cause accidental damage of tree trunks and low hanging branches in particular of trees along the eastern boundary and ash T12 in the west.

4.4 Recommendations

4.4.1 All methodologies specified in the Arboricultural Method Statement (AMS) in [Chapter 5.0](#) should be implemented to ensure any retained trees are adequately protected during construction.

4.4.2 All site managers and site operatives should be aware of the potential impact of the works on retained trees and follow the protection methodologies specified in the AMS in [Chapter 5.0](#).

5.0 Arboricultural Method Statement (AMS)

This AMS should be read in conjunction with [Appendix 5 – Tree Protection Plan](#).

5.1 Tree Removal and Access Facilitation Pruning

5.1.1 Prior to the site being set-up, a qualified arborist will remove the three trees within G10 (Himalayan birch). No other trees should be removed. To find a suitably qualified tree surgeon, please refer to the Arboricultural Association's list of Registered Contractors.

5.2 Protective Barrier

5.2.1 Where construction operations are likely to cause damage to above ground parts of retained trees or compaction of the Root Protection Areas (RPA), a protective barrier should be erected prior to commencement of any works on site to create a sacrosanct Construction Exclusion Zone (CEZ). The alignment of the fence should follow the canopy line of the trees or the edges of the RPA, whichever is greater.

5.2.2 The alignment of the barrier, including indicative setting-out information, is shown on the drawing included in [Appendix 4 – Tree Protection Plan](#).

5.2.3 The protective barrier should be installed in accordance with *BS 5837:2012 Figure 2 Default specification for protective barrier* which consists of a horizontal and vertical scaffold framework that should be braced to resist impact from construction plant and vehicles. Please refer to [Appendix 5 – Protective barrier to BS5837:2012](#) for further information and a detailed specification.

5.2.4 All weather notices should be firmly attached to the barrier to inform any site operatives of the purpose of the fencing, e.g. "Construction Exclusion Zone- No access".

5.2.5 Where temporary access of the CEZ is required for the installation of hard landscape or any other permitted work which is required prior to the main construction works being completed, the barrier may be realigned as shown in [Appendix 4 – Tree Protection Plan](#).

5.2.6 The protective barrier must not be removed or realigned unless in accordance with this report or until all construction work has been completed and all construction vehicles and plant have departed from site.

6.0 Non-technical summary

6.1 Arboricultural Survey

6.1.1 The site is the premises of Premier Inn Welwyn Garden City, comprising the hotel in the centre and car parking with amenity grass and shrub planting in the west, north and south. Five groups and 12 individual trees have been surveyed within the site and within 12m of the site boundary. The majority are located along the eastern boundary within a woodland strip between the hotel premises and the adjacent railway embankment, with few more scattered across the car park and along the western boundary. They are mature, good quality native oak and ash, with few younger non-native trees found within the car park planting.

6.2 Arboricultural Impact Assessment

6.2.1 The erection of a three-storey hotel extension and the remodelling of the car park will require the removal of three non-native birch trees which is expected to have a negligible impact within the local landscape.

6.2.2 Unless adequate protection is provided in accordance with the Arboricultural Method Statement, development has the potential to adversely affect any retained trees on site.

6.3 Arboricultural Method Statement

6.3.3 The safe long-term retention of trees along the perimeter of the site requires the erection of a protective barrier in accordance with this report and BS 5837:2012.

