GEOSPHERE ENVIRONMENTAL

REPORT NUMBER: 4673,EC,AR,DS/ARB/TC,RF,KL/12-02-20/V1

SITE: Manor Farm, Shepreth, Frog End, Royston, SG8 6RE

DATE: 12/02/2020

DOCUMENT CONTROL SHEET

Report Number:	4673,EC,AR,DS/ARB/TC,RF,KL/12-02-20/V1
Client:	M Scott Properties Ltd,
Project Name:	Manor Farm, Shepreth, Frog End, Royston, SG8 6RE
Project Number:	4673,EC,AR,DS
Report Type:	Arboricultural Survey
Status	Final
Date of Issue:	12 February 2020

Issued By:

Geosphere Environmental Ltd, Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ.

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Prepared By:	Reviewed By:	Authorised By:
Tom Cox Arboricultural and Ecological Consultant	Richard Fenna Senior Arboricultural and Ecological Consultant	Katie Linehan Technical Director of Ecology

VERSION RECORD

Version	Date	Document Revision Details	Prepared By	Admin

Executive Summary

Report Description		Geosphere Environmental Limited was commissioned by M Scott Properties Ltd, to undertake an Arboricultural Survey of the land at Manor Farm, Shepreth, Frog End, Royston, SG8 6RE. The site is located at National Grid Reference (NGR) 539080 247170. The report relates to the assumed redevelopment of the site for residential use. At present a development plan has not been produced for the scheme. The site covers an area of approximately 22.5 hectares (ha). This and the immediate surrounding area were surveyed.
Summary of Main Findings		The Tree Constraints Plan Drawing ref. 4673,EC,AR,DS/001/Rev0 in Appendix 6, shows the locations of all the trees surveyed with the canopy and root protection area plotted on the plan. A total of twenty-four trees and twenty-one groups of trees were surveyed. Eight trees and ten groups were classed as category A trees. Five trees and four groups were classified as category B trees. Ten trees and seven groups were classified as category C trees. One tree was categorised as category U trees. The BGS digital mapping indicated that the site comprised of a bedrock layer of West Melbury Marly Chalk Formation - Chalk, with no recorded superficial layer. These soils, potentially contain cohesive materials which could indicate a risk of shrink/ swell that should be considered during foundation design. The South Cambridge District Council online planning map (ref. R.8) was consulted on 7 February 2020 and confirmed that Tree Preservation Order number 5/59 and 10/85 are present onsite. The exact trees protected by the Tree Preservation Orders are difficult to determine, due to the lack of detail contained within the Tree Preservation Orders however, eight trees and eight groups are likely to be protected by the Orders as shown in the Tree Preservation Order Plan Drawing ref. 4673,EC,AR,DS/002/Rev0 in Appendix 6.
Preliminary Implications Assessment		The following trees will be impacted upon by development: • T3, T4, T8, T9, T17 and T18 – Category A – These are all large trees which are located around the boundaries of the site and as such should be able to be retained within the development. • T19, T20 – Category A – If these trees are retained, a hazard assessment should be undertaken, based upon the proposed use of the area around the trees. Remedial action will be required if the trees will be in an area potentially occupied by people or valuable property.

		• T16, G1, G12, G13, G20 and G21 – Category A, B – These trees are located as lines of trees separating the arable fields or along an existing track. As such it is likely that sections of these groups will have to be removed to facilitate development. If this is the case, then where possible the least vegetated areas within these groups should be targeted for removal. • T1, T2, T5-T7, T10-T16, T21-T24, G2-G11, G14-G19 – Category A, B, C – The remaining trees onsite, these trees are all located around the edges of the site and as such, should be considered for retention.
Recommendations		The Tree Constraints Plan should be consulted to ensure that the constraints posed by the trees are taken into account when designing the proposed development. For example, retained trees could be incorporated within the proposed residential gardens or within proposed public open space. A Tree Retention Plan and a Tree Protection Plan will need to be designed once the layout of the development area has been finalised. This will include locations of trees to be retained, finalised locations of protective barriers, construction exclusion zones and any other protection that trees will require prior to commencement of construction. An Arboricultural Method Statement, Arboricultural Implications Assessment and Tree Management Plan should be supplied with the Tree Protection Plan.

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1. INTRODUCTION

1.1 General

Geosphere Environmental Limited was commissioned by M Scott Properties Ltd,, to undertake an Arboricultural Survey of the site at Manor Farm, Shepreth, Frog End, Royston, SG8 6RE. Any limitations and conditions pertaining to the report are stated within Appendix 1, with a full list of technical references provided within Appendix 2.

The site covers an approximate area of 22.5 hectares (ha) and is located at National Grid reference 539080 247170.

The site boundary is shown on Figure 1 below:

Figure 1 –The site boundary is outlined in red

1.2 Aims

This report has been prepared to support a planning application and provides baseline data for an arboricultural assessment of the site and identifies the tree constraints and root protection areas of trees on or near the site which may be affected by future development.

2. TECHNICAL APPROACH

2.1 Arboricultural Survey

The arboricultural survey has been undertaken in general accordance with BS 5837:2012 (ref. R.1). The recommendations for tree remediation works are in accordance with current legislation and guidance, including BS 3998: 2010, 'Tree work – Recommendations' (ref. R.2).

