

Ruabon Park Development, Wrexham

**Pre-development Arboricultural Report to Support the Proposed
Mixed-Use Development on behalf of Wynnstay Farming Company
Ltd.**

18 December 2013

By

Ian Kennedy BSc (Hons), MArborA, MICFor

Wharnccliffe Trees and Woodlands Consultancy

All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means, electronic, mechanical, recording or otherwise, or stored in any retrieval system of any nature, without written permission. Its content and format are for the exclusive use of the addressee in respect of this site. It may not be sold, lent, hired out or divulged to any third party not directly involved in this site without written consent.

Summary

I visited the site of the proposed development at Ruabon Park, Wrexham on 14 November 2013 to inspect the significant trees and other vegetation.

The trees of principle significance stand on the western edge of the site in a small woodland area. These trees are generally in good condition with limited defects, have good future prospects and have high landscape value, particularly for screening development at the site. For this reason most of these trees have been categorised 'B' in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*. This is the second highest retention category for trees.

Many of the other trees on the site are much younger and smaller, either because they have been recently planted or have regenerated naturally. These are trees in Groups 4, 5 and 6. Many of the trees in these groups have no individual merit and could readily be replaced as part of development. However, they do have value as groups helping to enhance the biodiversity value of the site. These groups also have potential to contribute to enhancement of the landscape as they grow and mature. Group 4 has been categorised as 'B' whilst Groups 5 and 6 have been categorised 'C' due to their young age and condition.

The proposed layout as identified in 2500-OP-20: *Proposed Site Layout* is sympathetic to the preservation of the significant trees on the site. Furthermore, the layout incorporates some generously proportioned areas of open space allowing retention of tree and shrub areas around the pond and on some of the boundaries, together with sufficient other open space to accommodate new amenity tree planting.

On balance, the incorporation of existing trees into the design, together with provision of areas suitable for new planting should help ensure the development sits as sympathetically as possible within the wider landscape. This tree cover will also increase the attractiveness of the development from within, whilst providing opportunities to protect and enhance biodiversity.

Contents

1. Introduction	5
1.1 Instruction	5
1.2 Documents and Information Provided	5
1.3 Limitations	5
2. Site Visit and Observations	6
2.1 Site Visit	6
2.2 Brief Site Description	6
2.3 Proposed Site Layouts	6
2.4 Tree Observations	6
3. Interpretation of Information and References	7
3.1 BS5837:2012 Tree Retention Categories	7
3.2 Root Protection Area (RPA)	7
3.3 Conception and Design	7
4. Arboricultural Impact Assessment	9
4.1 Table 1. The Tree Survey	9
4.2 Hedges and Other Vegetation	14
4.3 Impact Assessment of Proposed Layout on Existing Trees	14
4.4 Tree Protection Plan	17
4.5 New Planting	18
5. Conclusions	18
6. Legal Considerations	19
Appendix 1. Tree retention categories	20
Appendix 2. Figures 2 and 3 from BS5837:2012	21
Appendix 3. Explanatory notes for terms used in this report	23
Appendix 3. Botanical names for trees on site	24
Plan 1 Tree Categories (part 1)	25
Plan 1 Tree Categories (part 2)	26
Plan 2 Root Protection Areas (RPAs) (part 1)	27
Plan 2 Root Protection Areas (RPAs) (part 2)	28
Plan 3 Tree Protection Plan (part 1)	29
Plan 3 Tree Protection Plan (part 2)	30

1.0 Introduction

1.1 Instruction

I was instructed on behalf of Wynnstay Farming Company Ltd to carry out a pre-development tree survey of the significant trees on land to the south of the village of Ruabon and immediately to the south of the A539 and B5605 and west of the A483. This site currently benefits from an extant planning permission for a business park, but is now the subject of an application for outline planning permission for a mixed-use development incorporating employment, retail, residential and hotel/pub uses, including land reserved for a primary school, together with associated improvements. The purpose of my survey and the subsequent preparation of this report is to assess the impact of the proposed development on the existing trees.

1.2 Documents and Information Provided

I was provided with the following documents:

- W.489:02/02 Application Site Plan
- Report to the Chief Planning Officer – Date 6 June 2005
- Pre-application Response Letter dated 30/09/2013
- Topographical Survey 12908- 1000-001
- Drawing 2500-OP-20: Proposed Site Plan

1.3 Limitations

This report is concerned only with assessing the condition of the trees, their importance in the local landscape and any cultural and conservation values.

It takes no account of the affects the trees may have on the soil, such as heave where trees are removed or shrinkage where trees are retained.

Trees in groups 1, 2, 3 and 4, together with trees 1 to 7 are protected by Wrexham Borough Council's Tree Preservation Order 175 of 1995. Groups 1 to 3 and trees 1 to 7 in this report, but referred to as W1 in the Order are protected as woodland. This means that all trees within the solid black line area as shown on the map accompanying the order are protected, including trees planted or naturally seeding after making of the order, irrespective of age or

size. Trees referred to as Group 4 in this report is recorded as G1 in the Tree Preservation Order.

No decay detection equipment was used to gather information on the condition of the trees.

All survey and inspection was completed at ground level.

2.0 Site Visit and Observations

2.1 Site Visit

The site visit took place on 14 November 2013 between 09:30 and 15:00 hours. All dimensions were taken using recognised methodology and arboricultural measuring equipment, unless otherwise stated.

The weather at the time of inspection was largely dry with occasional heavy showers. Visibility remained good throughout. Winds were light, except during the showers.

2.2 Brief Site Description

The approximately 23 hectare site is comprised mainly of flat arable agricultural land. Tree cover is confined largely to the boundaries of the site. There is a prominent, but narrow belt of mature woodland on the western boundary. This tree cover has been extended round onto the northern boundary by planting with native oak trees and a native hedge. Young woodland links the northern boundary of the site with mixed broadleaved scrub and young trees around a pond towards the centre of the site. There are occasional trees and shrubs along the southern boundary.

2.3 Proposed Site Layouts

My comments on the effects of the proposed development on the existing trees are based on the proposed site layout as shown on drawing 2500-OP-20 *Proposed Site Plan*.

2.4 Tree Observations

All significant trees were inspected and recorded in Table 1 below and plotted on Figure 1. Other significant vegetation such as hedges is plotted on Figure 1 with descriptive notes provided.

3.0 Interpretation of Information and References

My interpretation and appraisal of information gathered from the survey is based on experience of tree species, visual risk hazard assessment and the guidance set out in BS5837:2012 *Trees in Relation to Design, Demolition, Construction – Recommendations*.

3.1 BS5837:2012 Tree Retention Categories

All trees have been assessed and assigned a category in accordance with Table 1 of the standard. A copy of Table 1 is included as Appendix 1. This categorisation is intended to rank trees according to their importance in terms of quality, health, life expectancy, amenity and landscape value, together with wildlife and cultural importance. This ranking assists in determining the suitability and appropriateness of trees for retention in any development. Categories A to C are those considered for retention, 'A' being highest. Category U trees are those not suitable for retention. None of the trees on the site are considered to be in categories A or U.

3.2 Root Protection Area (RPA)

The root protection area is the area of land considered necessary for trees should they be retained as part of any development. This is calculated using the stem diameter measured at 1.5 metres from ground level. This protection area is shown diagrammatically as a circle centred on the base of individual trees. In the case of groups and hedges it is shown as a red line round the group or hedge. See Figure 2. Where rooting has been impeded or disturbance taken place then the shape and size of the root protection area is modified according to an assessment of where rooting is likely to take place. Ploughing of the field within 2m of Groups 1, 2, 3, 4 and 5 may have had an impact on the rooting areas of these trees.

