Proposed Residential Development at land adjacent Tysdale Farm Tydd St Mary

Tree Survey, Arboricultural Impact Assessment

Tree Protection Plan and Arboricultural Method Statement

March 2017



Prepared for
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1 Introduction.

1.1 This report has been prepared to support a planning application for development of five new dwellings at land adjacent Tysdale Farm, Common Way, Tydd St Mary, Lincolnshire. The dwelling will share access with an existing permitted barn conversion development that will create two new dwellings (SHDC planning ref H21-0794-10). Therefore there will be seven new dwellings in all.

1.2 The tree survey was first undertaken on Wednesday 7th September 2016 and reviewed on March 3rd, 2017 by Richard Morrish (Tech ArborA). The survey base data including ownership boundary and preliminary site development plans has been provided by Holt Architectural. The original survey information did not include the position of trees - so that the tree locations have been measured on site and are expected to be accurate to within 1-2m. The site lies within the Tydd St Mary conservation area, but none of the trees on or adjacent the site are known to have Tree Preservation Orders.

1.3 Limitations: Trees have been assessed from ground level only and no detailed investigation of any structural or physiological defects has yet been undertaken. It should be stressed that although the health and safety of the trees is an aspect of the assessment methodology used, this report is intended for planning purposes only. It should not be used as an assessment of tree safety and Richard Morrish Associates can accept no liability for any damage or injury sustained in future as a result of the failure of any tree or its parts. It will remain the present and future tree owner's responsibility to consider the health of the trees and take appropriate management action to discharge the owners duty of care.

1.4 Disclaimers: This report is intended to support an imminent planning application. Should the planning and development process extend beyond a year of the date of this report, or actions occur on or near the site that could undermine the health, condition and / or stability of surveyed trees, it is recommended that the tree retention categories are reviewed prior to site works commencing.

2 Terminology. (See also Appendix C)

2.1 The criteria and terms in the report are drawn from BS5837:2012 – 'Trees in relation to design, demolition and construction – recommendations'. The BS aims to assist tree retention in the vicinity of new construction where the objective should be to achieve a harmonious and sustainable relationship between trees and structures. The survey work includes a standardised set of measurements, an assessment of the trees' age and general condition (both physiological and structural) and an estimate of the trees likely remaining contribution (in years) for the site. All assessments are based upon the site conditions as they existed at the time of the inspection. On the basis of the findings, each tree is allocated one of four categories ('A', 'B', 'C' and 'U') based on quality and value (in a non-fiscal sense). This provides a guide as to its general suitability for retention within the site where development is proposed. Categorisation is defined using a 'cascade chart' (refer to Appendix C) and includes sub-categorisation to define whether a tree has particular *arboricultural* values, *landscape* values and cultural *and conservation* values.

2.2 The survey allows development of a *Tree Constraints Plan* (refer to drawing TS01, Appendix A) based on the calculation of *Root Protection Areas (RPA's)* for each of the trees on or near the study site. The RPA is defined as a "*layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority."*. The RPA is generally shown as a circle. In reality the distribution of roots around a tree will frequently prove to be asymmetrical due to the presence of physical constraints or a variety of conditions that may affect root development. Where it is considered likely that root growth has been restricted in one direction and favoured in another the arboriculturist may propose to modify the RPA shape to better protect the tree's viability.

2.3 The tree constraints analysis also normally includes an assessment of the likely ultimate size and shape of the trees on or near the study site, their likely shading and screening effects, potential branch, leaf or fruit fall and other matters that could conflict with (impact on) proposed structures or the future sustainable management of the site.

2.4 The tree survey and constraints information is applied to the design plan to prepare an *Arboricultural Impact Assessment (AIA)* and a preliminary *Tree Protection Plan (TPP).* For the AIA, an indicative scale of *slight, moderate* to *major* is used to identify the anticipated significance of potential impacts (adverse or beneficial) to trees in construction or operational stages of development.[1] This assessment is used to inform detailed design development – including the positioning of buildings, pavements, retaining structures, services (above and below ground), finished site levels and landscaping works (including new tree planting). The *AIA* report and preliminary *TPP* plan helps to define a sustainable design outcome for existing and future tree planting.

2.5 Once a site plan has been finalised the *TPP* can be agreed and an *Arboricultural Method Statement (AMS)* is prepared detailing how trees selected for retention will be protected throughout the construction period. This defines *Construction Exclusion Zones (CEZ's),* recommendations for construction site arrangements and temporary infrastructure, construction details that allow trees to be safeguarded, details of any preparatory tree works and, if required, a schedule of those works for tendering

[1] Refer to Appendix C – Item 1:12 for further explanation of this scale.

purposes. For the purposes of this planning application a preliminary *TPP* and *AMS* are submitted as details of the construction process have not been confirmed. Further detailed design review, often requiring input from the appointed building contractor, may result in refinements to both documents. It is therefore anticipated that LPA officers or other monitoring agents will retain a relationship with the project through construction and in to operational stages of development.