7.0 Appendix 1 - Arboricultural Survey Schedule

Ref	- Sequential tree reference as per Tree Survey Plan
Species	- Common name (<i>Scientific name</i>)
Ht (m)	- Estimated tree height in metres
Stem dia (cm)	- Stem diameter measured in accordance with BS5837:2012 Annex C
Canopy Spread	- Estimated branch spread (in metres) at four cardinal points
Clear crown	- Height of the lowest branch(es) including cardinal point(s) where applicable
Life stage	- YNG - Young SM - Semi-mature EM - Early mature M - Mature OM - Over-mature (including veteran trees)
RULE	- Remaining useful life expectancy estimated in years
Cond.	- Overall condition - G - Good F - Fair P - Poor
Notes	- Including observations and notes on: Defects and other structural and physiological abnormalities, nesting birds, bat roost potential, notes on surrounding land incl. soil compaction, Tree Preservation Orders and Conservation Area, notes on limited access/inspection, off site location and preliminary management recommendations (in <i>italics</i>)
BS Cat.	- retention category and sub-category in accordance with BS5837:2012 A - High Quality 1 - Mainly arboricultural value B - Moderate Quality 2 - Mainly landscape value C - Low Quality 3 - Mainly cultural value U - Unsuitable for retention
RPA (m)	- Radius of Root Protection Area calculated in metres

(Radius of RPA= 12x stem diameter)

- This will usually be capped at 15m for trees with a stem diameter larger than 1.25m.

RPA (m²)

- Area of Root Protection Area (relevant if RPA is not circular due to pre-existing site conditions, incl. water courses, retaining structures and building foundations).

- This will usually be capped at 707m² for trees with a stem diameter larger than 1.25m.

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- estimated, used to indicate measurements which cannot be taken due to access restrictions (in particular stem diameters)

Ref	Species	Ht (m)	Stem dia (cm)	Canopy spread (m)				Clear crown	Life stage	RULE	Cond.	Notes (Including preliminary management recommendations)	BS Cat.	RPA (m)	RPA (m ²)
				N	E	S	W								
G1	Poplar species (<i>Populus sp.</i>)	10	11	1.5	2	1	2	1	YNG	20+	Fair	Two trees close to boundary fence	C1/ C2	1.32	5.4
G2	Hawthorn (<i>Crataegus mongyna</i>)	up to 8m	20 (average)	See plan				1.5	M	20+	Fair	Mature hawthorn scattered along eastern boundary, outside perimeter fence with branches extending into the site, bird's nest to east of hotel building	C1/ C2	2.40	18.1
T3	Silver birch (<i>Betula pendula</i>)	9	13+ 13 (estimated)	3	3	3	2.5	1.5	SM	20+	Good	Twin-stemmed tree outside site boundary	C1/ C2	2.16	14.6
T4	Wild cherry (<i>Prunus avium</i>)	14	9 +9 + 10 + 11+ 15	5	0	4.5	3.5	2.2	M	10+	Fair	Multi-stemmed tree with two stems removed 30cm above ground level, some natural bracing points at 2-3m, bird box at 1.8m east, located on gravel bed 30cm above car park level	C1	3.00	28.2
T5	Pedunculate oak (<i>Quercus robur</i>)	20+	35+ 30+ 25+ 18+ 15+ 11 (estimated)	5.5	6	5	8	1.6	M	40+	Good	Mature multi-stemmed tree located outside site boundary, on top of steep railway embankment to east, canopy slightly overhanging site boundary	B2	6.60	136.8
T6	Pedunculate oak (<i>Quercus robur</i>)	20	40+ 38+ 30+ 28 (estimated)	5.5	7	6	5.5	0.5	M	40+	Good	Multi-stemmed tree located off site, oak marble galls visible on tip of some branches	B2	8.28	215.3
T7	Pedunculate oak (<i>Quercus robur</i>)	20+	35+ 30 (estimated)	5.5	2	6	7	2.5	M	40+	Good	Twin-stemmed tree outside site boundary	B2	5.52	95.7
T8	Pedunculate oak (<i>Quercus robur</i>)	20+	50 (estimated)	7.5	7	7	7.5	2.5	M	40+	Good	Located outside site boundary	B2	6.00	113.1
T9	Wild cherry (<i>Prunus avium</i>)	10	10	3	2	2.5	4	0.5	YNG	10+	Fair	Located close to boundary fence	C1	1.20	4.5