The data collected during this survey is based entirely upon arboricultural grounds and reflects the condition of the trees on the day the survey was undertaken. The locations of the trees were detailed on a topographical survey provided by the client. All locations of trees are assumed to be correct. Any trees not noted on the topographical plan have been added where appropriate, during the tree survey these trees have been marked with a # within The Tree Survey Schedule.

Scientific names and common names of plant species identified are as they appear in Stace (ref. R.3). For species not listed in Stace, scientific and common and names were taken from Johnson and More (ref. R.4).

2.2 Soil Assessment

A desk-based assessment of the soil was undertaken to determine potential for volume changing soils onsite, using BGS mapping (ref. R.5).

2.3 Site-Specific Limitations

Trees were surveyed without undertaking vegetation clearance.

Some trees were covered with ivy, located within hedgerows or across ditches which limited the visibility of the stem size and structure. This may have increased the margin of error when recording measurements and assessing the quality of the trees. In cases where the trees were obscured or inaccessible, the parameters which could not be accurately measured were estimated as per BS 5837: 2012 (ref. R.1).

3. TREE SURVEY

The survey was undertaken by Tom Cox TechArborA, an experienced surveyor from Geosphere Environmental Ltd on 6 February 2020 to record data relevant to the assessment of the trees on and adjacent to the site.

3.1 Site Description

The site comprises of several arable fields, with each field separated by hedgerows and trees. There is an avenue of trees along the track running through the site, from Frog End Road, to the L-moor SSSI. There is a small patch of woodland located to the south of the site.

North of the site are residential gardens and a railway line, to the east are further residential gardens. To the west, the site is bordered by the L-moor SSSI and arable farmland and to the south is a continuation of arable farmland.

3.2 Tree Survey Results

The results of The Tree Survey are shown within The Tree survey schedule in Appendix 3. A full description of the surveyed parameters is included in The Survey Schedule Descriptions in Appendix 4. A key to the Scientific Names used is attached within Appendix 5. The results are summarised below:

- A total of twenty-four trees and twenty-one groups were surveyed;
- Eight trees and ten groups were classed as Category A trees. This is the highest classification available under BS 5837:2012. These trees are of high quality and confer particular visual importance on the landscape. These trees are likely to be required to be protected during the development;
- Five trees and four groups were classified as Category B trees. These trees are of moderate quality and confer considerable importance on the landscape. These trees should be retained where possible during development;
- Ten trees and seven groups were classified as Category C trees. These trees are of low quality and confer lower levels of benefits to the landscape. The local authority may find it acceptable to remove these trees during development;
- One tree was categorised as a Category U tree. These trees are of poor condition and are unlikely to provide significant value to the landscape for more than ten years. The local authority should find it acceptable to remove these trees during development.

3.3 Tree Constraints Plan

A Tree Constraints Plan Drawing referenced 4673,EC,AR,DS/001/Rev0 has been prepared for the site and is attached within Appendix 6.

The Tree Constraints Plan describes the constraints that the trees may place on the development. The tree canopy and root protection area have been calculated using the stem diameter as per BS 5837:2012 (ref. R.1).

3.4 Soil Assessment

The BGS digital mapping (ref. R.5) indicated that the site comprised of a bedrock layer of West Melbury Marly Chalk Formation – Chalk, with no recorded superficial layer. These soils potentially contain cohesive materials and therefore there is a risk of shrink swell soil present onsite. A further site investigation should be undertaken to confirm the findings of the BGS digital maps.

The combination of shrinkable soils and trees, hedgerows or shrubs represents a hazard to structures that requires special consideration. Trees and hedgerows can take moisture out of the ground. In cohesive soils this can cause volume change resulting in ground movement and damage to building foundations.

In order to minimise the risk, foundations should be designed in accordance to NHBC Standards Chapter 4.2 Building near Trees, (ref. R.6).

3.5 Permissions and Council Restrictions

South Cambridge District Council online planning map (ref. R.8) was consulted on 7 February 2020 and confirmed that Tree Preservation Order number 5/59 and 10/85 are present onsite. These are shown on the Tree Preservation Order Plan Drawing ref. 4673,EC,AR,DS/002/Rev0 in Appendix 6.

The exact trees protected by the TPO is difficult to determine, due to the lack of detail contained within the TPO. A correlation between the findings of the 2020 survey and the TPO numbers provided has been estimated within overleaf:

Table 1 - Tree Preservation Orders Present Onsite					
Tree Preservation Order			Tree Survey		Notes
TPO Reference	Description	Date of TPO	Tree Number	Species found on survey	
Number: 5/59 Tree reference: A18	The several hedgerows, Elms, Ash, Sycamore, Grey Poplar & Willows within the area marked A18 on map.	1960	T13, G16, G21	Ash, Poplar, Elder, Hawthorn, Elm, Cherry, Lime.	Appears to be based upon historic field boundaries, which have now changed.
Number: 5/59 Tree reference: A17	The several Elms within the meadow including hedgerows marked A17 on the map.	1960	G14, T14, G21	Blackthorn, Sycamore, Field Maple, Elm, Hazel, Willow, Elder, Lime.	Appears to be based upon historic field boundaries, which have now changed. Of the Elms only small trees remain.
Number: 5/59 Tree reference: A16	The several Elms within the meadow including Hedgerows marked A16 on map.	1960	T19, T20, T21, T22, T23, T24, G18, G19, G20	Ash, Sycamore, Blackthorn, Field Maple, Silver Birch, Elder.	Field now arable with no trees, within except T19, T20 (Ash).
Number:10/85 Tree reference: A2	Whatever species situated within the area A2.	1989	G17	Sycamore, Elder, Alder, Ash, Sweet Chestnut, Willow, Hazel.	Woodland block still intact.