3 Tree Survey – Summary.

3.1 The proposed development site consists of two former paddocks relating to Tysdale Manor – a Grade II listed building that stands 50m to the east. The south-west paddock (where units 7, 8 and 9 are proposed) has been planted as a mixed fruit orchard which is likely to be around 5 years old. There are approximately 50 young trees of between 2 and 4m in height including apple, pear, cherry, medlar, mulberry and hazel (refer to G1). Towards the north-west corner of this paddock is a second group of young ornamental trees (G2).

3.2 The southern site boundary adjoins Common Way and is defined by a 'hedge' of various shrubs including hawthorn, box, more recently planted pyracantha and various self-seeded vegetation. The frontage vegetation also includes larger trees (T01-T04) sycamore, hawthorn and ash trees. The western site boundary is mainly defined by a 1.8m closeboard fence adjoining a neighbouring property. There is one significant ash tree situated on this boundary (T08) and various smaller self-seeded ash and sycamore. The eastern boundary of the site is defined by a track that will become the shared access road for the new development.

3.3 To the north there is a second paddock within which are proposed units 4, 5 and 6. The paddock is separated from the rest of the site with a 'hedge' of poplar that is around 6m tall. The paddocks are otherwise enclosed with young hedgerows. There are a number of self-seeded saplings and trees on neighbouring plots.

3.4 The site is ostensibly flat. Soils in the locality are understood to be deep marine alluvium – mainly silty slightly calcareous loams. The presence of shrinkable clays is not established and further engineering advice should inform the need for any new foundation design near trees.

4.0 Arboricultural Impact Assessment.

4.1 The AIA identifies the likely significance of impacts to trees from the construction and operational activities expected from the proposed development. A sliding scale of *slight*, *moderate* and *major* has been applied to indicate the anticipated significance of impacts where *major* is likely to lead to decline and death of the tree and *slight* is damage that the tree is likely to recover from. (See Appendix C).

4.2 T1, T2, T3, T4 and H1 comprise the vegetation along the site frontage. This provides some 'rural' character to the street in this part of the village and screens the site within. However it is not in good condition. T1 is an ash at the corner of the western boundary. It has some amenity benefit to the street and neighbour. It is probable that this tree will succumb to *Chalara fraxinea* in coming years but it is suggested it is retained at present. Remove ivy by severing near base. Selectively prune to raise canopy to 2-3m above ground level. T2 is a small alder that has grown shaded beneath the ash and is smothered in ivy. It has no particular amenity value and has

poor form. Suggest remove. T3 is an old thorn with three stems and some wildlife and amenity value. However the stems have a variety of decay and the crown appears to be dying back. Stems are likely to collapse in coming years. Suggest coppice to encourage it to regenerate from ground level and provide part of sustainable hedge in future. T4 is a mature sycamore that has some amenity value for the street and site. It appears to have some crown dieback – the cause not identified. It is suggested to retain at present – but monitor health in future. Sever ivy near base and selectively prune to raise canopy to 2-3m. The remaining vegetation is defined as 'H1' in the survey and includes box, holly, thorn, sycamore and recently planted pyracantha. The Pyracantha is not indicative of a native hedge and to create a sufficiently wide site entrance road (required for the permitted barn conversion) will probably have to be removed anyway. It is suggested that the entire hedge is cut down to a height of 500-1000mm and weedy species (sycamore, elder etc) are removed. Enhance the existing hedge with new mixed native planting. With appropriate root protection throughout construction there will be ***negligible*** impact to the trees and shrubs proposed for retention. The coppicing and cutting back should stimulate new hedge growth.

4.3 T5 and T6 are two trees in the neighbours garden to the east. T5 (Walnut) may need minor pruning to clear construction vehicle access adjacent the proposed new entrance (which as noted is required for the permitted barn conversion). With appropriate root protection throughout construction there will be ***negligible*** impact to the trees and shrubs proposed for retention.

4.4 T7 (young ash with holly shrub under canopy), T10 (young ash near existing shed) and G1 (young orchard planting) will clash with the proposed development. It would appear that T7 will need to be removed to enable construction of the permitted access road for the barn conversion, and T10 will need to be removed when the existing shed is demolished for that development. It may be possible to retain some of the young fruit trees towards the north end of the site and others might be transplanted. Removal of all these trees will have negligible impact on amenity beyond the site boundary.

4.5 T8 is the largest ash tree and is located on the western boundary. It has a lot of ivy in the crown which prevented inspection of the main stem and boughs. Shade from the tree should not unduly affect the new dwelling but will partially shade the proposed parking area. The proposed parking area will impact on the root protection zone and a sustainable 'no-dig' approach to pavement construction will be required. It should be noted that Ash trees may succumb to *Chalara fraxinea* in coming years. Retain the tree, but remove the three (relatively minor) eastern branches at a point near the trunk to reduce the crown near the car park. Sever ivy near ground. Ground protection and root pruning will minimise damage to the RPA during the construction process. This will have moderate to ***slight*** impact to the tree. Monitor the tree for Chalara in coming years.

4.6 T9 (larger ash tree) is located north of proposed units 7,8 and 9. It is a decent young ash tree and would be able to contribute to the site in years to come, not-withstanding *Chalara fraxinea*. However as surveyed the tree is likely to clash with the proposed access road and will have to be removed unless the access can be amended.