Ref	Species	Ht (m)	Stem dia (cm)	Canopy spread (m)				Clear crown	Life stage	RULE	Cond.	Notes (Including preliminary management recommendations)	BS Cat.	RPA (m)	RPA (m ²)
				N	E	S	W								
G10	Himalayan birch (<i>Betula utilis jaquemontii</i> 'Doorenbos')	10	25 (average combined stem diameter)	4	4	4	4	0.5	EM	20+	Good	Three trees forming part of ornamental car park planting, multi-stemmed cultivars	C2	3.00	28.2
G11	Mixed hedgerow	Up to 14m	20	See plan				5	M	40+	Good	Mixed mature screen planting within adjacent housing estate, including eucalyptus, laurel and maple species	B2	2.40	18.1
T12	Ash (<i>Fraxinus excelsior</i>)	16	55	4	3	4	4.5	5	M	40+	Good	Mature tree, past crown reduction measures including pollarding at 7-8m and crown lift over adjacent car park and highway	B2	6.60	136.8
T13	Ash species (<i>Fraxinus sp.</i>)	5	12	2	2	2	2	2	YNG	20+	Fair	Some recent bark damage at 1m, possibly caused by chaffing of tree tie (recently removed but remaining attached to tree stake to north of stem)	C1	1.44	6.5
G14	Mixed hedgerow	Up to 15m	30 (average)	See plan				0	M	40+	Good	Mixed screen hedgerow between car park and footpath, includes ash and hawthorn, heavily ivy covered with moderate bat roost potential	B2	3.60	40.7
T15	Ash (<i>Fraxinus excelsior</i>)	20	45	6	5	4	6	2	M	40+	Good	Ivy covering stem up to 8m, moderate bat roost potential)	B2	5.40	91.6
T16	Maple species (<i>Acer sp.</i>)	9	25	3	3	3	3	0.5	M	20+	Good	Stake remaining adjacent to stem, low fork at 0.4m	C2	3.00	28.2
T17	Maple species (<i>Acer sp.</i>)	8	21	3	3	3	3	0.5	M	20+	Good	Stake remaining adjacent to stem, low fork at 0.5m	C2	2.52	19.9