There is a Conservation Area to the east of the site in Shepreth, shown on the Tree Preservation Order Plan Drawing ref. 4673,EC,AR,DS/002/Rev0 in Appendix 6, it is difficult to tell exactly which trees would be affected by this but it is anticipated to only affect a small portion of G5.

All work to trees protected by Tree Preservation Orders requires special consideration, as consent is required from the Local Authority, except in specific circumstances.

It is advisable to contact the local authority regarding Tree Preservation Orders and Conservation Areas before any tree works are carried out, as new Tree Preservation Orders can be made subsequent to the issuing of this report.

4. PRELIMINARY ARBORICULTURAL IMPACT ASSESSMENT

4.1 Proposed Development

A proposed development plan has not been completed at this stage of the design process. The impacts outlined below are preliminary and should be used to inform future designs for the site.

4.2 Priorities for Retention

The Category A trees, T4, T8, T9, T17, T18, G5, G10, G11, G12, G13, G14, G15, G16, G17 and G21 should be retained as part of any new development on the site. Some of these trees are also protected by Tree Preservation Orders. Other than G12, G13 and G21, these trees are predominantly located around the site margins or offsite so this should be possible for them to remain in place however, the root protection areas extend some distance into the site, and tree protection measures will be required to ensure the trees are not damaged during the demolition/ construction process.

T3, is a mature Category A Willow which has suffered large tear outs and contains aerial deadwood. If this tree is to be retained then it is recommended that a hazard assessment is undertaken to fully determine the requirements for remedial action, such as a crown reduction to reduce the risk of future tear outs.

T19 and T20, are two mature Ash trees, with large pieces of deadwood in the crown, and as such are considered Category A trees due to their conservation value. In their current condition, these trees are unsuitable for street or parkland trees. If these trees are retained, a hazard assessment should be undertaken, based upon the proposed use of the area around the trees. Remedial action will be required if the trees will be in an area occupied by people or valuable property.

The Category B trees, T5, T14, T16, T24, G1, G6, G19 and G20 should also be retained where possible. The root protection areas of these trees will have to be considered when designing the proposed development to avoid impacting as many trees as possible.

Some of the Category C trees may need to be removed to facilitate development. If possible, these trees could be retained as part of the proposed residential gardens.

4.3 Constraints to Development

Sections of G1, G12, G13, G20 and G21, will likely have to be removed to facilitate access into all of the fields for development. If sections of these groups have to be removed it would be best, if possible, to choose the areas of the groups which are most sparse for removal and then mitigate the loss by replanting trees within the woodland block to the south or one of the boundary groups.

4.4 Potential Impact of Development

Table 2 overleaf, shows the likely impacts of development on the trees identified during the survey:

Table 2 – Potential Impact of Construction on Trees		
Tree Number	Category	Impact on Tree
T4, T8, T9, T17 and T18	A	These are all large trees which are located around the boundaries of the site and as such should be able to be retained within the development scheme.
T3, T19 and T20	A	If these trees are retained, a hazard assessment should be undertaken, based on the proposed use of the area around the trees. Remedial action will be required if the trees will be in an area occupied by people or valuable property.
T16, G1, G12, G13, G20 and G21	A, B	These trees are located as lines of trees separating the arable fields or along an existing track. As such it is likely that sections of these groups will have to be removed to facilitate construction of an access road. If this is the case then where possible the least vegetated areas within these groups should be targeted for removal.
T1, T2, T5-T7, T10-T16, T21-T24. G2-G11, G14- G19	A, B, C	The remaining trees onsite, these trees are all located around the edges of the site and as such should be able to be retained.

4.5 Tree Management

Standard avoidance measures to reduce the impact of development on trees as required by BS 5837:2012, (ref. R.1), is simplified as follows for any development type:

- A Consultant Project Arboriculturalist should be appointed to oversee the arboricultural aspects of the development project;
- The Root Protection Areas and above ground structures for retained trees must be protected during construction work with barriers as prescribed by BS 5837:2012, (ref. R.1). The locations of barriers should be determined once a finalised development plan has been produced;
- Once the protection areas have been finalised and the protective barriers have been erected, then these areas are to be considered construction exclusion zones. Any work within these zones will need prior agreement with the Consultant Project Arboriculturalist;
- Changes to the shape of the canopy of retained trees must be agreed with the Consultant Project Arboriculturalist before any works are undertaken, however, all construction within the canopy extent of a tree is best avoided to avoid potential damage to future buildings and to avoid recurring pruning regimes;
- Tree planting should form part of the soft landscaping on site to offset any trees which are removed during the development process. An appropriate after care scheme should be implemented to ensure the newly planted trees reach maturity.

4.5.1 Tree Pruning

Depending upon the result of the Hazard Assessment T3, T19 and T20, will likely require remedial works.

The site contains a number of trees in various stages of maturity, containing deadwood and fungal infections, usual for trees of their age. Any hazards should be removed, prior to the commencement of construction.

The canopies of the trees are likely to require pruning to accommodate new construction. Once the layout of the development area has been finalised, a tree management plan should be completed advising on remedial action required for health and safety and facilitation pruning for construction needs.

All tree work is to be carried out in general accordance with BS 3998:2010 Tree work – Recommendations (ref. R.2) by a professional and specialist arboricultural contractor, who carries the appropriate experience and insurance cover.