4.7 T11 (pair of veteran willows near west boundary) and G2 (group of ornamental tree planting) are also located north of proposed units 7,8 and 9. The two large willows have landscape and wildlife value, although they include decay wood. Large old willows have a tendency to collapse and lose limbs in storms in later life. They will

not be directly affected by the development and there is no need for immediate work. However in the next 1-3 years it would be appropriate to consider selective pruning to reduce the height of the crown (perhaps by up to 50%) to prevent collapse and decline. There are a number of young trees planted in this corner of the site (G2). Some are in poor condition with poor form – whilst others could provide a useful contribution to the site in future. Thin these trees to allow the best ones space to grow. Remove stakes and ties which are still present. With appropriate root protection throughout construction there will be ***negligible*** impact to the trees.

4.8 The poplar 'hedge' (H2) was presumably planted as a fast growing screen. However it has already been topped once, will continue to grow tall and will not make a sustainable hedge. It is suggested that it is removed. Two slightly larger poplars (T12) towards the west end (one of which is collapsing) should also be removed. It would be possible to replant any boundaries with a mixed native or perhaps beech hedge to define internal site boundaries in future.

4.9 A short section of young native hedge may need to be removed from the northern boundary to allow the proposed construction of units 5 and 6. A number of self seeded trees and bramble in the south west corner of this paddock have no particular arboricultural value – but as this is being proposed as a 'wildlife area' they could be retained.

5.0 Tree Protection Plan / Arboricultural Method Statement.

(Refer to plans TPP 01 and Appendix B)

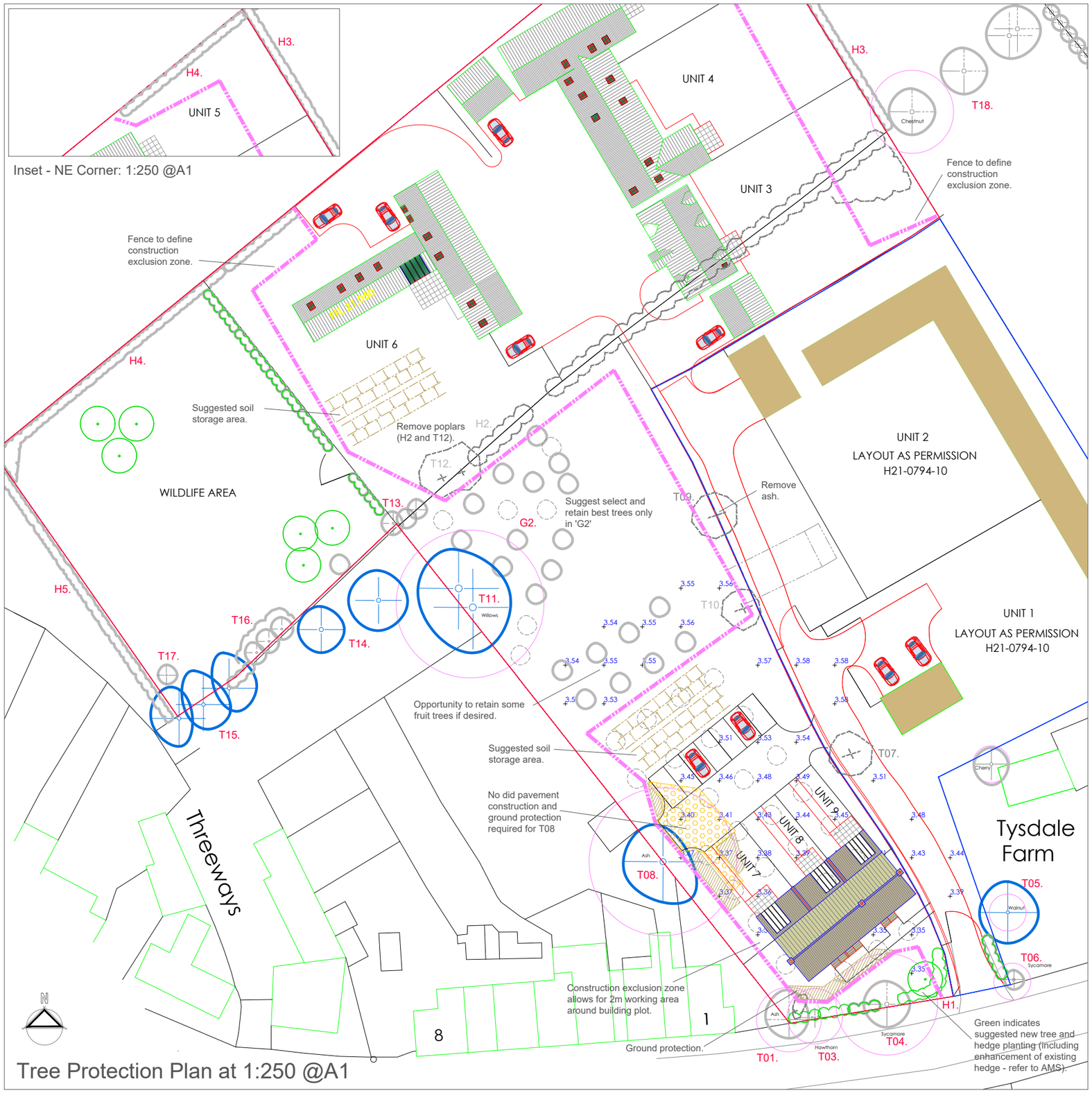
5.1 Issues that shall need to be addressed by the Arboricultural Method Statement and illustrated on the Tree Protection Plan are summarised below:

1. Tree removals.
2. Tree pruning.
3. Establishment of construction exclusion zones.
4. Ground protection and root pruning.
5. Soil storage (if required).