Where trees are to be retained, it is optimal to locate structures and services outside the RPA. However, where incursion becomes necessary, technical solutions may be possible to limit damage, areas lost can be compensated elsewhere, or the soil environment can be improved. Where installation of services is necessary within an RPA hand dug trenches that avoid severing important roots can be an option. Ultimately the trees must remain viable where retention has been agreed. Fortunately, the proposed layout has adequately considered the requirements of most of the existing trees, particularly the significant trees.

3.3 Conception and Design

The constraints imposed by trees should assist with site design and layout, together with the other competing needs of development. Generally trees in the higher categories (A and B) should be given greater consideration in any layout than the lowest retention category (C). Indeed, attempts to retain too many trees can create unreasonable pressures on the site and the retained trees.

As well as the foot print of buildings, the provisions of services and the access space required for construction itself should be considered. Whilst RPA considers the constraints of the below ground parts of trees the above ground parts also need to be taken into consideration. These constraints may be in the future as trees grow, as well as the present. This is discussed in 4.3 below in respect of Group 5.

4.0 Arboricultural Impact Assessment

4.1 Table 1. The Tree Survey

Tree number	Species	Height (M)	Stem diameter (DBH in MM)	Branch spread	Ht first branch above GL*	Ht of canopy above GL	Life stage	Vitality	General observations	Estimated life	Category
G1	10 sycamore 1 ash 1 oak	20-25	Up to 850	North – 7.0m South – 8.0m East – 13.0m West – N/A	1.0m to the south	1.0 to 3.0m	Mature	Normal	Generally the trees are in good health with no significant defects recorded. Many of the stems were covered with ivy which limits inspection. However, structurally the trees appeared good with limited dead woodland and no evidence of significant decay. The ploughed field margin is within 2m of the woodland edge.	40+	B (2)
G2	14 sycamore	20-25	410 to 900	North – 9m South – 7m East – 9.5m West – N/A	1.5m to east	1.0 to 3.0 m	Mature	Normal	There were a number of dead branches in the crowns up to 4m long by 5cm diameter. This is normal for trees of this age in a woodland context. One tree contained a cavity that was occluding. In terms of safety this is a minor defect in context of the woodland and may be a potential bat roost site. Otherwise there were no significant defects recorded. However, as with G1 above a number of the main stems were ivy covered. The ploughed field margin is within 2m of the woodland edge.	40+	B (2)

T1	Sycamore	22	980	North – 7.6m South – 9.3m East – 6.5m West – 7.0m#	2.5 to the west	3.0m	Mature	Normal	The main stem divides in two at 1.5m. This is developing into an acute stem union. However this was stable at the time of inspection.	20+	B (2)
T2	Sycamore	22	930	North – 7.7m South – 8.9m East – 7.0m West – 8.0m#	2m to the west	3.0m	Mature	Normal	There are occasional small dead branches throughout the crown. This is to be expected for a tree of this age. No significant defects were recorded.		
G3	20 sycamore	20-25	410 to 650	North – 5.0m South – 2.0m# East – 4.0m# West – N/A	2m to the east	2.0m	Mature	Normal	There are no significant defects recorded for the group, only minor deadwood in the crowns of the trees. However, as with G1 and 2 above a number of the main stems were ivy covered. The ploughed field margin is within 2m of the woodland edge.	40+	B (2)
T3	Sycamore	18	490	North – 3.0m South – 3.5m East – 5.0m West – 2.5m	0.5m to the south	4.0m	Mature	Normal	This tree has not been included in G3 because of a decay cavity at the base (75cm X 50cm). There is also a cavity in the main stem that may be attractive as a potential bat roost. Whilst the tree is does not pose a threat in the context of the woodland it cannot be given category B status.	10+	C (1)
T4	Sycamore	18	600	North – 4.0m South – 3.0m East – 5.0m West – 4.0m.	1.5m to the east	3.0m	Mature	Normal	This tree has not been included in G3 because of a large decay cavity from 1m to 7m on the south side. This is however occluding well and may have good roost potential for bats	10+	C (1)
T5	Sycamore	22	3 stems at 600	North – 3.0m South – 4.0m East – 7.0m West – 10.0	2.5m to the east	4.0m	Mature	Normal	The main stem divides into three at 1.5m. These are beginning to develop into acute stem unions. There is a patch of dead bark at 0.5m with some evidence of decay.	20+	C (1)

T6	Sycamore	16	530	North – 5.0m South – 3.0 East – 6.0m West – 3.0m	2.0m to the north	3.0m	Mature	Normal	There is a large bark wound on the north side of the main stem from 1.5m to 5m and decay appears to be present with further moderate decay at the base. These are moderate defects that prevent the tree being given a higher category along with those in G3.	10+	C (1)
T7	Sycamore	20	790	North – 9.0m South – 9.0m East – 9.0m West – 7.0m#		3.0m	Mature	Normal	The tree does not have any significant defects.	20+	B (2)
G4	28 oak	8 to 10	Up to 350	North – 4.0m South – 4.0m East – 4 - 5.0m West – 4.0m	1.0m	1.0m	Semi mature	Normal (2 dead)	A line of trees planted in the last 10 or so years. They are well protected against browsing. Most are very healthy with a good structure and growing well. A small number have lost their leaders and are unlikely to grow into well-formed mature trees. However, this is a low number. The ploughed field margin is within 2m of the main stems.	40+	B (2)
G5	Oak, hazel, hawthorn, willow	Up to 10	Up to 150	N/A	N/A	N/A	Semi mature	Normal	This is a young planting of mixed broadleaved woodland. The trees appear healthy and the planting should develop into healthy woodland.	20+	C (1)
G6	Goat and crack willow, Norway maple, birch and oak	5 - 15	Up to 300 (some of the willow)	N/A	N/A	N/A	Semi mature to early mature	Mid decline to normal	A mixed wet woodland comprising young trees and shrubs. None of the trees have any individual merit but provide some amenity as a group. Their individual condition varies from poor to good. The vegetation does increase the wildlife habitat of the pond margins. There is a group of larger crack willows to the north of the pond.	10+	C (1)

T8	Oak	9.6	1340	North – 3.0m South – 4.0m East – 3.5m West – 3.25m		1.75m	Old mature	Mid decline	The tree can be considered a veteran. It has a number of large cavities where it has lost limbs in the past. It has undergone a significant amount of retrenchment over the years. The tree contributes to biodiversity at the site owing to the deadwood habitat it provides.	10+	B (3)
G7	Crack willow	15.0	300-500	North – 6.0m South – 6.0 m East – 9.0m West – 7.0m		2 to 3m	Mature	Normal	A group of three multi-stemmed trees with weak unions at the base. The most northerly of the three is beginning to fail at the base.	10+	C (1&2)
T9	Birch	14.0	210 and 260	North – 3.9m South – 4.0m East – 4.4m West – 4.0m#	1.0 to north east	1.5	Early mature	Normal	No significant defects	20+	C (1&2)
T10	Ash	9.0	240, 250, 310, 390	North – 7.4m South – 5.6m East – 7.5m West – 7.1m	1.0m to north	1.0m	Mature	Normal	A multi-stemmed tree growing on top of the Ha-Ha.	20+	C (1)
T11	Ash	19.0	930	North – 9.5m South – 9.0m East – 8.0m West – 8.2 m	2.5m to north	3.0m	Mature	Normal	A cavity at 3m following loss of a limb that is occluding. This is a moderate defect. There are two broken limbs to the east away from the site. Tree is growing in the bottom of the Ha-Ha	20+	B (1&2)