Tree planting should form part of the soft landscaping onsite to offset any trees which are removed during the development process.

4.5.2 Tree Planting

In order to mitigate the loss of sections of hedgerows and to provide enhancement to the existing trees onsite, trees lost during development could be replanted onsite. Good locations for tree planting, include the woodland block to the south of the site, within open space, or used to enhance the existing boundary hedgerows.

Trees should be selected and planted following BS 8545:2014 Trees: From nursery to independence in the landscape – recommendations (ref. R.7).

New planting should be protected with stock fencing, and appropriate tree guards, to protect the new planting from browsing mammals such as deer and rabbits. It should be expected that some trees will not survive after being planted, so trees should be replaced on a more than 1:1 basis, and an appropriate after care program should be put in place to ensure that any dead trees are replaced. Trees should be selectively thinned and formatively pruned where appropriate after the trees have established. After care should also include mulching and irrigation.

5. RECOMMENDATIONS

The Tree Constraints Plan, Drawing ref. 4673,EC,AR/001/Rev0, in Appendix 6 should be consulted to ensure that the constraints posed by the trees are taken into account when designing the proposed development. For example, retained trees could be incorporated within the proposed residential gardens or within proposed public open space.

A hazard assessment should be undertaken on T3, T19 and T20, based upon the proposed use of the area around the trees. Remedial action will be required if the trees will be in an area occupied by people or valuable property.

South Cambridge District Council online planning map (ref. R.8) was consulted on 7 February 2020 and confirmed that Tree Preservation Order number 5/59 and 10/85 are present onsite. The exact trees protected by the TPO is difficult to determine, due to the lack of detail contained within the TPO. A correlation between the findings of the 2020 survey and the TPO numbers provided has been estimated within Table 1 in in section 3.5.

Further arboricultural planning is required following the production of a proposed development plan. The formal planning process with regards to trees will require the following additional information:

- A Tree Retention Plan should be designed once the layout of the development area has been finalised, and a final proposed development plan is available. This will show the locations of trees which will remain throughout the development works, and the trees which will be removed prior to the commencement of development;

- A Tree Protection Plan should be designed based upon the Tree Retention Plan. This will include finalised locations of protective barriers; construction exclusion zones and any other protection measures that trees will require prior to commencement of construction;

- An Arboricultural Impact Assessment, Arboricultural Method Statement, and Tree Management Plan should be supplied with the Tree Protection Plan. A Consultant Project Arboriculturalist should be appointed by the developer, to ensure all the arboricultural aspects of the redevelopment project are taken into account, from the planning stage onwards.

APPENDICES

Appendix 1 – Report Limitations and Conditions

General Limitations and Exceptions

This report was prepared solely for our Client for the stated purposes only and is not intended to be relied on by any other party or for any other use. No extended duty of care to any third party is implied or offered.

Geosphere Environmental Ltd does not purport to provide specialist legal advice.

The Executive Summary, Conclusions and Recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon until considered in the context of the whole report.

Interpretations and recommendations contained within the report represent our professional opinions, which were arrived at in accordance with currently accepted industry practices at the time of reporting and based upon current legislation in force at that time.

Arboricultural Limitations and Exceptions

This report is prepared and written in the context stated in the introduction to this report and should not be used in a differing context. Furthermore, new information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to us for re-assessment and, if necessary, re-appraisal.

The trees were not climbed but surveyed from ground level. The survey recorded any defects which were observed, but a full tree health and safety inspection for the site is beyond the scope of this survey.

Any physical changes that happen to the site after the tree survey was undertaken have the potential to invalidate or change the findings of this report. Therefore, the consultant shall not be responsible for any event that may happen after the survey was undertaken due to factors that were not apparent at the time.

Any hazards that were visible on the day of the survey have been noted in the tree management recommendations section of The Tree Survey Schedule. However, this report should not be considered a substitute for a tree risk assessment or management plan, which would be required to minimise the risk and liability associated with the trees found onsite.

Appendix 2 – References

R.1. BSI (2012). BS 5837:2012 Trees in relation to design, demolition and constructions- Recommendations.

R.2. BSI (2010). BS 3998:2010 Trees work- Recommendations.

R.3. Stace, C. A. (2010). New Flora of the British Isles (third edition), Cambridge University Press.

R.4. Johnson and More (2006). Tree Guide, Harper Collins Publishers Ltd.

R.5. British Geological Survey (accessed 7 February 2020) Geology of Britain Viewer website: http://mapapps.bgs.ac.uk/geologyofbritain/home.html.

R.6. National House-Building Council, Standards, Chapter 4.2, 2003 'Building Near Trees'.

R.7. BSI (2014). BS 8545:2014 Trees: from nursery to independence in the landscape – Recommendations.