5.2 Replacement planting: Some suggestions for new planting locations are indicated on the TPP.

5.3 Where possible, proposed garden areas should ideally be protected from construction works to avoid ground compaction and soil contamination during construction stages.

Richard Morrish - Chartered Landscape Architect, Tech Arbor A.
Finalised 09-03-2017



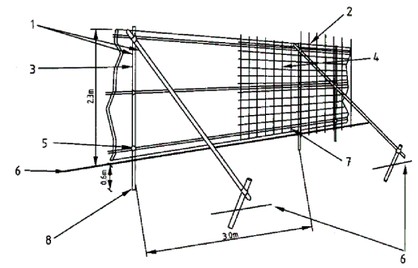
Tree Protection Plan at 1:250 @A1

Key

- 'B' category tree's retained.
- 'C' category tree's
- Root Protection Area
- Tree/ bush to be removed
- Protective fence barrier
- Proposed development.
- Suggested new tree planting.
- Ground protection
- Root pruning
- Soil store

Indicative protective fence barrier.

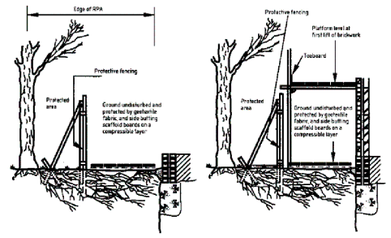
Recommended design of Protective barrier



1. Standard scaffold poles – constructed with bracing as shown; 2. Horizontal rail at 2.0-2.3m; 3. Verticals at 2-3.0m centres; 4. Weldmesh grille or similar rigid fence; 5. Standard clamps; 6. Ground level; 7. Panels secured to uprights with wire ties and / or scaffold clamps preferably on inside face of fence; 8. Posts driven into ground approx 0.6m – avoiding any large roots or services.

Indicative ground protection.

Ground Protection During Construction Period



The following order of works is proposed;
(The Contractor must also refer to the full AMS)

1. Suitably qualified and approved arboricultural contractor to undertake all tree related works prior to site establishment. All as per arboricultural method statement.

2. Erect the protective fencing around trees as shown on TPP drawings and establish construction exclusion zones before site clearance commences.

3. Set up contractors facilities. Undertake soil stripping, soil storage and any earthworks outside CEZ's. (Suggested soil storage area shown).

4. Undertake main construction works retaining the protective fencing as indicated throughout entire building period. Should there be any requirement to undertake works within the construction exclusion zones consult the arboricultural consultant before commencing such works.

5. At completion of building works remove protective fencing and undertake landscape works in accordance with the arboricultural method statement and landscape plan / specification.

Rev	Amendment	Ch'kd	Date
-	-	-	-

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job :
Proposed Residential Development
Land adjacent Tysdale Farm, Tydd St Mary

drawing :
Tree Protection Plan

Drawn	Date	Proj. No.
RM	08-03-2017	413/17
Chckd	Scale	Dwg No.
RM	1:250 @ A1	TPP 001



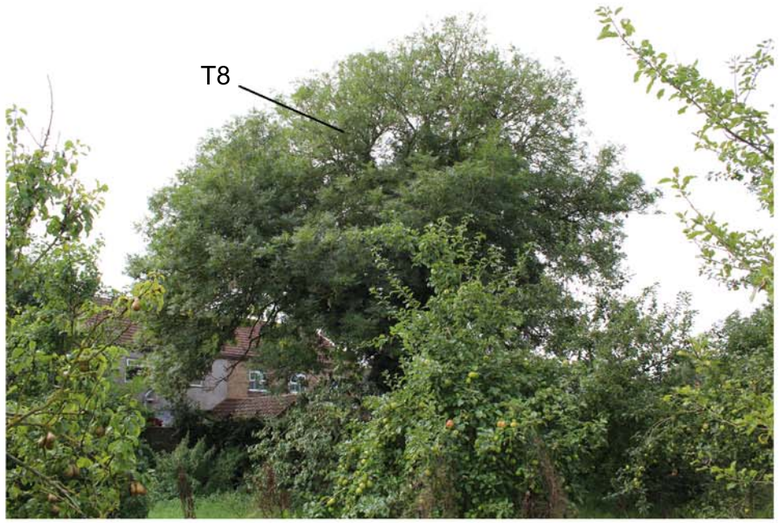
Site frontage - Looking north-west from opposite existing entrance.