8.0 Appendix 2 – Site photographs



Plate 1: Himalayan birch in hotel car park



Plate 2: Ornamental screen planting along north boundary

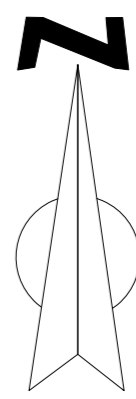
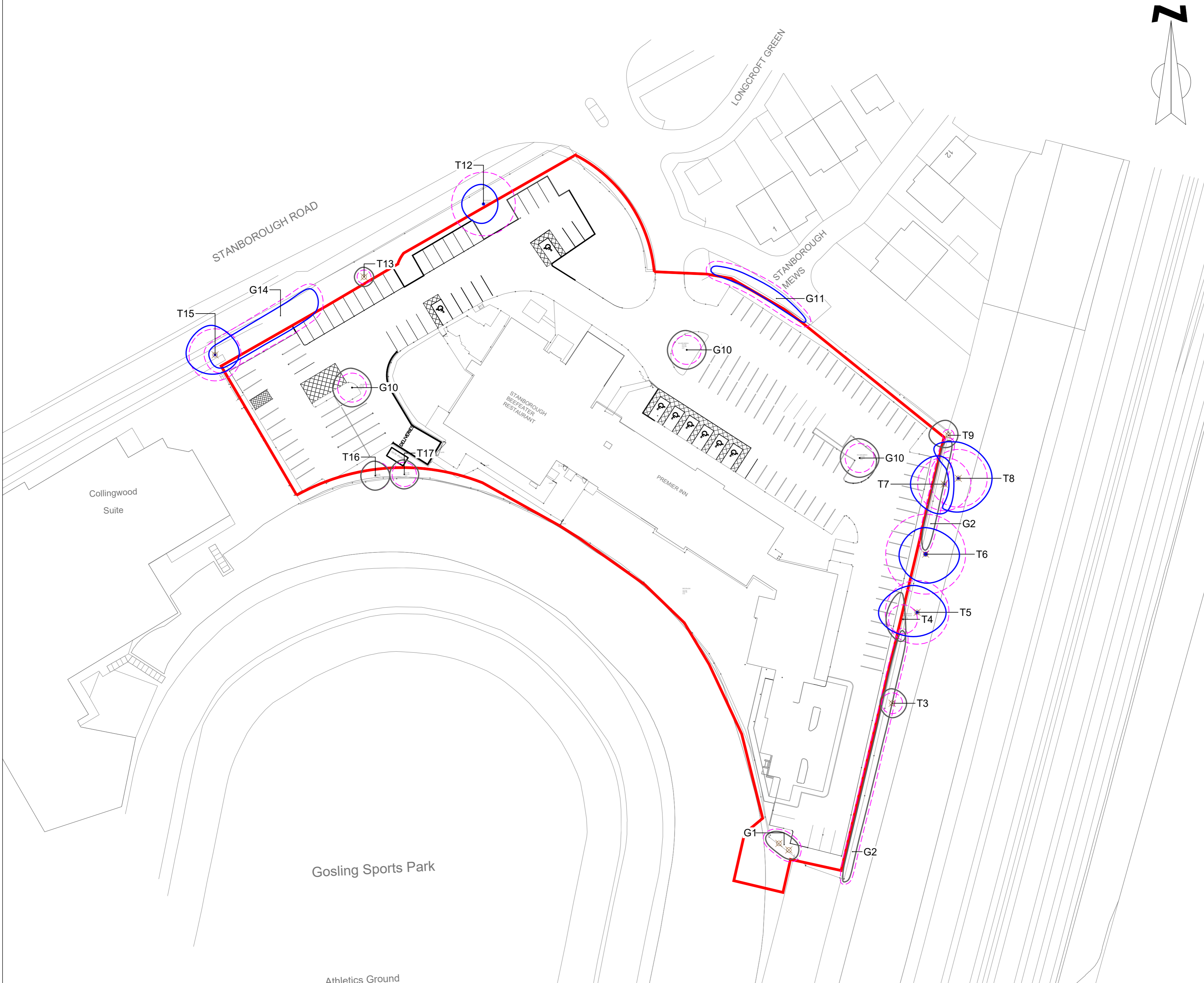


Plate 3: Mature oak and hawthorn along eastern boundary



Plate 4: Mature ash and dense ivy growth in the south-western corner of the site

9.0 Appendix 3 – Tree Survey and Tree Constraints Plan



KEY - Tree Survey and Tree Constraints Plan

Tree Categories BS 5837 (2012)

- Tree Category A
- Tree Category B
- Tree Category C
- Tree Category U

- Root Protection Area (RPA)
- Tree location (Topographic survey)
- Tree location (Estimated by Enzygo Ltd.)
- Site boundary



Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT: Whitbread Plc.

SCALE: 1:500@A2 PROJECT REF: SHF.1483.003

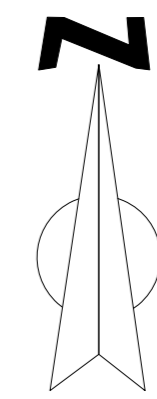
DRAWN: VM CHECKED: SF DATE: Mar 2018

PROJECT: Welwyn Garden City Premier Inn

TITLE: Tree Survey and Tree Constraints Plan

FIGURE NO: SHF.1483.003.Ar.D.001

10.0 Appendix 4 – Tree Protection Plan



KEY - Tree Protection Plan

Tree Categories BS 5837 (2012)

