



0656.bjh.Apr14



ARBORICULTURAL IMPACT ASSESSMENT

Land off Horndean Road, Emsworth

-prepared on behalf of Terra Firma Consultancy-

Bernie Harverson M.Arb.

3 foxcombe cottages • south harting • west sussex • gu31 5pl
tel: 01730 825297 • mob: 07875 520881 • email: bernie.harverson@virgin.net • VAT Reg No. 881 5056 16

Section	Subject Heading
1	INTRODUCTION & CLIENTS BRIEF
2	DOCUMENT DISCLOSURE STATEMENT
3	TREE SURVEY & ROOT PROTECTION AREA SCHEDULES & PLANS
4	CONSTRAINTS POSED BY EXISTING TREES – ASSESSMENT OF ABOVE & BELOW GROUND CONSTRAINTS
5	PROXIMITY OF STRUCTURES TO TREES
6	ARBORICULTURAL IMPACT ASSESSMENT
7	TREE PROTECTION PLAN
8	ARBORICULTURAL METHOD STATEMENT - HEADS OF TERMS
9	DEMOLITION AND CONSTRUCTION PHASES OF WORK - TREE MANAGEMENT – BARRIERS & GROUND PROTECTION
10	SITE MONITORING
11	LANDSCAPE DESIGN - SITE WORKS, LANDSCAPE OPERATIONS AND MANAGEMENT
12	CONCLUSIONS
<u>Appendices</u>	<u>Subject</u>
BH1	Tree Survey Schedule (+ Figure 1 Flow Diagram from BS5837 + Tree Survey Notes)
BH2	Tree Survey & Root Protection Area Schedule (+ Root Protection Area Calculation Methodology)
BH3	Tree Survey & Root Protection Area Plan [BJH.01/02]
BH4	Tree Retentions & Removals Plan [BJH.03] and Tree Protection Plan–BJH.04 [+ BS5837 Extracts + Example Warning Notices]
BH5	Tree Works Schedule
BH6	NJUG 10 Extract
BH7	Qualifications & Experience

1.0 INTRODUCTION & CLIENTS BRIEF

- 1.1 The proposed development site is currently agricultural land planted with arable crops.
- 1.2 This project involves the change of use of this land for development purposes.
- 1.3 This report is to be produced in tandem with the Terra Firma Consultancy – LVIA assessment and Landscape Master Plan with the intended recipients being Havant Borough Council as a base level requirement for any subsequent Planning Application submission.
- 1.4 There are mature trees around this site that might be affected by the proposals which is why I have been employed to address the arboricultural issues and to compile all necessary reports and plans in support of the scheme.
- 1.5 In advising my clients I am duty bound to comply with ‘Best Practice’ industry guidelines and to follow the recommendations contained in BS5837:2012 – Tree In Relation To Design, Demolition and Construction Recommendations – adopting the sequential approach illustrated in the *Figure 1 Flow Diagram – The design and construction process and tree care.*

2.0 DOCUMENT DISCLOSURE STATEMENT

- 2.1 For the purposes of my work on this project I have been supplied with a copy of the latest version of the planning layout drawings superimposed onto the Landscape Master Plans [which in turn are derived from the original Topographical survey plans]:-
 - **Terra Firma Consultancy Ltd. – 1375-1001 –Rev.01 - Planning Landscape Masterplan – 1:500 scale at A0 paper size.**
- 2.2 I place total reliance on the accuracy of these drawings in advising my clients on tree issues and compiling this report.