R.8. South Cambs District Council online planning map (accessed 7 February 2020). https://www.scambs.gov.uk/planning/search-by-map/

Appendix 3 – Tree Survey Schedule

TREE SURVEY SCHEDULE

Project Number: 4673,EC,AR,DS

Project Name: Manor Farm, Shepreth, Frog End, Royston. SG8 6RE Date: 12/02/2020

1	2	3	4	5	6				7	8	9	10	11	12	13	14	15	16
Tree No.	Species	Height (m)	Stem Diameter (mm)	No. of Stems	Branch Spread (m)				First Branch Height (m)	Canopy Height (m)	Life Stage	Physiological Conditions	Structural Conditions	Remaining Contribution (years)	Category Grading	RPA (m2)	RPA Radius (m)	Comments
					N	E	S	W										
# Denotes estimated position due to tree not noted on topographical survey																		
T1	Field Maple	6	250	1	2	2	2	2	0	0	SM	G	G	20+	B	28.3	3.0	
T2#	Sycamore	12	671	5	3	3	3	3	1	2	SM	G	G	20+	C	203.6	8.0	
T3	Willow	14	1000	1	5	5	5	5	4	4	M	F	F	40+	A	452.4	12.0	Hole in west side, tree is full of tear outs and dropped limbs needs further inspection and likely crown reduction. Moderate bat roost potential.
T4	Willow	14	1200	1	5	5	5	5	4	4	M	G	G	40+	A	651.4	14.4	Large mature willow offers conservation and landscape value. Low bat roost potential.
T5	Sycamore	14	600	1	4	4	4	4	4	4	M	G	G	40+	B	162.9	7.2	
T6	Sycamore	12	350	5	4	4	4	4	1	5	SM	F	F	20+	C	55.4	4.2	
T7#	Sycamore	11	410	1	4	4	4	4	2	6	SM	G	G	20+	C	76.0	4.9	
T8	Ash	12	670	1	5	5	5	5	2	6	M	G	G	40+	A	203.1	8.0	Large mature Ash offers conservation and landscape value. Moderate bat roost potential
T9	Ash	14	650	1	6	6	6	6	6	6	M	G	G	40+	A	191.1	7.8	Large mature Ash offers conservation and landscape value, low bat roost potential
T10#	Sycamore	12	400	1	4	4	4	4	1	4	SM	G	G	20+	C	72.4	4.8	
T11#	Horse Chestnut	10	300	1	3	3	3	3	1	2	SM	G	G	20+	C	40.7	3.6	
T12#	Ash	12	424	2	4	4	4	4	8	8	SM	G	G	20+	C	81.4	5.1	Close to overhead lines
T13	Ash	12	624	3	4	4	4	4	1	3	SM	G	G	20+	C	175.9	7.5	TPO 5/59-A18
T14	Sycamore	12	500	1	4	4	4	4	4	6	SM	G	G	20+	B	113.1	6.0	Ariel deadwood and dense ivy TPO 5/59-A17. low bat roost potential
T15#	Dead	13	400	1	3	3	3	3	4	4	-	-	-	10+	U	72.4	4.8	Dead tree containing woodpecker holes. High bat roost potential
T16	Sycamore	14	560	1	4	4	4	4	2	6	SM	G	G	20+	B	141.9	6.7	Pollarded, contains deadwood with potential bat root features. Low bat roost potential.
T17	Ash	12	1000	1	6	6	6	6	1	6	M	G	G	40+	A	452.4	12.0	Deadwood, split in stem with staining offers conservation value, Moderate bat roost potential

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1	2	3	4	5	6				7	8	9	10	11	12	13	14	15	16
Tree No.	Species	Height (m)	Stem Diameter (mm)	No. of Stems	Branch Spread (m)				First Branch Height (m)	Canopy Height (m)	Life Stage	Physiological Conditions	Structural Conditions	Remaining Contribution (years)	Category Grading	RPA (m2)	RPA Radius (m)	Comments
					N	E	S	W										
# Denotes estimated position due to tree not noted on topographical survey																		
T18	Poplar	16	1180	1	7	7	7	7	2	8	M	G	G	40+	A	629.9	14.2	Large mature Poplar offers conservation and landscape value
T19	Ash	14	900	1	4	4	4	4	1	5	M	P	P	40+	A	366.4	10.8	Lots of potential bat roost features. Cat A for conservation. The tree in its current setting is a low risk however the tree has large dead limbs and requires further hazard assessment would be required based on proposals TPO 5/59-A16. High bat roost potential.
T20	Ash	14	900	1	4	4	4	4	3	5	M	P	P	40+	A	366.4	10.8	Lots of potential bat roost features. Cat A for conservation. The tree in its current setting is a low risk however the tree has large dead limbs and requires further hazard assessment would be required based on proposals TPO 5/59-A16. High bat roost potential.
T21	Ash	10	360	1	4	4	4	4	4	4	SM	G	G	20+	C	58.6	4.3	TPO 5/59-A16
T22	Ash	10	360	1	4	4	4	4	4	4	SM	G	G	20+	C	58.6	4.3	TPO 5/59-A16
T23	Ash	10	360	1	4	4	4	4	4	4	SM	G	G	20+	C	58.6	4.3	TPO 5/59-A16
T24	Ash	12	600	1	5	5	5	5	4	5	SM	G	G	20+	B	162.9	7.2	2 woodpecker holes TPO 5/59-A16. Moderate bat roost potential.
G1#	Field Maple (hedge)	6	250	1	2	2	2	2	0	0	SM	G	G	20+	B	28.3	3.0	B as group
G2#	Cherry, Spindle, Hawthorn	7	250	1	2	2	2	2	0	0	SM	G	G	20+	C	28.3	3.0	
G3	Sycamore	12	310	5	3	3	3	3	0	0	SM	F	F	20+	C	43.5	3.7	
G4#	Field Maple, Rose, Blackthorn	1.5	75	1	1	1	1	1	0	0	SM	G	G	20+	C	2.5	0.9	
G5#	Ash, Plum, Rose, Blackthorn, English Elm, Field Maple, Willow	10	300	1	2	2	2	2	0	0	SM	G	G	20+	A	40.7	3.6	Good example of a hedgerow with ditch, high conservation value as group
G6#	Ash, Field Maple, Hawthorn, Blackthorn, Plum, Butterfly Bush, Leyland Cypress, Willow	10	200	1	2	2	2	2	0	0	SM	G	G	20+	B	18.1	2.4	