T12	Ash	11	670	North – 6.0m South – 4.0m East – 5.0m West – 3.0m	1.0m to east	3.0m	Mature	Normal	The main stem has failed at approximately 6m some years ago and producing epicormic growth below that point. There is significant decay at the failure point. There are several <i>Inonotus hispidus</i> fruiting bodies at the base of the main stem. This is a significant defect of ash but because the tree has retrenched so much the tree is much less likely to fail.	10+	C (1)
-----	-----	----	-----	--	-----------------	------	--------	--------	---	-----	-------

Please see appendix 4 for botanical names. # Estimated * Ground Level

4.2 Hedges and Other Vegetation

There are a number of hedges and shrub plantings around the edge of the site. There are identified on Figure 1.

A short hawthorn hedge is growing on the boundary with the dwelling at the southern end of the western boundary. This is developing into a line of small trees following a number of years without management.

A native broadleaved hedge of predominantly hawthorn is growing along the northern boundary. This appears to have been planted in the last 10 to 15 years and is now up to 3m in height. Behind the hedge on the highway side is a dense screen of hazel around 6m in height. This could provide a very effective screen between the highway and any proposed development of the site.

Along the southern and south eastern boundary are some isolated hawthorn shrubs and other small trees. The more significant trees are recorded in Table 1 above. Many of the shrubs are growing on top of the Ha-Ha.

An area of Japanese knotweed is present on the eastern edge of the pond approximately 20m long by 5m wide.

4.3 Impact Assessment of Proposed Layout on Existing Trees

Drawing 2500-OP-20: *Proposed Site Layout* showing the proposed layout at 1:2500 has been used to assess the impact of development on the existing trees.

Groups 1, 2 and 3 and Trees 1 to 7

The proposed footprint of the industrial units appears to be some distance from both the root protection area of these trees and out with the crown spreads.

These trees form a small woodland area and are by far the most important trees on the site. They contribute significantly to the local landscape and would screen any development from the west. The trees are mostly in good condition with few significant defects. A number of the defects that are present are in the form of cavities which may be attractive for bat roosts. It is also possible that bats may fly along the woodland edge and through the woodland to forage. The woodland area therefore provides good biodiversity interest as well as amenity and landscape value.

For these reasons most have been categorised as 'B', the second highest value. Four have been categorised as 'C' because they have defects which prevent them from being given a

higher categorisation. They are not however considered to pose a significant risk in the woodland context and could be retained.

The area between G1 to G3 and T1 to T7 and the proposed industrial units is shown white on the site plan. How this area is to be managed will be crucial to the protection of these trees. If there are to be no changes in levels and the land is to be managed as a grassed area or shrub bed then these trees will be not be detrimentally affected by the proposed development.

These trees are also protected by Wrexham Borough Council's Tree Preservation Order 175 of 1995 as a woodland (W1).

Group 4

This is a line of 28 native oaks (pedunculate oak) that appear to have been planted in the last 15 years or so. They have been well maintained and protected from browsing damage by deer and rabbits and most have established well. Two have died and a small number have very poor form because they have lost their leader.

These trees are protected by Wrexham Borough Council's Tree Preservation Order 175 of 1995 as a group (G1).

The proposed footprint of the hotel and pub, associated hard surfacing and the new site access appears to encroach into the growing area of part of this line of trees making removal of a number to the east of the line necessary to accommodate the proposed layout.

Given the relatively young age of these trees it may be possible to mitigate against this loss by planting elsewhere on the site. The proposed layout allows generous spacing to accommodate new planting that, if given optimal growing conditions, high quality planting stock is used and given good aftercare would reach a size equal to the trees in Group 4 in a relatively short period of time.

Group 5

This is predominantly young woodland with only small, young trees throughout. The oldest are to the south of the group immediately north of the power line. The true value of the group will be in the future as an amenity screen and habitat to enhance any development as the trees mature. The hard surfacing area for the hotel and pub appears to encroach into the north western corner of this group. Also, the development of residential area immediately to the east as shown on drawing 2500-OP-20 *Proposed Site Plan* will encroach into the eastern side of the group.

There are no significant trees in this part of Group 5 and the group would still be around 30m wide at its narrowest point. This is sufficiently wide to continue to support a number of trees and provide biodiversity interest. However, it may be advisable not to have trees growing immediately to the west of the residential properties in residential area A-21 as these appear to have small garden areas and this may create pressure from residents in the future for trees to be removed due to shading, overhanging branches and seasonal debris etc. In any case, I would consider the willows in the south of Group 5 to be unsuitable in such close proximity to residential development as they are likely to be predisposed to collapse in the future. In the current context of the site's use there is no issue, but next to residential property I would recommend their removal and replacement with a more suitable species. If not, then regular inspection by a suitably qualified and insured arboriculturalist will be necessary.

Group 6

The proposed open space provision around this group is good and will provide adequate room for the existing and new trees to development without conflicts with properties. As discussed in Table 1, the condition of some individual trees is not great and it may be necessary to inspect these trees toward completion of any development and remedial safety works completed at that time. There are also good opportunities to undertake planting of native shrubs and trees in this area to enhance both amenity and wildlife value.

Setting residential areas D-14 and F-17 back from the pond area is likely to ensure this green spaces is valued by residents as an amenity rather than being considered an inconvenience as might be the case if too close, casting shade on dwellings and gardens.

Group 7

This is a group of multi-stemmed willows with weak unions at their bases. One is starting to fail. Coppicing or removal of these trees would be advisable prior to completion of development.

Tree 8

This tree is considered a veteran because of its age and condition, containing a number of large cavities and supporting large pieces of deadwood. It is the oldest tree on the site and helps increase the site's biodiversity value. Whilst this tree would be difficult to keep in some parts of the development for reasons of safety, such as on the edge of a car park, its retention within the pond area is appropriate. Routine inspection and monitoring of its condition and stability would be advisable following completion of development.

Tree 9

This is an insignificant tree and, should removal be necessary or desired, could be adequately compensated for by new planting as part of a landscape scheme.

Shrubs along the northern boundary

The hazel and hawthorn hedging along the northern boundary provides valuable screening and habitat for the site. A section of this would be lost for the proposed access for the industrial units and hotel.

Trees and shrubs along the southern boundary, including Trees 10, 11 and 12.

The proposed 10m buffer zone around the southern edge of the development will adequately protect these trees and shrubs. The green corridor between defined areas of housing as shown on plan 2500-OP-20: *Proposed Site Plan* will provide the additional root protection areas required by Trees 11 and 12. Tree 11 in particular is a significant field boundary tree and its retention as a category 'B' tree will be important to the development.