3.0 TREE SURVEY & ROOT PROTECTION AREA (RPA) SCHEDULES & PLANS

- 3.1 The Tree Survey exercise was carried out on **31st July 2013** and a copy of the **Tree Survey Schedule** is included at **appendix BH1 [with explanatory notes]** and the survey recorded **21** Individual trees; **6** Groups; **3** Hedges and **1** Copse.
- 3.2 The data obtained from the Tree Survey exercise has been utilised to prepare the **Root Protection Area Schedule** and a copy of the RPA Schedule is included at **appendix BH2 [with explanatory notes]**.
- 3.3 Hand Drawn Traced Plans have been prepared to accompany the schedules and a copy of the combined **Tree Survey and Root Protection Plan – BJH 01/02** is included at **appendix BH3 – please note that these have subsequently been converted to AutoCAD drawings by Terra Firma.**

4.0 CONSTRAINTS POSED BY EXISTING TREES – ASSESSMENT OF ABOVE AND BELOW GROUND CONSTRAINTS

- 4.1 The RPA's have been plotted onto a copy of the Layout Proposals and the implications for the above and below ground impact on trees both on and adjacent to the development site has been recorded onto earlier versions of the **Tree Retentions and Removals Plan - BJH.03** with a finalised copy provided at **appendix BH4** [*N.B. wherever possible this will have been disclosed to the clients as part of the ongoing design process leading up to the submission of this report which is based on the Finalised Layout Proposals*] - **please note that this plan has subsequently been converted to an AutoCAD drawing by Terra Firma.**

5.0 PROXIMITY OF STRUCTURES TO TREES

BS5837 states that the default position should be that structures are located outside the RPA's of trees to be retained. However, where there is an overriding justification for construction within the RPA, technical solutions might be available that prevent damage to the tree(s) and requires that if operations within the RPA are proposed, the project arboriculturist should detail them and explain how they might be overcome or mitigated and this is dealt with in detail as part of the Arboricultural Impact Assessment at 6.0 below and shown on the **Tree Retentions & Removals Plan BJH.03** and **Tree Protection Plan BJH.04** both of which are included at **appendix BH4 - please note that these have subsequently been converted to AutoCAD drawings by Terra Firma.**

6.0 ARBORICULTURAL IMPACT ASSESSMENT

6.1 The finalised planning layout drawing has been provided to me and an assessment made as to the viability of retaining trees as part of this layout in order that they meet the RPA requirements of BS5837 and the data is presented here in tabular format:-

Key: UF = Under footprint **YES** = tree can be retained and fully protected **YES (1)** = tree can be retained subject to mitigation measures being applied

NO-RSAM = tree will be removed for sound arboricultural management reasons **NO-RTFD** = tree cannot be retained and will be removed to facilitate development

Tree No	Species	Cat	Stem Diameter mm	BS5837:2012 Radial Prot. Area m	BS5837:2012 Polygon Area m ²	Distance from Site Features (see key above)	Can Tree Be Retained (see key above)
Hedge 1	Hawthorn <i>Crataegus monogyna</i>	A2	Av 60	0.7	2	0.7m to end post of new boundary fencing Avge 13m+ to new buildings In two places sections of hedge will be removed to make provision for new vehicular access points amounting to a total of 35m of hedge	YES (majority) NO-RTFD 15m along Horndean Rd 20m along Southleigh Rd
Hedge 2	Hawthorn <i>Crataegus monogyna</i>	B2	Av 30	0.4	1	0.4m to end post of new boundary fencing Avge 13m+ to new buildings Closest is building and parking at 6m	YES
1	Pedunculate Oak <i>Quercus robur</i>	A1	1200	14.4	652	15m to levels changes for flood defences 3m to landscape works	YES (1)
Copse 1	Oak (<i>Quercus</i>) Elm (<i>Ulmus</i>) Hawthorn (<i>Crataegus</i>) Grey Willow (<i>Salix</i>) Holly (<i>Ilex</i>) Apple (<i>Malus</i>)	A2	100 to 350 x 3	1.2 7.3	5 166	Approx. 8m to levels changes for flood defences 2m to landscape works The central section of the Copse will be removed and laid to grass sward leading to a viewing deck	YES (1) NO-RTFD
2	Pedunculate Oak <i>Quercus robur</i>	B1	950	11.4	408	12m to levels changes for flood defences 6m to landscape works	YES (1)
3	Pedunculate Oak <i>Quercus robur</i>	B1 / C1	950	11.4	408	12m to levels changes for flood defences 6m to landscape works	YES (1)