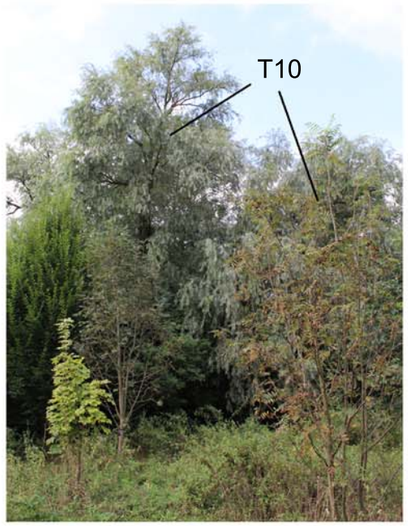
Site frontage looking north-east.



Existing track into site looking north - with young fruit trees on left.



T8 - Ash tree on west boundary - with fruit trees in foreground.



Willow trees at rear of site.

Land adjacent Tysdale Farm, Tydd St Mary
Arboricultural Survey
Figure 2 - Site Photographs



Panoramic view of boundary to northern paddock, looking south.



View looking south-east with ‘H3’ in the foreground.



View over whole northern paddock area with the young mixed native hedge (H4) along northern boundary.



H5 - Neigbours boundary hedge.

Land adjacent Tysdale Farm, Tydd St Mary
Arboricultural Survey
Figure 3 - Site Photographs (ii)

APPENDIX A – Tree Survey.
Tabulated Tree Survey Information

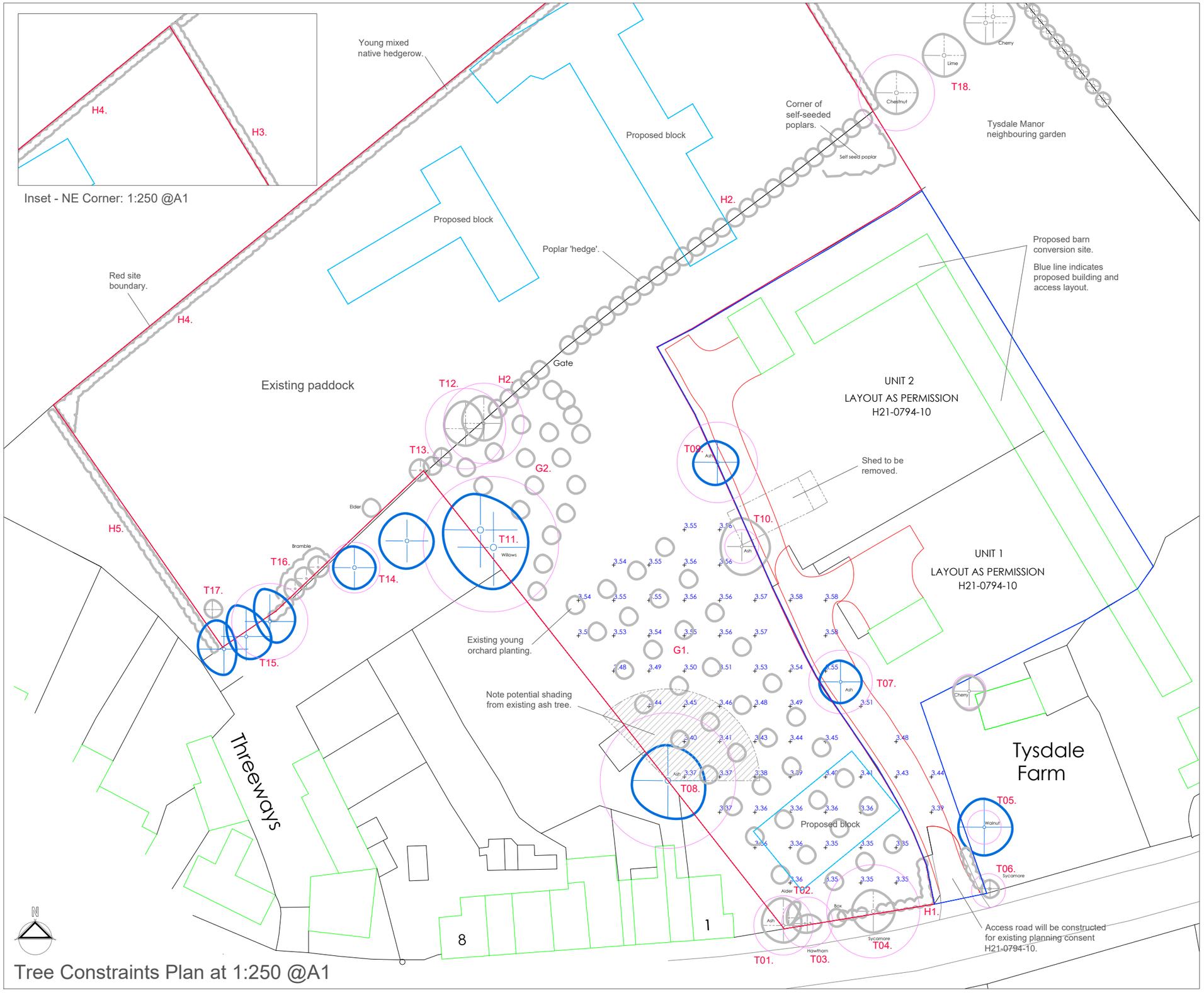
The # symbol indicates estimated measurements due to restricted access or calculated diameter if multi-stem. If trees were measured below the standard height it is stated.