Furthermore, the depth of buffer zone, together with the proposed green corridor will provide opportunities to establish a native planting of trees and shrubs on the edge of the development. This would have the combined advantage of helping to soften the development whilst improving habitat. Planting should however be subject to any archaeological requirements for protection of the Ha-Ha

4.4 Tree Protection Plan

Protective fencing will be necessary to protect all trees to be retained as part of the development. Fencing and other protective barriers should be erected before any works, including earth moving and vegetation clearance begins on site. Fencing, once in place should be maintained in position throughout and should be of a standard that cannot be easily moved, damaged or knocked over during the course of development. The standard specified in Figures 2 and 3 of BS5837:2012 should be followed (See appendix 2), or a suitably robust alternative, including any conditions specified in the Local Planning Authority's conditions attached to any consent.

The location of protective fencing necessary for retained trees is shown in Figure 3.

The suggested line of the protective fencing is a greater distance from the trees than the RPA shown in Figure 2. Often the minimum distance necessary for the fencing is the line of the RPA. However, the crowns of many of the trees, particularly in Groups 1 to 3, extend beyond the minimum RPA. Protective fencing outside the canopy spreads will avoid the risk

of damage from machinery. The alternative would be to prune the trees but this would be less optimal for the health of the trees and would be an additional and unnecessary expense. This line of fencing will also be compliant with conditions specified in a previous consent from the Local Planning Authority.

Protective fencing has not been shown for Group 5 as the size of this group may change due to the layout of the hotel and residential area. I recommend that a protective area of undisturbed land of 3m be maintained around any newly created edge to the group.

4.5 New Planting

The proposed layout provides a good amount of space and opportunities for tree planting to compliment the development from within and to soften the impact of the development from the wider countryside. There is opportunity to establish native hedging, shrubs and trees around the edges of the site, particularly the 10m buffer zone to the south and south east, together with the pond margins. There is also opportunity to plant specimen ornamental trees in parts of the interior of the development such as around the edge of the retail area, around the playground, village square and between the industrial and residential areas. The opportunities in terms of species selection are wide and a good landscape scheme would ensure such planting enhances any development.

5.0 Conclusions

- Most of the significant trees on the site are category 'B' trees and the proposed layout is sympathetic to retention of these trees.
- None of the trees within W1 of Tree Preservation Order 175 of 1995 are adversely affected by the proposed layout.
- Group 4 contains category 'B' trees, also protected by the Tree Preservation Order. A number of these would be lost to accommodate the proposed layout. However, there are considerable opportunities to undertake replacement planting elsewhere on the site to mitigate against this.
- Many of the trees that are considered to be category 'C' trees have been given this lower categorisation because they are small and/or young and could be replaced.
- The site layout has made good provision for new tree planting to complement the development and allow it settle into the existing rural landscape.

- Retention of treed areas such as Groups 1, 2, 3, 5 and 6, together with provision of other open space will help the development meet the planning principle of promoting wildlife as outlined in Planning Policy Wales and associated development plan policy.

6.0 Legal Considerations

Protected trees

Trees in Groups 1 to 4 and Trees 1 to 7 are protected by a Tree Preservation Order (TPO).

Prior to any granting of full planning permission on the site it will be necessary to apply to the Local Planning Authority (LPA) for permission before any work, other than certain exempted operations, can be carried out.

Even following granting of full planning permission, only the removal of protected trees that is required to implement planning consent can be carried out without permission under the TPO.

Wildlife conservation legislation

Parts of the site such as the woodland area, hedges, pond and pond margins are valuable for wildlife. Some of the mature trees, including the veteran, provide habitat for nesting birds and roosting bats.

I understand that ecological survey has been undertaken and recommendations made that will consider habitat protection and enhancement in much more detail than is necessary in this report.

However, specifically with respect to the trees, consideration should be given to the presence of protected species such as breeding birds, principally between March and August, and roosting bats prior to planning any tree removal or pruning.

Bat roosts are protected whether they are in use or not.

Tree surgeons should also be aware of their duties under legislation to protect wildlife and carry out their site assessment and work accordingly.

Appendix 1. Tree Retention Categories

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
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
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 with no material conservation or other cultural value
		See Table 2

Appendix 2. Protective Fencing

BS 5837:2012

BRITISH STANDARD

on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

NOTE 2 It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.

6.2.2.4 All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

Figure 2 Default specification for protective barrier

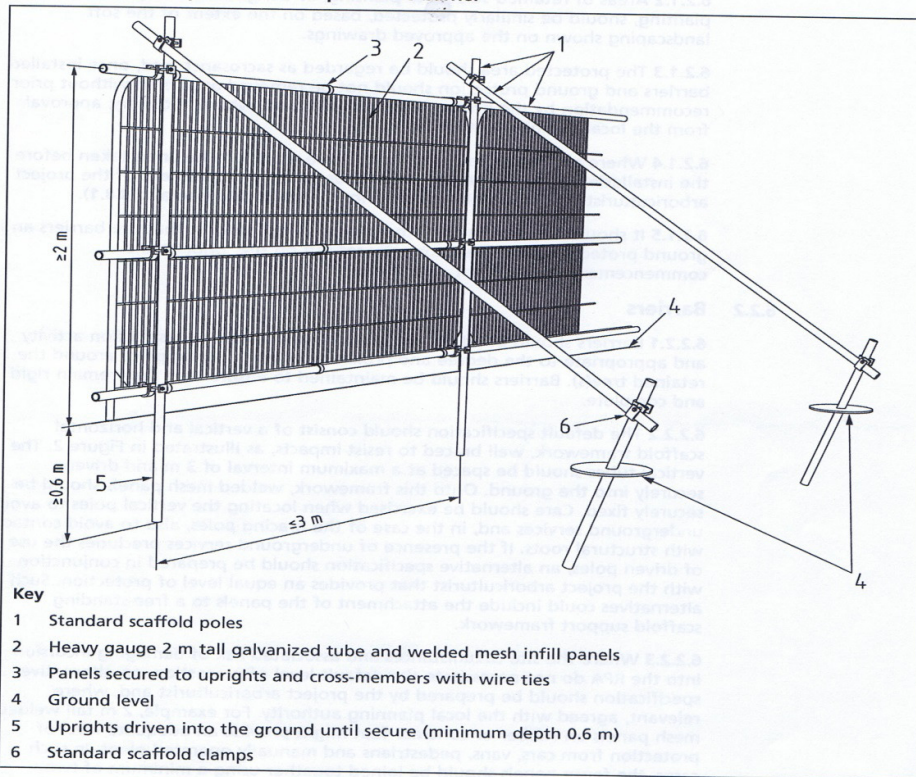
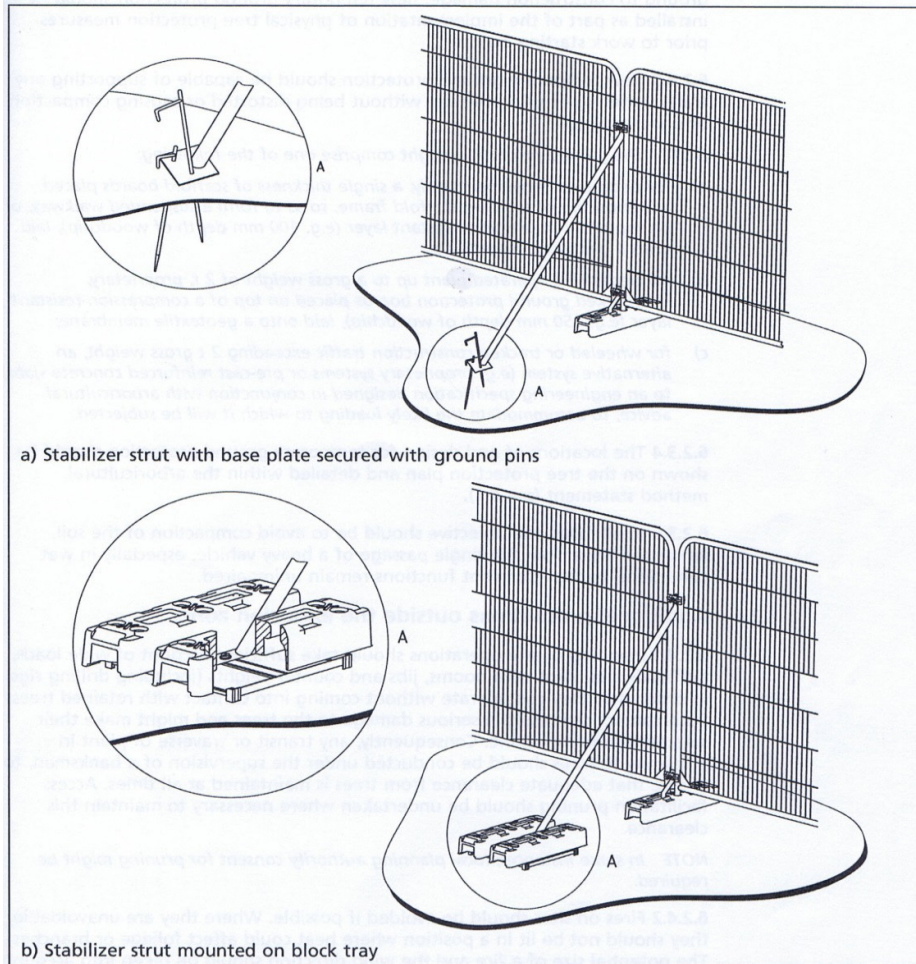