Tree No	Species	Cat	Stem Diameter mm	BS5837:2012 Radial Prot. Area m	BS5837:2012 Polygon Area m ²	Distance from Site Features (see key above)	Can Tree Be Retained (see key above)
4	Pedunculate Oak <i>Quercus robur</i>	A1	800	9.6	290	10m to access road/turning head 4m to landscape works	YES (1)
5	Pedunculate Oak <i>Quercus robur</i>	B1	370	4.4	62	5m to access road/turning head 0m to landscape works	YES (1)
6	Pedunculate Oak <i>Quercus robur</i>	B1	180	2.2	15	10m to new building 9m to access road/turning head 0m to landscape works	YES (1)
7	Hawthorn <i>Crataegus monogyna</i>	C1	150 x 4	3.6	41	10m to new building 10.5m to access road/turning head 0m to landscape works	YES (1)
8	Pedunculate Oak <i>Quercus robur</i>	B1	950	11.4	408	12.5m to new building 7m to new boundary fencing 0m to landscape works	YES (1)
Group 1	Bay Laurel (<i>Laurus</i>)	C2	250 x 2	4.2	57	2.5m to levels changes for flood defences 10m to new access road	YES (1)
Group 2	Elderberry (<i>Sambucus</i>) Wych Elm (<i>Ulmus</i>) Hawthorn (<i>Crataegus</i>) Plum (<i>Prunus</i>) Ivy (<i>Hedera</i>)	C2	Av 300 #	3.6	41	3m to levels changes for flood defences 3m to landscape works 3m to closest boundary fence	YES (1)
Group 3	Horse Chestnuts (<i>Aesculus</i>) & Common Alder (<i>Alnus</i>)	A2 / B2	H.Chest 600 400 #	8.7	235	9m to levels changes for flood defences 3m to landscape works 10m to closest boundary fence	YES (1)
Hedge 3	Hawthorn <i>Crataegus monogyna</i> (+other species mix)	C2	Av 60	0.7	2	9m to levels changes for flood defences 3m to landscape works 10m to closest boundary fence	YES (1)
9	Hybrid Black Poplar <i>Populus euroamericana</i>	U	1000 #	n/a	n/a	Off-site tree in a dangerous condition where branch failures and primary stem failures are anticipated	NO-RSAM

Tree No	Species	Cat	Stem Diameter mm	BS5837:2012 Radial Prot. Area m	BS5837:2012 Polygon Area m ²	Distance from Site Features (see key above)	Can Tree Be Retained (see key above)
Group 4	Horse Chestnuts (<i>Aesculus</i>) x 5 Hybrid Poplar (<i>Populus</i>) x 1 Alder (<i>Alnus</i>) x 1	C2	Av 450 350 #	6.8	147	10m to closest boundary fence 10m to new building 10m to hard landscaping	YES (1)
10	Pedunculate Oak <i>Quercus robur</i>	C1	900	10.8	366	UF of new headwall works UF of levels changes for flood defences	NO-RTFD
11	Pedunculate Oak <i>Quercus robur</i>	A1 / B1	900	10.8	366	10m to levels changes for flood defences 2m to landscape works 16m to new footpath	YES (1)
12	Pedunculate Oak <i>Quercus robur</i>	U	1200	n/a	n/a	Fallen tree – failed and uprooted in last winters storms	NO-RSAM
13	Pedunculate Oak <i>Quercus robur</i>	B1 / C1	1100	13.2	547	15m to levels changes for flood defences 2m to landscape works 18m to new footpath	YES (1)
14	Pedunculate Oak <i>Quercus robur</i>	B1	800	9.6	290	8m to levels changes for flood defences 2m to landscape works 9m to new footpath	YES (1)
Group 5	Pedunculate Oak (<i>Quercus</i>) x 3	A2	600 #	7.2	163	10m to levels changes for flood defences 2m to landscape works	YES (1)
15	Pedunculate Oak <i>Quercus robur</i>	B1	500 #	6.0	113	10m to levels changes for flood defences 6m to landscape works	YES (1)
16	Pedunculate Oak <i>Quercus robur</i>	B1	500 #	6.0	113	10m to levels changes for flood defences 6m to landscape works	YES (1)
Group 6	Field Maples (<i>Acer</i>) x 3 Pedunculate Oak (<i>Quercus</i>) x 1	C2	200 350 #	2.4 4.2	18 55	10m to levels changes for flood defences 6m to landscape works	YES (1)
17	Pedunculate Oak <i>Quercus robur</i>	A1	750 #	9.0	255	8m to levels changes for flood defences 4m to landscape works	YES (1)