Ref	*Species*	**Height** (m.)	**Stem Dia.** (mm)	**Canopy spread and height** (m) *(x4 cardinals)*	**Branch Height** *(m) (Clearance) (x4 cardinals)*	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Remaining Contribution ?** *(Yrs)*	**Mature size?** *(Hght /spread)*	**CATEGORY**	*Notes + Preliminary management recommendations*	**RPA** Area sqm (Radius in m in brackets)
T1	Ash *Fraxinus excelsior*	11	# 350	N. E. W. S. **4 3 3 3** **3**	N. E. W. S. **3**	*M*	F	F	10+ ?	12 x 10 ?	Ci	Mature tree with veteran characteristics on site boundary. Pruning by neighbour. Lot of ivy. Provides some amenity value for street. All ash trees may be affected by *Chalara fraxinea* in coming years. Retain. Sever ivy near base and remove from trunk. Selectively prune to raise canopy to 2-3m. Monitor for Chalara.	55 sqm (4.20m)
T2	Alder *Alnus glutinosa*	7	210	N. E. W. S. **1 4 0 1** **2**	N. E. W. S. **2**	*YM*	F	F	20+	12 x 4 ?	Ci	Spindly alder that has been shaded by Ash and leans to east. A lot of ivy. Remove.	- -
T3	Hawthorn *Crataegus monogyna*	8	# 310	N. E. W. S. **1 2 2 1** **3**	N. E. W. S. **3**	*M*	G	F	10+ ?	8 x 4 ?	Ci	Veteran hawthorn with three stems. Decay holes, Previous pruning. Epicormic growth. Apparent crown dieback. Sycamore growing from hole in stem! Suggest coppice to height of around 400-600mm and see whether it encourages new growth.	41 sqm (3.60m)
H1	Mixed 'hedge' *Crataegus, Buxus, Acer, Syringa, Sambucus, Pyracantha*	2-3	-	N. E. W. S. - -	N. E. W. S. -	*M*	F	F	20+	-	Ci	'Hedge' is actually mainly self-seeded vegetation and unlikely to provide sustainable boundary without new planting. Box towards west end now 3m tall and spindly. Pyracantha near gateway appears recently planted. Suggest cut down everything to around 500-1000mm, remove pyracantha and weedy species (elder, sycamore etc) and plant new mixed native hedging in gaps. (Refer AMS).	- (2.00m)
T4	Sycamore *Acer pseudoplatanus*	11	# 550	N. E. W. S. **3 3 3 3** **2**	N. E. W. S. **2**	*M*	F	F	10+ ?	-	Ci	The largest tree on the frontage with a lot of ivy growth – making inspection difficult. Dieback in crown. Some decay holes. Suckering at base. Suggest retain tree but remove suckers, sever ivy near base and raise crown to around 3m with selective pruning. Monitor health of tree in future.	137 sqm (6.60m)
T5	Walnut *Juglans regia*	9	# 400	N. E. W. S. **4 4 3 4** **2**	N. E. W. S. **2**	*YM*	G	G	20+	12 x 8	Bi	Young walnut in neighbours garden – 3m from boundary. Minor crown pruning may be required to ensure clearance for proposed (permitted) access road. RPA will not be affected.	72 sqm (4.80m)

Ref	*Species*	**Height** (m.)	**Stem Dia.** (mm)	**Canopy spread and height** (m) *(x4 cardinals)*	**Branch Height** *(m) (Clearance) (x4 cardinals)*	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Remaining Contribution ?** *(Yrs)*	**Mature size?** *(Hght /spread)*	**CATEGORY**	*Notes + Preliminary management recommendations*	**RPA** Area sqm (Radius in m in brackets)
T6	Sycamore *Acer pseudoplatanus*	9	# 200	N. E. W. S. 1 1 1 1 3	N. E. W. S. -	*YM*	G	F	20+	15 x 8 ?	Ci	Self-seeded (?) multistem Sycamore in neighbours garden approx. 1m beyond fence line. Tall and narrow crown. Roots unlikely to have grown under existing pavement, so theoretical RPA probably not relevant. No work required.	28 sqm (3.00m)
G1	Orchard *Malus, Pyrus, Prunus, Morus, Mespilus, Corylus etc*	2-4	50- 200	N. E. W. S. - -	N. E. W. S. -	*YM*	G	F	40+	8 x 6?	Ci	Varied orchard planting of around 40-50 young trees at 4m centres. Most will clash with proposed layout. Remove or transplant.	- -
T7	Ash *Fraxinus excelsior*	8	360 (@ 1m)	N. E. W. S. 3 3 3 3 2	N. E. W. S. 2	*YM*	G	G	10+ ?	12 x 8 ?	Bi	This is a good young Ash tree located just beyond the site boundary. As it appears to be located within the proposed access road to the adjacent permitted barn conversion it will need to be removed as part of that development. Remove.	- -
T8	Ash *Fraxinus excelsior*	12	# 800	N. E. W. S. 5 5 5 6 3	N. E. W. S. 5	*M*	G	F ?	10+ ?	12 x 8 ?	Bi	The biggest ash tree on the site, located on fenced boundary. A lot of ivy. Only 3 branches on east side – and canopy smallest on this side. Suggest remove these branches to avoid clash with proposed development and retain tree. Ground protection and root pruning will be required. (Refer to AMS). Monitor for Chalara.	290 sqm (9.60m)
T9	Ash *Fraxinus excelsior*	12	470	N. E. W. S. 3 3 3 3 1	N. E. W. S. 2	*M*	F	F	10+ ?	12 x 8 ?	Bi	Larger ash beyond northern site boundary. As it appears to be located within the proposed access road to the new dwellings it will need to be removed. Remove.	- -
T10	Ash *Fraxinus excelsior*	8	210	N. E. W. S. 2 2 2 2 1	N. E. W. S. 2	*YM*	F	F	10+ ?	12 x 8 ?	Ci	Small ash near existing barn. Unlikely to be sustainably retained when barn removed as part of neighbouring development. Remove.	23 sqm (2.70m)
T11	Willow x2 *Salix alba*	12	# 800	N. E. W. S. 3 3 3 3 1	N. E. W. S. 2	*M*	G	F	20+	20 x 10 ?	Bi	Two large Willow – previously pollarded. Mainly ecological and landscape value. Will not be affected by development. No work required but consider re-pollarding in future so they don't get too tall and collapse	290 sqm (9.60m)