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Project Name: Manor Farm, Shepreth, Frog End, Royston. SG8 6RE Date: 12/02/2020

1	2	3	4	5	6				7	8	9	10	11	12	13	14	15	16
Tree No.	Species	Height (m)	Stem Diameter (mm)	No. of Stems	Branch Spread (m)				First Branch Height (m)	Canopy Height (m)	Life Stage	Physiological Conditions	Structural Conditions	Remaining Contribution (years)	Category Grading	RPA (m2)	RPA Radius (m)	Comments
					N	E	S	W										
# Denotes estimated position due to tree not noted on topographical survey																		
G7#	Poplar	14	500	1	2	2	2	2	1	3	SM	G	G	20+	C	113.1	6.0	
G8#	Blackthorn	8	200	1	3	3	3	3	0	0	SM	G	G	20+	C	18.1	2.4	
G9#	Plum, Hazel, Butterfly Bush	7	200	1	2	2	2	2	0	0	SM	G	G	20+	C	18.1	2.4	
G10#	Field Maple, Elder, Rose, Willow, Ash	6	200	1	2	2	2	2	0	0	SM	G	G	20+	A	18.1	2.4	Hedgerow with wet ditch also bordering a SSSI, has high conservation value as group
G11#	Willow (Pollards)	12	700	1	3	3	3	3	4	4	M	F	F	40+	A	221.7	8.4	Conservation and landscape value, located within SSSI
G12	Ash, Sycamore, Field Maple, Elder, Lime	12	600	4	3	3	3	3	1	3	SM	G	G	20+	A	162.9	7.2	Provides wildlife corridor for SSSI and lines footpath, conservation and landscape value. Cat A
G13	Ash, Horse Chestnut, Elder, Hazel, Hawthorn, Sycamore	12	420	1	4	4	4	4	1	4	SM	G	G	20+	A	79.8	5.0	
G14#	Blackthorn, Sycamore, Field Maple, Elm, Hazel, Willow, Elder	110	200	1	3	3	3	3	0	0	SM	G	G	20+	A	18.1	2.4	Cat A as group TPO 5/59-A17
G15#	Elm, Hawthorn, Plum, Ash, Sycamore, Horse Chestnut, Elder, Poplar	11	300	1	3	3	3	3	0	0	SM	G	G	20+	A	40.7	3.6	Cat A as group
G16#	Poplar, Ash, Elder, Hawthorn, Elm, Cherry	13	300	1	3	3	3	3	0	0	SM	G	G	20+	A	40.7	3.6	TPO 5/59-A18. Cat A as group
G17	Sycamore, Elder, Alder, Ash, Sweet Chestnut, Willow Hazel	14	400	1	4	4	4	4	2	5	SM	G	G	20+	A	72.4	4.8	TPO 10/82-A2 Woodland block offers landscape and conservation value. Cat A as group
G18	Ash, Sycamore, Blackthorn	12	150	1	2	2	2	2	0	0	SM	G	G	20+	C	10.2	1.8	
G19	Field Maple, Ash	10	300	1	3	3	3	3	1	3	SM	G	G	20+	B	40.7	3.6	TPO 5/59-A16
G20#	Silver Birch, Ash, Sycamore, Elder	7	300	1	3	3	3	3	0	0	SM	G	G	20+	B	40.7	3.6	TPO 5/59-A16
G21	Elder, Lime, Sycamore, Ash	13	350	1	3	3	3	3	0	0	SM	G	G	20+	A	55.4	4.2	TPO 5/59-A18 Provides wildlife corridor for SSSI and lines footpath, conservation and landscape value. A as group.

Appendix 4 – Survey Schedule Descriptions

TREE SURVEY SCHEDULE DESCRIPTIONS

GEOSPHERE ENVIRONMENTAL

Tree Survey Schedule Description		
Column Number	Heading	Description
1	Tree No.	Sequential reference number (as recorded on the tree constraints plan)
2	Species	Species listed by common name
3	Height (m)	Total height of the tree
4	Stem Diameter (mm)	Stem diameter measured at 1.5 m above ground level in accordance to BS 5837:2012
5	No of stems	Total number of stems of a tree
6	Branch spread (m)	Branch spread, taken at the four cardinal points, to derive an accurate representation of the crown (plotted on the tree constraints plan)
7	First branch hgt (m)	Existing height above ground level of first branch measured at the union with the stem
8	Canopy hgt (m)	Existing height of the average clearance of the canopy above ground level
9	Life stage	The age of the tree determined by life stage category: Y- young, SM- semi-mature, EM- early mature, M- mature, OM- over mature, V- veteran
10	Physiological condition	The physiological condition of a tree based on a tree health assessment: G- good, F- fair, P- poor, D- dead
11	Structural condition	The structural condition of a tree based on structural integrity and signs of structural defects which may cause failure: G- good, F- fair, P- poor, D- dead
12	Remaining contribution (yrs)	Estimated remaining contribution in years that the trees will have on the landscape in their current context. A tree will not necessarily remain safe for the entirety of the remaining years. The remaining contribution has been categorised as follows: <10, 10+, 20+ and 40+
13	Category grading	The trees have been graded as per BS 5837: 2012 recommendations. The grading is formed by a letter and a number. The letter denotes the quality grading of the tree, the number represents one of three sub categories. Sub categories 1, 2 and 3 reflect arboricultural, landscape and cultural qualities respectively. The primary letter grading is as follows: 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 A- Trees of high quality with an estimated remaining life expectancy of at least 40 years B- Trees of moderate quality with an estimated remaining life expectancy of at least 20 years 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
14	RPA (m^2)	The root protection area calculated following BS 5837: 2012
15	RPA radius (m)	The root protection area radius calculated following BS 5837: 2012
16	Tree work recommendations/ comments	Work which is recommended for a tree to improve its longevity and safety in its present context. The recommendations are recorded primarily to assist with the categorisation of the trees. Please see Section 6, Tree Management for further limitations.