Tree No	Species	Cat	Stem Diameter mm	BS5837:2012 Radial Prot. Area m	BS5837:2012 Polygon Area m ²	Distance from Site Features (see key above)	Can Tree Be Retained (see key above)
18	Pedunculate Oak <i>Quercus robur</i>	B1	300 #	3.6	41	8m to levels changes for flood defences 4m to landscape works	YES (1)
19	Pedunculate Oak <i>Quercus robur</i>	B1	450 #	5.4	92	10m to levels changes for flood defences 4m to landscape works	YES (1)
20	Pedunculate Oak <i>Quercus robur</i>	B1	250 #	3.0	28	10m+ to levels changes for flood defences 10m+ to landscape works	YES
21	Pedunculate Oak <i>Quercus robur</i>	B1	650 #	7.8	191	10m+ to levels changes for flood defences 10m+ to landscape works	YES

6.2 NO – RSAM

There are 2 trees within this category on this project which are recommended for removal for health and safety reasons regardless of any redevelopment proposals.

T9 Hybrid Poplar – had this tree been on site we would be showing its removal but it is outside the site boundaries on private land – given its condition it should not be cited as a constraint to the development potential of this site.

T12 Pedunculate Oak – this tree was uprooted in last Winters storms but In have not been back to site since undertaking the tree survey – thus it is shown in the attached tree survey schedule to be cut up and cleared away but the current land owner may well have already actioned this work.

Allowance has been made to plant a new Oak tree nearby as part of the landscape Master Plan works for this project.

6.3 NO – RTFD

There is **1** tree and part of **1** copse and sections of **1** hedge within this category on this project which cannot be retained with the proposed new layout.

T10 Pedunculate Oak – this is a very poor quality tree – having been extensively topped out in the past due to overall crown collapse – it has recovered to some extent but is a ‘totem pole’ with regrowth and not a good tree of natural form – the levels of intensity of works around this tree to form the new headwall to the stream and also changes in levels for the essential flood defences will probably finish this tree off – thus the recommendation here is for removal and the planting of a new Oak nearby as part of the Landscape Master Plan proposals.

Copse 1 – whilst the undergrowth in and around the primary trees in this copse will be retained the landscape proposals show the removal of a central swathe of scrubby understorey and small diameter trees to make way for a formalised access route to a new viewing deck beside the pond.

Hedge 1 – whilst the vast majority of the hedgerow will be retained there are plans to create two new vehicular/pedestrian access points out onto Horndean Road and Southleigh Road respectively which will inevitably result in the loss of hedging totalling 35m in all. Given the significant length of hedging which will remain the impact in the landscape will not in my opinion be unacceptable and the proposals incorporate a significant amount of new tree and shrub planting around these openings.

6.4 YES

There are **2** trees and **2** hedges (majority of) in this category on this project which can be retained and fully protected in accordance with BS5837 recommendations (see **Tree Protection Plan BJH.04** at [appendix BH4](#) and full listing in schedule at 6.1 above).

T20 & T21 Pedunculate Oaks – both of these trees are technically outside of the red line development boundary but have been included for completeness even though there will be no changes within their RPA and no impact on them as a result of the proposals.

Hedge 1 – with the exception of the two sections which will be removed to facilitate new access points the majority of this hedge line can be retained and fully protected.