Figure 3 Examples of above-ground stabilizing systems



6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

Appendix 3. Explanatory notes for terms used in this report

- **Compass Bearing:** N = north; S = south; E = east; W = west;
- **Age Class:** Assessed as either:
 - Young = a size which could be easily transplanted;
 - Semi-mature = prior to seed bearing age and could be transplanted with care;
 - Young Mature = early maturity, not fully grown but of seed bearing age and may have achieved mature height;
 - Mature = fully grown, annual growth is much reduced;
 - Old Mature = old for the species, possibly starting to decline;
- **Veteran tree:** A tree that has physical characteristics of an ancient tree such as cavities and deadwood but that is not necessarily old in years. Such trees are generally recognised as being important for wildlife.
- **Trunk Diameter:** These figures relate to the diameter of the trunk at a given distance above ground level and are recorded in centimetres measured with a diameter tape.
- **Estimated size: #**
- **Health:**
 - Normal Vitality = normal growth and twig extension;
 - Moderate Vitality = reduced twig extension but other than that few signs of ill-health;
 - Early Decline = reduced twig extension and some dead twigs in the outer canopy;
 - Mid-decline = small internodes, the canopy may be thinning and contain dead twigs and/or branches in the outer canopy, older branch wounds that haven't occluded may be decaying and forming cavities;
 - Severe Decline = sparse crown, numerous dead twigs and branches in the outer canopy, older branch wounds likely to be decaying and forming cavities;
 - Dead.
- **Structural Condition**
 - Acute stem union = a weak union between two stems at the main forking point from the formation of reaction wood. Mechanical pressure at the forking point increases as secondary thickening occurs increasing to risk of failure at that point.
 - Acute branch union = the same principle as acute stem unions but between a stem and a branch or two branches rather than 2 main stems.

Appendix 4. Botanical names of trees on site.

Ash – *Fraxinus excelsior*

Goat willow – *Salix caprea*

Crack willow – *Salix fragilis*

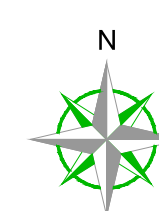
Norway maple – *Acer platanoides*

Pedunculate oak – *Quercus robur*

Silver birch – *Betula pendula*

Sycamore – *Acer psuedoplatanus*

Sheet 1



Tree Categories

Scale: 1:1000 @ A1

Date: 18 December 2013

Tree categories

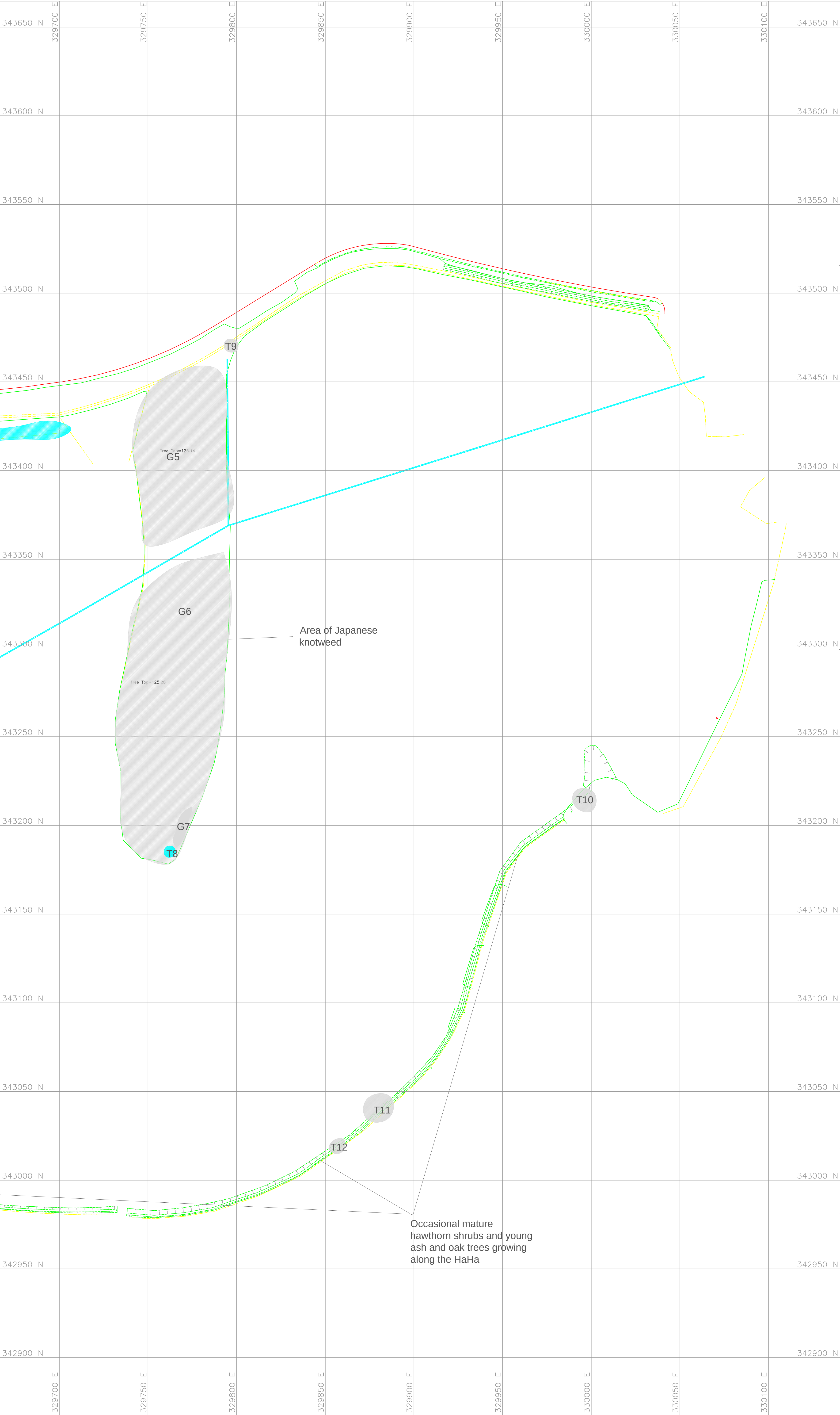
- 'B'
- 'C'