- Tree Category A
- Tree Category B
- Tree Category C
- Tree Category U

- Tree to be removed

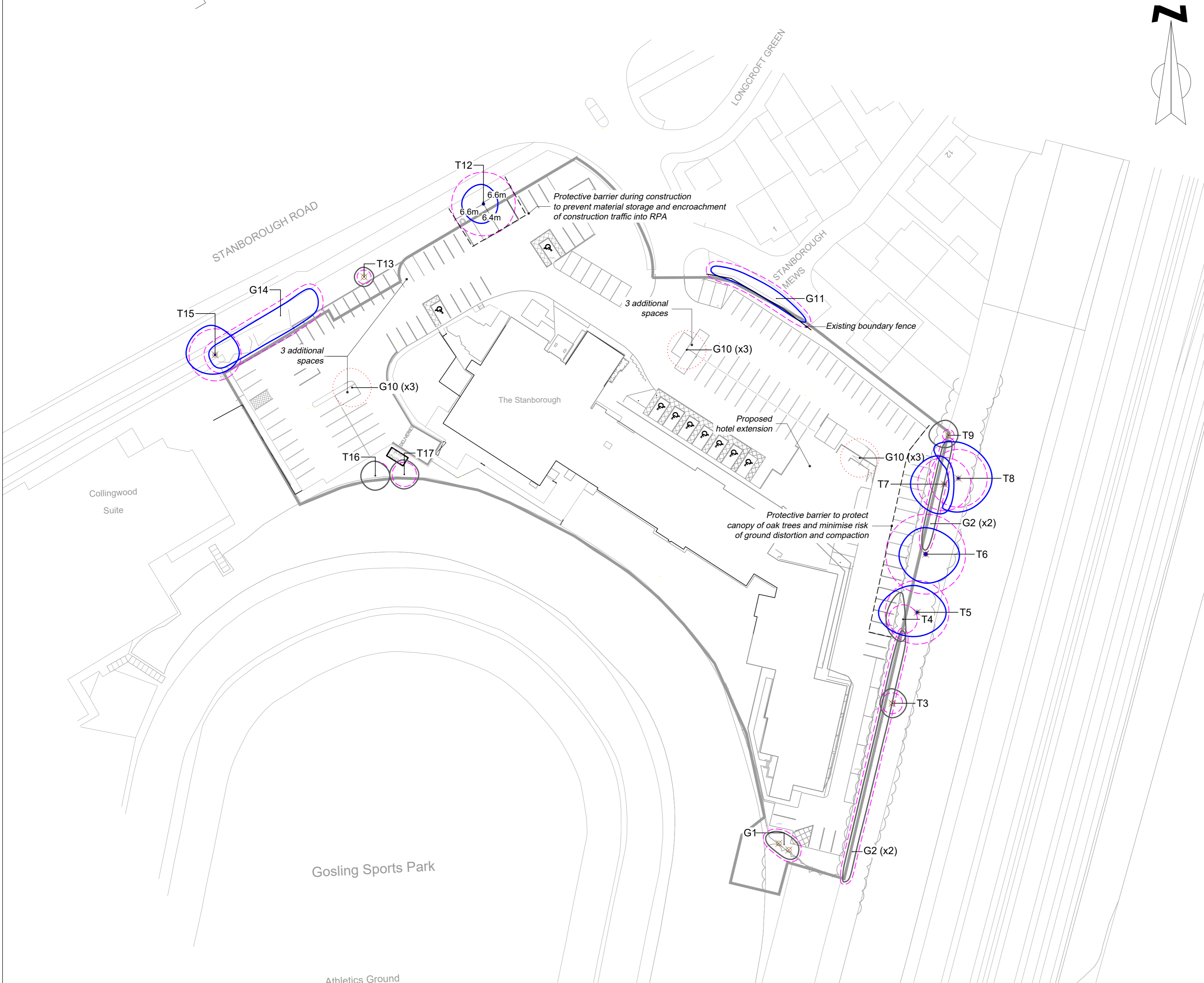
- Root Protection Area (RPA)

- Tree location (Topographic survey)

- Tree location (Estimated by Enzygo Ltd.)

- Protective barrier BS 5837 (2012) Figure 2

- Site boundary



REV	DATE	BY	COMMENTS
A	29/03/2018	VM	Car park near T12 amended
B	12/04/2018	VM	Additional parking within RPA of T12 omitted
C	09/05/2018	VM	Revised car park layout



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CLIENT:
Whitbread Plc.