Hedge 2 – this entire hedge line can be retained and fully protected.

6.5 **YES (1)**

There are approximately **16** trees; **1** hedge; **6** groups and **1** copse of trees in this category on this project where work will intrude into their RPA as listed at 6.1 above and as shown on the **TRR Plan BJH03**. This will be for one of three reasons – Soft Landscaping Works; Boundary Fences or Flood Defences :-

Soft Landscaping Works – Oaks 1/2/3/4/5/6/7/11/13/14/15/16/17/18 & 19 + Hedge 3 + Groups 2/3/4/5 & 6 + Copse 1

This vegetation may be impacted to varying degrees by the final finishes that will be applied to the landscaping at the conclusion of the building phase of works involving laying grass sward or wild meadow or planting shrubs. In most cases the annual cultivation of the agricultural land will mean that these proposed works will have little or no effect on the retained plants but where the surrounds are intact and have not been previously ‘disturbed ground’ then care will be needed and the principles outlined in Section 11 must be strictly adhered to.

Boundary Fencing – Oak 8 & Group 2 Mixed Species

There will be a need to ‘hand dig’ the post holes within the RPA of these plants and to insert heavy duty plastic liners into the holes before backfilling with concrete – if machinery is to be used then the ground must also be protected from compaction and contamination.

Flood Defences – Group 1 and Group 2

Generally this scheme has been specifically designed around tree RPA’s so that there is no major impact but in these two instances excavation works marginally intrude neither is of high visual amenity value and the annual cultivation of the agricultural land will mean that these proposed works will have little or no effect on these retained plants. It will be seen that for the southern boundary Oaks and the central spine of Oaks whilst there appears to be an intrusion if you look at the radial RPA column above the RPA’s have been adjusted to polygons to cater for existing root restrictions in the form of very deep ditches so there is no anticipated major growth of roots in this zone.

7.0 TREE PROTECTION PLAN

- 7.1 The Tree Protection Plan (TPP) has been superimposed on the layout plan based on the topographical survey.
- 7.2 The plan clearly indicates the location of protective barriers to form a Construction Exclusion Zone around the retained trees.
- 7.3 The TPP has been annotated with descriptive text and a key and additional information prepared as a separate text document where necessary that must accompany the Plan at all stages e.g. when handed to the Site Manager.
- 7.4 Where there is a need for Ground Protection this has been clearly indicated and a specification provided for same.
- 7.5 The following is a list of factors that BS recommends need to be considered to avoid disturbance to the barriers during the construction process – some of these matters will have been dealt with in this report but in the event that there are issues that have not been satisfactorily resolved at this juncture it is suggested that the Planning Authority seek detailed responses as part of Method Statement submissions to satisfy Planning Conditions:-
 - a) site construction access; b) the intensity and nature of the construction activity; c) contractors car parking; d) phasing of construction works; e) the space needed for foundation excavations and construction works; f) the availability of special construction techniques; g) the location and space needed for all temporary and permanent apparatus and service runs, including foul and surface water drains, land drains, soakaways, gas, oil, water, electricity, telephone, television or other communication cables; h) all changes in ground levels, including the location of retaining walls, steps and making adequate allowance for foundations of walls; i) working space for cranes, plant, scaffolding and access during works; j) space for site huts, temporary toilet facilities (including their drainage) and other temporary structures; k) the type and extent of landscape works which will be needed within the protected areas, and the effects these will have on the root system; l) space for storing (whether temporary or long term) materials, spoil and fuel and the mixing of cement and concrete and m) the effects of slope on the movement of potentially harmful liquid spillages towards or into protected areas.

8.0 ARBORICULTURAL METHOD STATEMENT – Heads of Terms

- 8.1 At the Planning Application stage BS5837 requires that the arboriculturist is to identify any areas where the ability to achieve a successful outcome for retained trees on a development site can be defined in principle. Then under ‘Heads of Terms’ list those areas where more detailed input from other specialists is required and/or where more technical information is required to be submitted to satisfy Planning Conditions.