16 Hartcliffe View
Thurgoland
Sheffield
S35 7BD

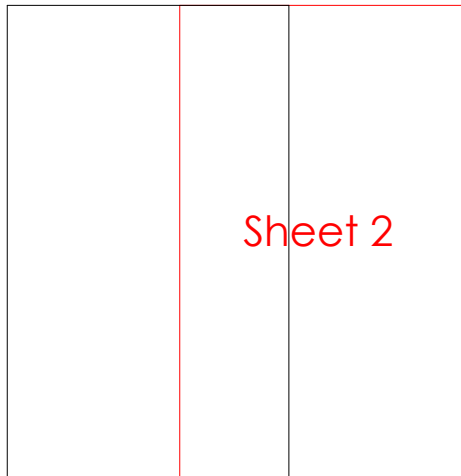
0114 2885501
07891488303

info@wharncliffetwc.co.uk
www.wharncliffetwc.co.uk



Pre-development
Arboricultural Survey:

Ruabon Park
Wrexham



Plan 1

Tree Categories

Scale: 1:1000 @ A1

Date: 18 December 2013

Legend

Tree categories

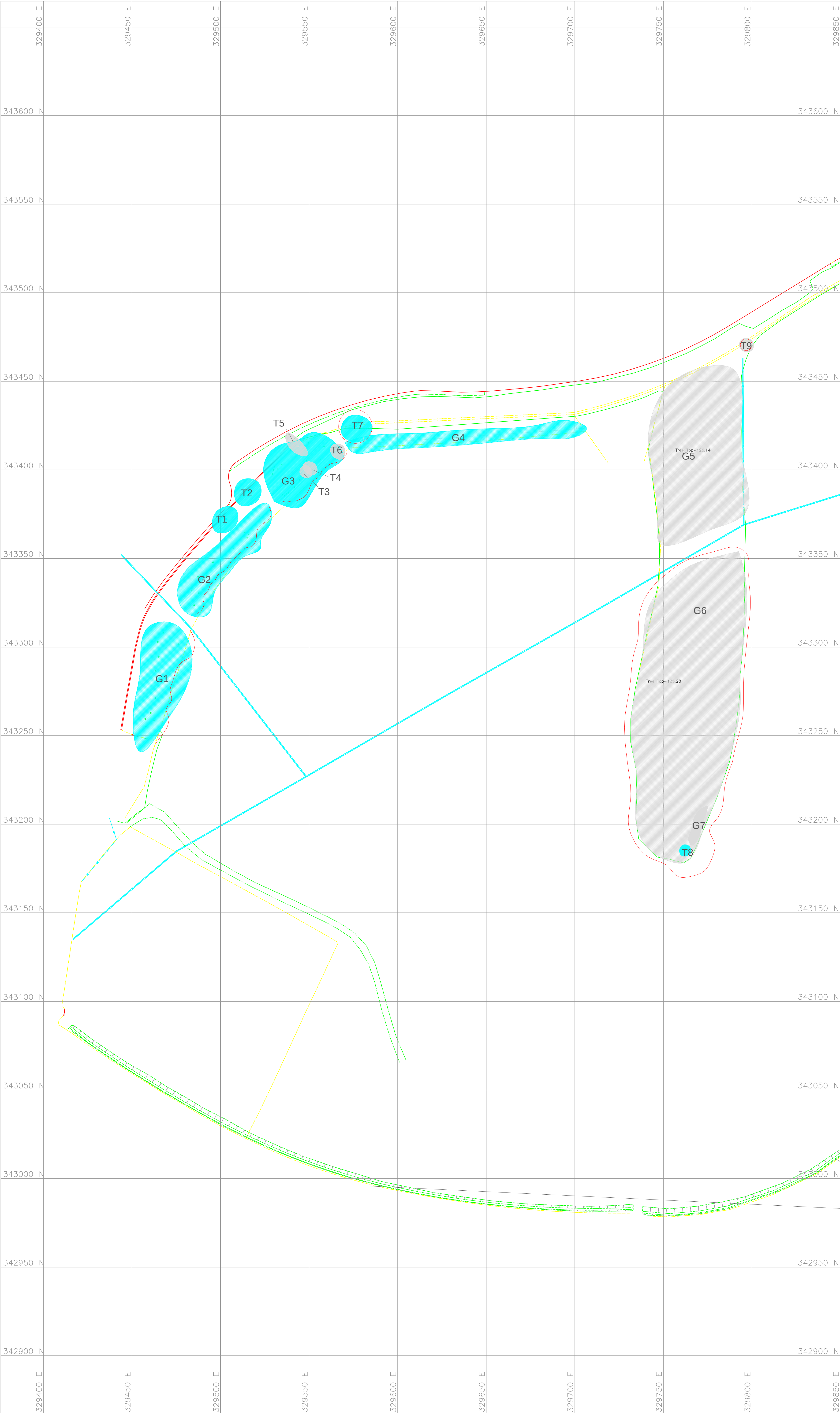
- T8
- T9



16 Hartcliffe View
Thurgoland
Sheffield
S35 7BD

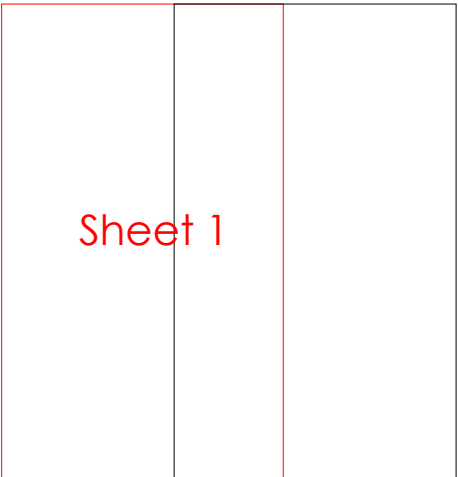
0114 2885501
07891488303

info@wharncliffetwc.co.uk
www.wharncliffetwc.co.uk



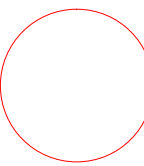
Pre-development
Arboricultural Survey:

Ruabon Park
Wrexham



Plan 2
Root Protection Areas
Scale: 1:1000 @ A1
Date: 18 December 2013

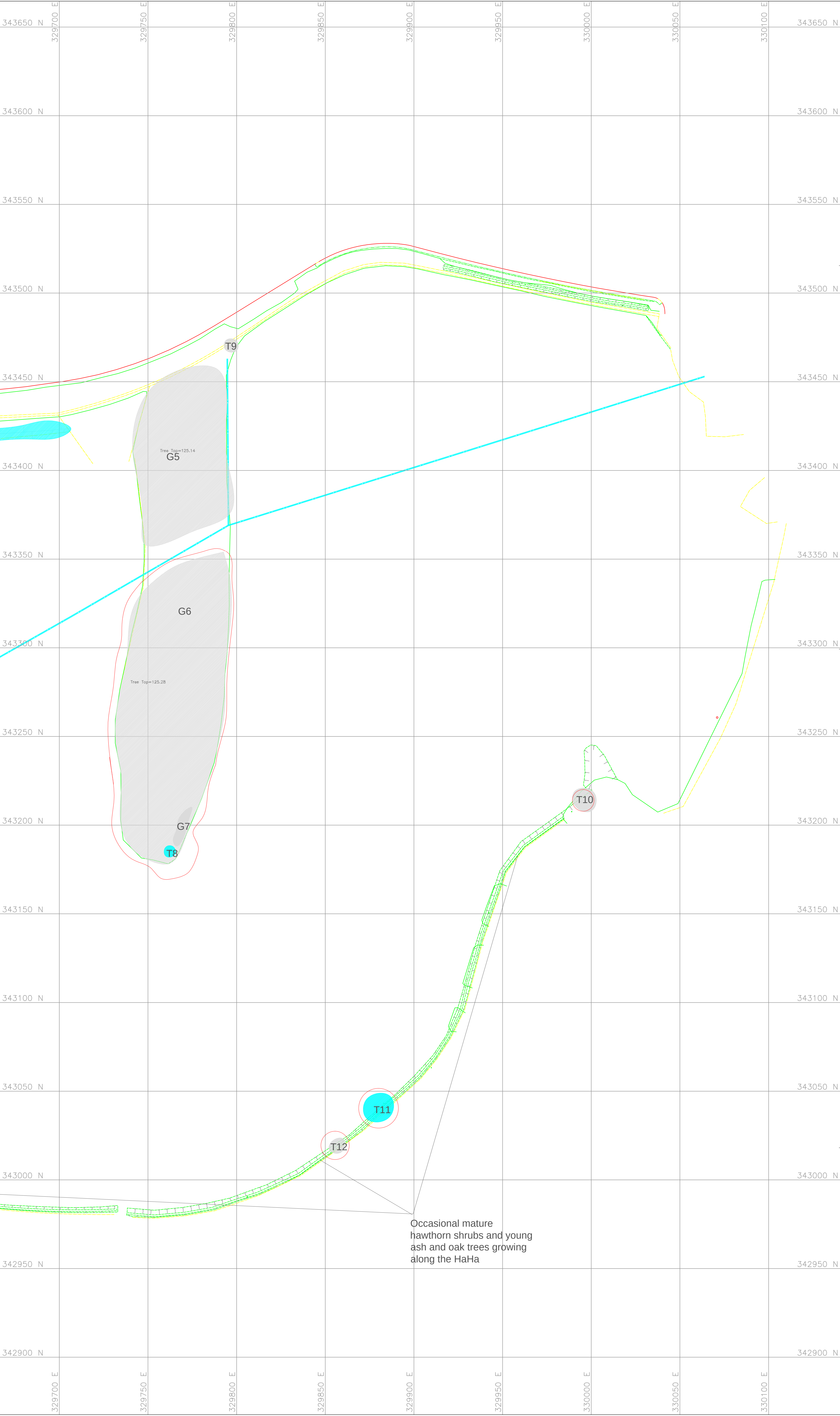
Legend

 Root Protection Areas

 **WHARNCLIFFE**
TREES AND WOODLAND CONSULTANCY
16 Hartcliffe View
Thurgoland
Sheffield
S35 7BD

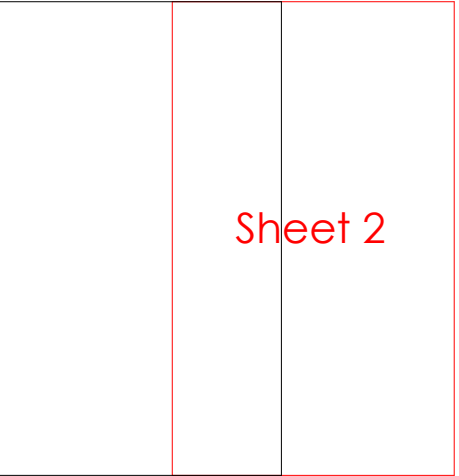
0114 2885501
07891488303

info@wharncliffetwc.co.uk
www.wharncliffetwc.co.uk



Pre-development
Arboricultural Survey:

Ruabon Park
Wrexham



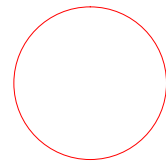
Plan 2

Root Protection Areas

Scale: 1:1000 @ A1

Date: 18 December 2013

Legend

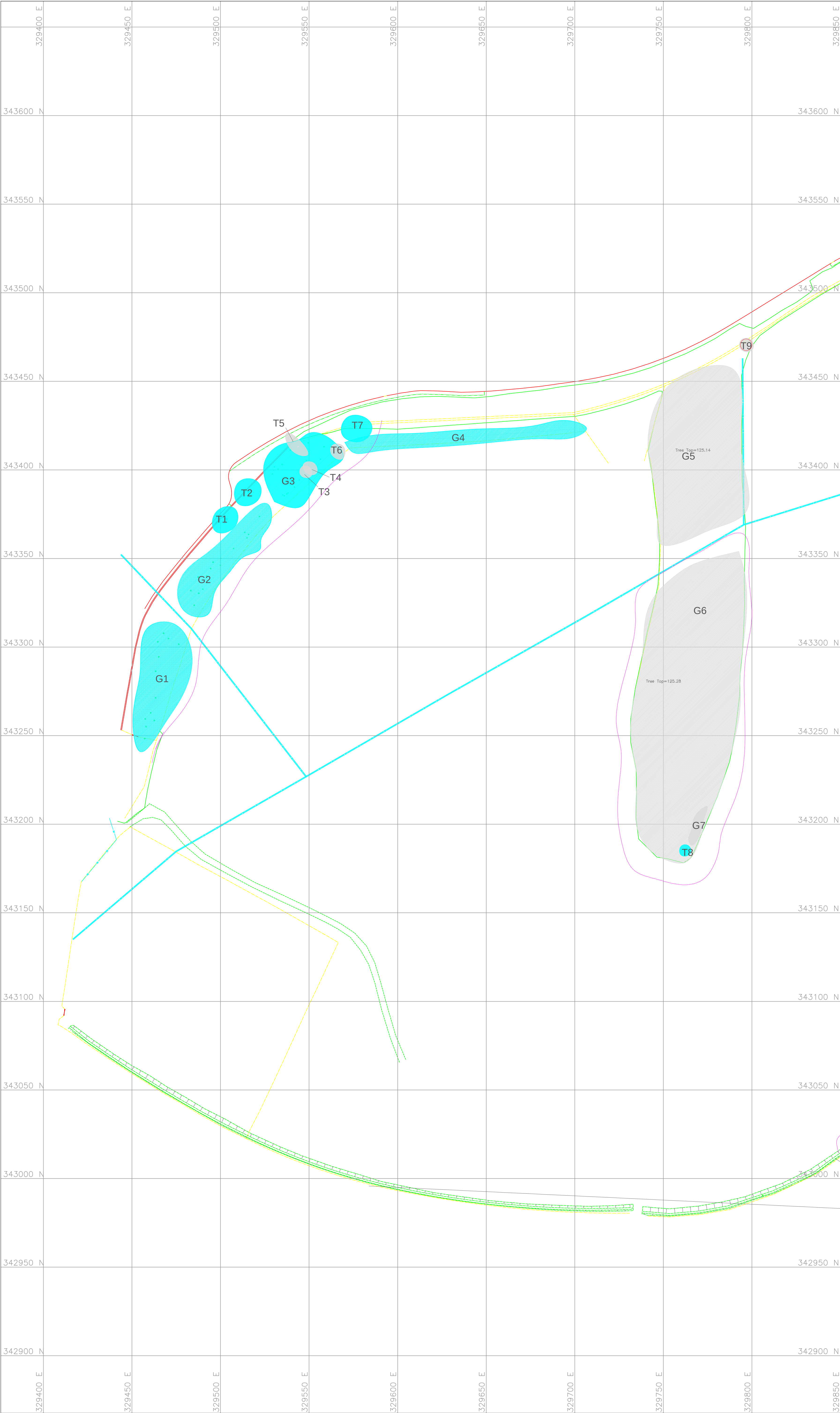
 Root Protection Areas



16 Hartcliffe View
Thurgoland
Sheffield
S35 7BD

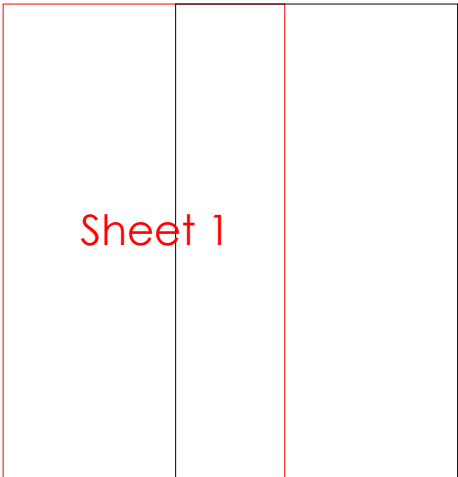
0114 2885501
07891488303

info@wharncliffetwc.co.uk
www.wharncliffetwc.co.uk



Pre-development
Arboricultural Survey:

Ruabon Park
Wrexham



Plan 3

Tree Protection Plan

Scale: 1:1000 @ A1

Date: 18 December 2013

Legend

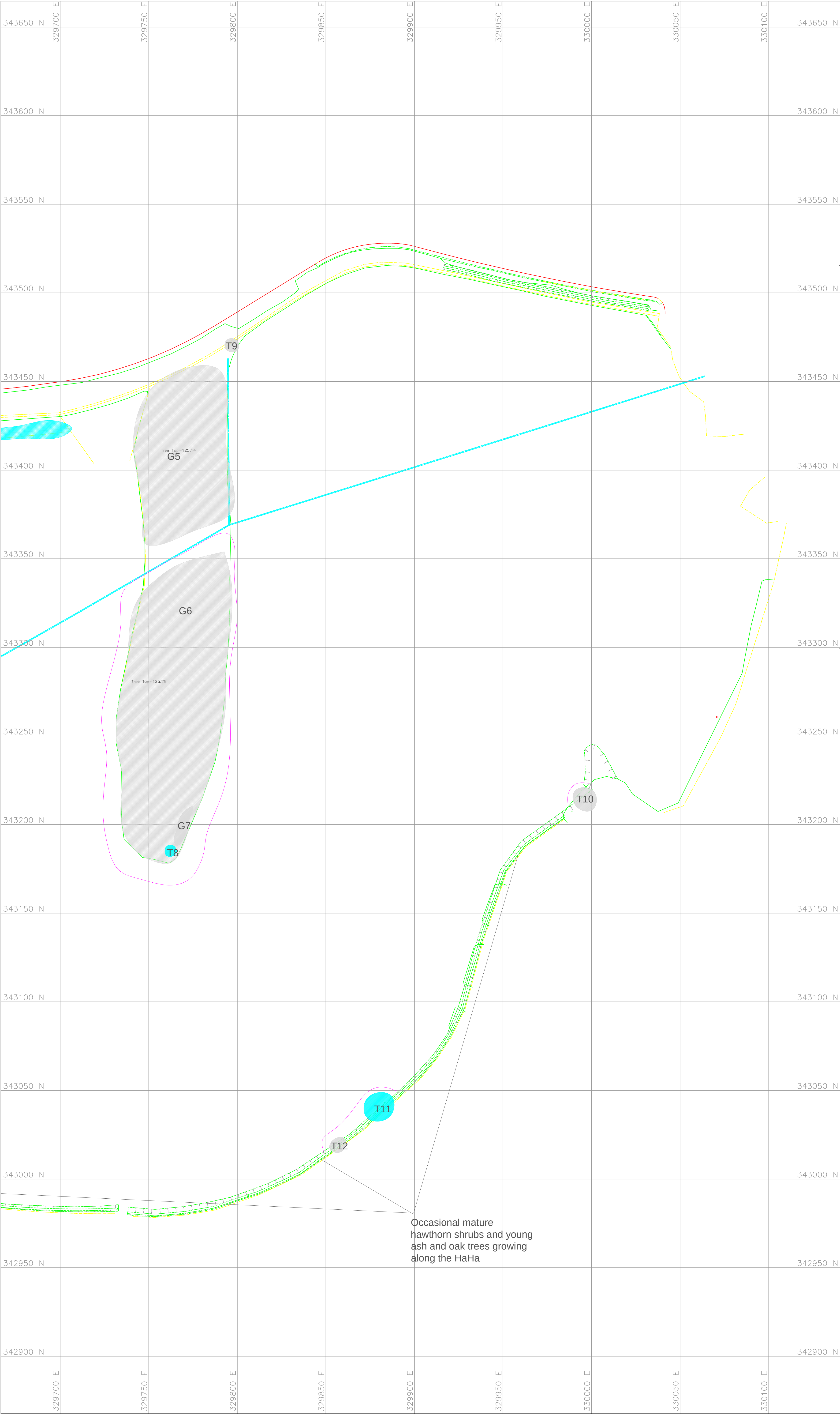
Line of tree protection

 **WHARNCLIFFE**
TREES AND WOODLAND CONSULTANCY

16 Hartcliffe View
Thurgoland
Sheffield
S35 7BD

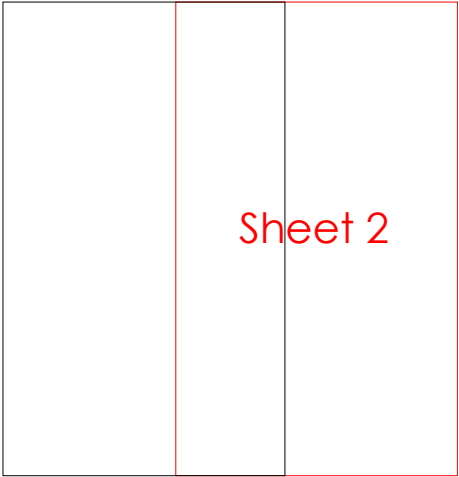
0114 2885501
07891488303

info@wharncliffetwc.co.uk
www.wharncliffetwc.co.uk



Pre-development
Arboricultural Survey:

Ruabon Park
Wrexham



Plan 3

Tree Protection Plan

Scale: 1:1000 @ A1

Date: 18 December 2013

Legend

Line of tree protection



16 Hartcliffe View
Thurgoland
Sheffield
S35 7BD

0114 2885501
07891488303

info@wharncliffetwc.co.uk
www.wharncliffetwc.co.uk