SCALE: 1:500@A2 PROJECT REF: SHF.1483.003

DRAWN: VM CHECKED: SF DATE: Mar 2018

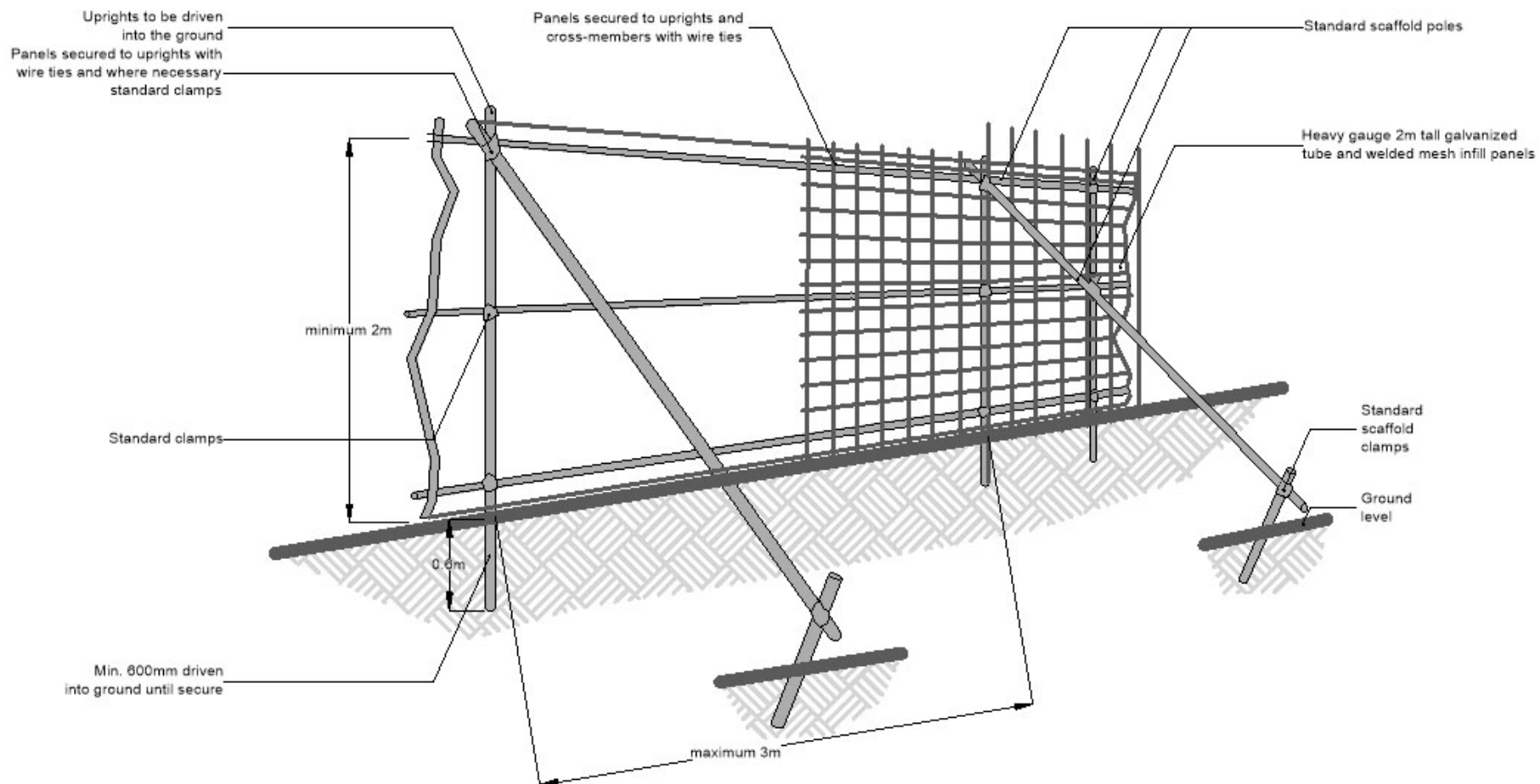
PROJECT:
Welwyn Garden City Premier Inn

TITLE:
Tree Protection Plan

FIGURE NO:
SHF.1483.003.Ar.D.002.C

11.0 Appendix 5 – Protective barrier to BS5837:2012

11.1 Default specification for protective barrier





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