- 8.2 **Utility Service Connections** – no specific information has been provided to me for consideration at this juncture and this matter may therefore need to be dealt with in some detail in a separate Method Statement to satisfy a planning condition, although I am advised that there will be no intrusion into retained tree RPA's.
- 8.3 **Highway safety and visibility splays and Access Arrangements** – this matter has been dealt with separately by my clients Highways Consultants and I am advised that the openings in Hedge 1 that are shown will be the full extent of plant loss to achieve the visibility splays required.
- 8.4 **Site Huts/Toilets/Materials Storage & Site Compound/Cement Mixing Area** – this information has not been made available to me at this time but there is space for all of these facilities to be incorporated within this development site provided that it is built out in a phased manner so that there will not be any adverse impact on retained trees RPA's. It is suggested that this can best be shown on a Site Set-Up drawing to be provided to satisfy a planning condition.

9.0 CONSTRUCTION PHASES OF WORK

TREE MANAGEMENT - BARRIERS AND GROUND PROTECTION

- 9.1 Based on the finalised layout for the development a schedule of tree works will be required listing all trees that require work as follows:-
- Trees for removal to enable development to take place and also any stump grinding works required.
 - Remedial tree works, including those required to establish acceptable levels of risk and management in the context of the proposed land use
 - Access facilitation pruning.
- 9.2 A Tree Works Schedule forms part of this report and is included at [appendix BH5](#) and this work is to be undertaken prior to the erection of any Protective Fencing as free access will be required to all areas of the site – although restrictions will need to be applied when accessing areas within tree RPA's with machinery and suitable ground protection measures must be applied in accordance with Section 8.3 of this report.
- 9.3 All trees that are being retained on site are to be protected by barriers and/or ground protection before any materials or machinery are brought onto site **and most importantly before any demolition, stripping of soil or commencement of construction works. Where demolition works are required on a given project all buildings will be pulled in on their own footprints and machinery must always operate outside of retained tree RPA's with fencing extended or facilitation pruning works carried out to ensure that demolition vehicles cannot damage the crowns of trees.**

- 9.4 Barriers are to be 'Fit For Purpose' to exclude demolition/construction activity and must be maintained to ensure that they remain rigid and complete and in the original setting out positions. These checks will need to be incorporated into a schedule of site monitoring visits to be agreed with the clients subject to phased development operations and subsequently copies of these site visit reports will need to be copied in to the Council.
- 9.5 The default position will always be to erect fencing to the standard illustrated at Figure 2 (see drawing and specification at [appendix BH4](#)).
- 9.6 Where site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification must be agreed and deployed.
- 9.7 Where the fencing is to be erected over retained hard surfacing (whether temporary or permanent) it may not prove feasible or is undesirable to drive pins or struts down through the surfacing and through protected tree roots with the resultant high risk of damage. In these circumstances it will be appropriate to erect scaffolding as illustrated at Figure 3 (see drawing and specification at [appendix BH4](#)).
- 9.8 Where construction working space or temporary construction access is justified within the RPA, this will be facilitated by a set-back in the alignment of the protective fencing and the appropriate levels of Ground Protection laid.
- 9.9 In any event the appropriate levels of protection for either Protective Fencing or Ground Protection will be illustrated and specified on the Tree Protection Plan and in its accompanying text.
- 9.10 A copy of the **Tree Protection Plan – BJH.04** is to be pinned up in the offices/mess hut on site for all site staff to see. The area within the fenced off exclusion zone is to be regarded as **sacrosanct** and the fencing shall not be taken down or relocated at any time without the prior written approval of the monitoring arboriculturist or local authority tree officer, unless this has already been agreed as part of the planning application consent process and is detailed in writing and shown on a plan.