TITLE
Tree Survey Schedule Descriptions

DATE
12/02/2020

Appendix 5 – Key to Scientific Names

SCIENTIFIC NAMES KEY

Common Name	Scientific Name
Field Maple	*Acer campestre*
Sycamore	*Acer pseudoplatanus*
Horse Chestnut	*Aesculus hippocastanum*
Silver Birch	*Betula pendula*
Butterfly-bush	*Budleja davidii*
Hazel	*Corylus avellana*
Hawthorn	*Crataegus monogyna*
Spindle	*Euonymus Europaeus*
Ash	*Fraxinus excelsior*
Poplar	*Populus sp.*
Plum	*Prunus domestica*
Cherry	*Prunus sp.*
Blackthorn	*Prunus spinosa*
Willow-leaved Pear	*Pyrus salicifolia*
Rose	*Rosa sp.*
Elder	*Sambucus nigra*
Common Lime	*Tilia x europaea*
English Elm	*Ulmus procera*
Leyland Cypress	*x Cupressocyparis leylandii*

GEOSPHERE ENVIRONMENTAL

REFERENCE

Common and scientific names based on Stace (2010) New flora of the British Isles (3rd Edition), Cambridge University Press. For species not present in Stace, scientific and common names were taken from Johnson and More (2006). Tree Guide, Harper Collins Publishers Ltd.

TITLE

Scientific Names Key

DATE

12/02/2020

Appendix 6 – Drawings

Tree Constraints Plan – Drawing Ref. 4673,EC,AR,DS/001/Rev0

Tree Preservation Order Plan – Drawing Ref. 4673,EC,AR,DS/002/Rev0

G4# Field Maple, Rose, Blackthorn
hgt: 1.5

T2# Sycamore
hgt: 12.0

G1# Field Maple (hedge)
hgt: 6.0

G3 Sycamore
hgt: 12.0

G2# Cherry, Spindle, Hawthorn
hgt: 7.0

G13
hgt: 12.0

G13
hgt: 12.0

G13
hgt: 12.0

G13
hgt: 12.0

G13
hgt: 12.0

G1# Field Maple (hedge)
hgt: 6.0

G13
hgt: 12.0

G13
hgt: 12.0

T1 Field Maple
hgt: 6.0

G13 Ash, Horse Chestnut, Elder, Hazel, Hawthorn, Sycamore
hgt: 12.0

G13
hgt: 12.0

G13
hgt: 12.0

G13
hgt: 12.0

G13
hgt: 12.0

G13
hgt: 12.0

Field Maple, Elder, Lime

REV	DATE	DESCRIPTION

LEGEND

- Category U
- Category A
  Trees of high quality
- Category B
  Trees of moderate quality
- Category C
  Trees of low quality
- RPA using formula in accordance with BS5837:2012

# denotes estimated values due to lack of access

Trees categorised in accordance with BS5837:2012 "Trees in relation to design, demolition and construction ï Recommendations"

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

LOCATIONS ARE APPROXIMATE.

PROJECT

Manor Farm, Shepreth,
Frog End, Royston, SG8 6RE

TITLE

Tree Constraints Plan

DRAWING NUMBER

4673,EC,AR,DS/001-1/Rev0

CLIENT

M Scott Properties Ltd

SCALE 1:500 @ A1 DATE 10/02/20

GEOSPHERE ENVIRONMENTAL

T9 Ash
hgt: 14.0

T8# Ash
hgt: 12.0

G6# Ash, Field Maple, Hawthorn, Blackthorn, Plum, Butterfly Bush, Leyland Cypress, Willow
hgt: 10.0

G5# Ash, Plum, Rose, Blackthorn, English Elm, Field Maple, Willow
hgt: 10.0

T7# Sycamore
hgt: 11.0

T6 Sycamore
hgt: 12.0

T5 Sycamore
hgt: 14.0

T4 Willow
hgt: 14.0

T3 Willow
hgt: 14.0

G5# Ash, Plum, Rose, Blackthorn, English Elm, Field Maple, Willow
hgt: 10.0

T12# Ash
hgt: 12.0

G7# Poplar
hgt: 14.0

T11# Horse Chestnut
hgt: 10.0

T10# Sycamore
hgt: 12.0

G1# Field Maple (hedge)
hgt: 6.0

G1# Field Maple (hedge)
hgt: 6.0

G4# Field Maple, Rose, Blackthorn
hgt: 1.5

T2# Sycamore
hgt: 12.0

REV	DATE	DESCRIPTION

LEGEND

Category U

Category A
Trees of high quality

Category B
Trees of moderate quality

Category C
Trees of low quality

RPA using formula in accordance with BS5837:2012

# denotes estimated values due to lack of access

Trees categorised in accordance with BS5837:2012 "Trees in relation to design, demolition and construction ï Recommendations"

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

LOCATIONS ARE APPROXIMATE.