Ref	*Species*	**Height** (m.)	**Stem Dia.** (mm)	**Canopy spread and height** (m) *(x4 cardinals)*	**Branch Height** *(m) (Clearance) (x4 cardinals)*	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Remaining Contribution ?** *(Yrs)*	**Mature size?** *(Hght /spread)*	**CATEGORY**	*Notes + Preliminary management recommendations*	**RPA** Area sqm (Radius in m in brackets)
G2	Mixed young trees *Betula, Acer, Sorbus, Quercus* etc	3-6	# 150	N. E. W. S. **1 1 1 1** **1**	N. E. W. S. **1**	*YM*	G	F	20+ ?	12 x 8 ?	Ci	Various small trees apparently planted for amenity value. Various states of health. Suggest review and keep best over the next few years. Will not be affected by development. No immediate work required.	- -
H2	Poplar 'hedge' *Populus nigra var*	4-6	-	N. E. W. S. -	N. E. W. S. -	*YM*	G	F	20+ ?	20 x 4 ?	Ci	An unsustainable 'hedge'. Unsuitable in domestic setting. Suggest removal.	- -
H3	Leyland cypress hedge	1	-	N. E. W. S. - -	N. E. W. S. -	*YM*	G	F	20+ ?	10 x 2 ?	Ci	Neighbours hedge. Will be unaffected.	- -
H4	Mixed native hedge *Crataegus monogyna etc*	2-3	-	N. E. W. S. **1 1 1 1** **1**	N. E. W. S. **1**	*YM*	G	F	20+ ?	8 x 4 ?	Ci	A suitable site boundary in the setting. A section will however clash with the proposed layout and will need to be removed. Suggest top remaining hedge at 2 m and trim up hedge at sides to encourage denser growth.	- -
H5	Leyland cypress hedge	3	-	N. E. W. S. - -	N. E. W. S. -	*YM*	G	F	20+ ?	10 x 2 ?	Ci	Neighbours hedge. Will be unaffected.	- -
T12	Two Poplars. *Populus spp*	10-12	# 300	N. E. W. S. **5 3 3 4** **2**	N. E. W. S. **2**	*M*	G	F	20+	15 x 8 ?	Ci	These trees could get a lot bigger, although one leaning to north already. Suggest removbe and allow other trees nearby more space and light to grow. Remove	- -
T13	Two small trees on existing boundary. *Castanea sativa* *Quercus robur*	6-7	# 300	N. E. W. S. **3 3 3 3** -	N. E. W. S. -	*M*	G	F	20+	15 x 8 ?	Ci	Two small trees that with selective pruning to raise and shape canopy in coming years could make decent trees. Retain. Remove poplar and elder from near by.	41 sqm (3.60m)
T14	2 Cypress *Cupressus and Chamaecyparis*	12-14	# 450	N. E. W. S. **3 3 3 3** -	N. E. W. S. -	*M*	G	F	20+	20 x 4 ?	Bi	Two neighbouring cypress. Canopies dont extend over the site. Should not affect the site works. No work required.	- -

Ref	*Species*	**Height** (m.)	**Stem Dia.** (mm)	**Canopy spread and height** (m) *(x4 cardinals)*	**Branch Height** *(m) (Clearance) (x4 cardinals)*	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Remaining Contribution ?** *(Yrs)*	**Mature size?** *(Hght /spread)*	**CATEGORY**	*Notes + Preliminary management recommendations*	**RPA** Area sqm (Radius in m in brackets)
T15	3 x Ash *Fraxinus excelsior*	10-12	# 450	N. E. W. S. **6 2 2 5** **4**	N. E. W. S. **4**	*M*	G	F	10+ ?	12 x 8 ?	Bi	3 ash on neighbouring property. Canopies extend up to 5m over the site. Should not affect the site works. No work required.	- -
T16	3 x Ash *Fraxinus excelsior*	8	# 250	N. E. W. S. **3 3 3 3** **2**	N. E. W. S. **2**	*YM*	G	F	10+ ?	12 x 8 ?	Ci	3 self-seed ash located near the site boundary. No particular arboricultural value – but if this is a nature area – retain.	- -
T17	Sycamore *Acer pseudoplatanus*	7	# 150	N. E. W. S. **2 2 2 2** **2**	N. E. W. S. **2**	*YM*	G	F	10+ ?	12 x 8 ?	Ci	Will grow much larger – but if this area is to remain as a nature area it could be retained.	
T18	Chestnut, Lime, Cherry	8-10	# 450	N. E. W. S. **3 3 3 3** **2**	N. E. W. S. **2**	*YM*	F	F	10+ ?	12 x 8 ?	Ci	Neighbours trees. Will not be affected. No work required	