The following prohibitions shall apply within the area enclosed by the Tree Protection Fencing :-

- **No** mechanical digging or scraping once the initial ground cover vegetation has been cleared and the site fenced off.
- **No** storage of plant, equipment or materials
- **No** vehicular or plant access
- **No** fire lighting

- **No** handling, discharge or spillage of any chemical substance, including cement washings
- **No** action likely to cause localised water-logging
- **No** change in ground levels

9.11 In addition any materials whose accidental spillage would cause damage to a tree are to be stored, handled or mixed well away from the outer edges of a retained trees RPA or if this is unavoidable then appropriate polythene sheeting must be laid to prevent soil contamination.

9.12 It will be very important for any vehicle drivers to have undergone a pre-contract induction session where the trees to be retained are to be highlighted and the need for care and attention when working nearby with wide loads; tall loads; plant with swinging booms, jibs and counterweights (including drilling rigs) or slewing hydraulic arms to avoid contact with trunks or crowns.

10.0 SITE MONITORING

- BS5837 recommends that wherever trees on or adjacent to a site have been identified within the tree protection plan for protection measures, there should be an auditable system of arboricultural site monitoring.
- This should extend to direct arboricultural monitoring whenever construction and development activity is to take place within or adjacent to any RPA.
- Existing planning regulations include the provision for local authorities to enforce planning requirements so it is important that local authorities recognise the need to include a Condition to require the supply and approval of an auditable system of arboricultural site monitoring.
- The project arboriculturist appointed by the developer can help monitor site activity, but enforcement is the responsibility of the local authority.
- I recommend that as a minimum requirement a pre-start meeting is held— prior to the Construction Phase of works - which should be held out on site with the Contracts Manager to inspect the protective fencing and ground protection measures to verify that they are fit for purpose and in the correct location according to the Tree Protection Plan before any works take place on site.
- There will probably be a requirement for a detailed schedule of site monitoring works to cover the need for site visits and monitoring but this cannot be accurately defined at this juncture as the phasing of operations is not available to me for comment and it is therefore suggested that this matter is best dealt with as a requirement of a planning condition when the full phased program of works has been determined for this project.

11.0 LANDSCAPE DESIGN - SITE WORKS, LANDSCAPE OPERATIONS AND MANAGEMENT

- 11.1 As an arboriculturist my level of expertise does not extend to Landscape design which is a specialist area requiring expert input from a Landscape Architect with a detailed scheme to accompany the planning application in this instance Terra Firma Consultancy will be providing this expertise and it is their Landscape Master Plan which I am utilising for the purposes of my assessment of the project proposals.
- 11.2 Any soft landscape works within the protected areas shall be carried out in accordance with Section 8 of BS5837 and BS4428 & BS8545.
- 11.3 At this juncture appropriate de-compaction, aeration and mulching should be undertaken on any areas designated for planting, which for practical operational reasons could not be fully protected during the build process.
- 11.4 This is to be hand excavation works only within tree RPA's with no machinery being used unless specific ground protection has been laid. Even then only lightweight mini excavators are to be permitted access.
- 11.5 Excavation works to plant trees and shrubs or to lay grass must be undertaken carefully with the use of forks and trowels only and NOT spades as significant root damage could result from this – any roots that are teased out and exposed during this process may be cut with secateurs provided that they are 25mm or less in diameter and not in clusters where their loss could adversely affect the health and vigour of retained trees.

12.0 CONCLUSIONS

- This report covers the overall principle of development and recommends mitigation measures where necessary for the layout being proposed.
- The direct tree losses on this project are negligible with T10 being the only individual tree lost and this is a poor quality tree for which a case could have been made for removal regardless of any redevelopment proposals. The two sections of Hedge 1 are essential for access and are small in terms of the overall length of hedge that will be retained. The loss of understorey vegetation in Copse 1 is a Landscape Design issue which has been evolved in tandem with the consultant Ecologists seeking to effect a long term improvement of this feature.
- Provided that the methodology prescribed in this report is strictly adhered to and all subsequent Method Statements are provided to satisfy planning conditions I am of the opinion that the retained trees will readily cope with the levels of disturbance anticipated and survive the development works without adverse impact.