PROJECT

Manor Farm, Shepreth,
Frog End, Royston, SG8 6RE

TITLE

Tree Constraints Plan

DRAWING NUMBER

4673,EC,AR,DS/001-2/Rev0

CLIENT

M Scott Properties Ltd

SCALE 1:500 @ A1 DATE 10/02/20

GEO
GEOSPHERE ENVIRONMENTAL

G8# Blackthorn
hgt: 8.0

T12# Ash
hgt: 12.0

G7# Poplar
hgt: 14.0

T11# Horse Chestnut
hgt: 10.0

T10# Sycamore
hgt: 12.0

G9# Plum, Hazel, Butterfly Bush
hgt: 7.0

G1# Field Maple (hedge)
hgt: 6.0

G11# Willow (Pollards)
hgt: 12.0

G11# Willow (Pollards)
hgt: 12.0

G10# Field Maple, Elder, Rose, Willow, Ash
hgt: 6.0

REV	DATE	DESCRIPTION

LEGEND

Category U

Category A
Trees of high quality

Category B
Trees of moderate quality

Category C
Trees of low quality

RPA using formula in accordance with BS5837:2012

# denotes estimated values due to lack of access

Trees categorised in accordance with BS5837:2012 "Trees in relation to design, demolition and construction ï Recommendations"

LOCATIONS ARE APPROXIMATE.

PROJECT

Manor Farm, Shepreth,
Frog End, Royston, SG8 6RE

TITLE

Tree Constraints Plan

DRAWING NUMBER

4673,EC,AR,DS/001-3/Rev0

CLIENT

M Scott Properties Ltd

SCALE 1:500 @ A1 DATE 10/02/20

GEO
GEOSPHERE ENVIRONMENTAL

G11# Willow (Pollards)
hgt: 12.0

G11# Willow (Pollards)
hgt: 12.0

G10# Field Maple, Elder, Rose, Willow, Ash
hgt: 6.0

T13 Ash
hgt: 12.0

G21
hgt: 13.0

G21
hgt: 13.0

T15# Dead
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G12 Ash, Sycamore, Field Maple, Elder, Lime
hgt: 12.0

G16# Poplar, Ash, Elder, Hawthorn, Elm, Cherry
hgt: 13.0

T16 Sycamore
hgt: 14.0

G21
hgt: 13.0

G21
hgt: 13.0

G21 Elder, Lime, Sycamore, Ash
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G21
hgt: 13.0

G12 Ash, Syca
hgt: 12.0

REV	DATE	DESCRIPTION

LEGEND

Category U

Category A
Trees of high quality

Category B
Trees of moderate quality

Category C
Trees of low quality

RPA using formula in
accordance with BS5837:2012

# denotes estimated values
due to lack of access

Trees categorised in accordance with BS5837:2012 "Trees in relation to design, demolition and construction ï Recommendations"

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

LOCATIONS ARE APPROXIMATE.

PROJECT

Manor Farm, Shepreth,
Frog End, Royston, SG8 6RE

TITLE

Tree Constraints Plan

DRAWING NUMBER

4673,EC,AR,DS/001-4/Rev0

CLIENT

M Scott Properties Ltd

SCALE 1:500 @ A1 DATE 10/02/20

GEO
GEOSPHERE ENVIRONMENTAL

G21
hgt: 13.0

T15# Dead
hgt: 13.0

G16# Poplar, Ash, Elder, Hawthorn, Elm, Cherry
hgt: 13.0

G12 Ash, Sycamore, Field Maple, Elder, Lime
hgt: 12.0

T16 Sycamore
hgt: 14.0

G21 Elder, Lime, Sycamore, Ash
hgt: 13.0

G13
hgt: 12.0

G13 Ash, Horse Chestnut, Elder, Hazel, Hawthorn, Sycamore
hgt: 12.0

G17 Sycamore, Elder, Alder, Ash, Sweet Chestnut, Willow
hgt: 14.0

T17 Ash
hgt: 12.0

T14 Sycamore
hgt: 12.0

G15# Elm, Hawthorn, Plum, Ash, Sycamore, Horse Chestnut, Elder, Poplar
hgt: 11.0

G14# Blackthorn, Sycamore, Field Maple, Elm, Hazel, Willow, Elder
hgt: 11.0

REV	DATE	DESCRIPTION

LEGEND

- Category U
- Category A
  Trees of high quality
- Category B
  Trees of moderate quality
- Category C
  Trees of low quality
- RPA using formula in accordance with BS5837:2012

# denotes estimated values due to lack of access

Trees categorised in accordance with BS5837:2012 "Trees in relation to design, demolition and construction ï Recommendations"

LOCATIONS ARE APPROXIMATE.

PROJECT

Manor Farm, Shepreth,
Frog End, Royston, SG8 6RE

TITLE

Tree Constraints Plan

DRAWING NUMBER

4673,EC,AR,DS/001-5/Rev0

CLIENT

M Scott Properties Ltd

SCALE 1:500 @ A1 DATE 10/02/20

GEOSPHERE ENVIRONMENTAL