Tree Constraints Plan at 1:250 @A1

Key

- 'B' category tree's
- 'C' category tree's
- 'U' category tree's
- Root Protection Area
- Indicative shade pattern (Tree at likely full height)
- Indicative building plan

Rev	Amendment	Ch'kd	Date
-	-	-	-

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Land adjacent Tysdale Farm, Tydd St Mary

drawing :
Tree Constraints Plan

Drawn	RM	Date	08-03-2017
Proj. No.	413/17		
Chckd	RM	Scale	1:250 @ A1
Dwg No.	TS 001		

Appendix B: Arboricultural Method Statement

Arboricultural Works

General

1.1 The following arboricultural works are required at the outset of the project and should be completed prior to any other works on site including clearance, establishment of offices and contractors compound, servicing or other groundworks. They will ideally be undertaken outside of the bird nesting season (March to August).

i. Remove G1, T2, T7, T10. (Some of the fruit trees might be transplanted)
ii. Remove T9, T12, H2, and part of H4 and G2.
iii. Undertaking pruning / coppicing to T1, T3, T4, T5, T8 and H1, H4.

All tree preparation works shall be undertaken by a competent and qualified arboricultural contractor conforming at all times to BS 3998:2010 and recognised best practice standards. The contractor will submit a detailed method statement for approval by the contract manager before commencing any site works.

1.2 Removal of trees.

The trees/shrubs/hedges will be carefully dismantled on site and stumps removed without damage to other trees or RPA's. All arisings shall be removed from site to the contractors approved tip unless otherwise specified. The contractor will make preliminary inspections to ensure that the works will not impact on protected wildlife as stipulated in the *Conservation of Habitats and Species Regulations 2010*. If protected species such as bats appear likely to be present and may be affected by the works the contractor shall coordinate the appropriate licence applications and appointment of qualified persons, in liaison with the client, before proceeding with the tree work. Leave the site tidy. Avoid tracking over garden areas in vehicles.

1.3 Site clearance.

Clearance of scrub and other unwanted vegetation is likely to require machines. Where such work is required near trees / hedges to be retained operators should work with care, working from outside the tree or hedge canopy line, dragging away with the bucket and avoiding any damage to vegetation to be retained. Never track within the RPA's. In very confined spaces such work should be undertaken manually with hand tools. The general existing ground levels should be retained and no more than 25mm of topsoil should be removed unless otherwise directed by the arboricultural consultant.

Tree Protection Works

Construction Exclusion Zones

1.4 Supply and erect fixed, rigid barriers as indicated on TPP 01 and described in BS 5837:2012 (or similar approved by the arboricultural consultant). The construction exclusion zone (CEZ) shall be clearly marked with an all-weather notice 'Construction Exclusion Zone – No Access'. The protective fencing shall be in place before the demolition works and groundworks commence.

1.5 The barrier fencing shall be maintained throughout the works. If for any reason works are required within the CEZ during the construction period the main contractor must seek advice from the arboricultural consultant before allowing such work to proceed.

Topsoil

1.6 The site masterplan includes new garden and planting areas that will need topsoil. It will be necessary to strip topsoil from construction areas (notably along the line of the new access road. Some topsoil should be suitable to retain on site for making good the new garden areas and should be protected from construction works throughout the building phases. The main contractor shall agree an area for soil storage with the arboricultural consultant that will not

impinge on the CEZ areas and can be safeguarded without contamination, waterlogging or movement during the construction period.

Soil Stripping / Soil Storage

1.7 Soil will ideally not be stored in mounds wider than 3m and higher than 1.5 metres. Store on clean ground (existing vegetation previously scraped away) and fence to keep construction works outside of the soil store. If building works are to continue for more than 6 months, keep soil stores clear of weed growth with a translocated herbicide treatment (eg glyphosate) at 3 month intervals.

1.8 **Imported Topsoil**

Not used.

1.9 **Ground Protection Works**

Ground protection will be required where RPA areas cannot be retained within a CEZ area (refer to plans). Ground protection allows access for building works whilst protecting the soil and potential root growth area. Remove organic material (eg grass,) from the ground without excavating more than 25mm of topsoil. If required, Make up levels with clean topsoil (not more than 150mm depth) to provide level ground. Cover the area with a layer of permeable geotextile, undertake any other levelling required with clean coarse sand and cover the area with scaffold boards - or a similar robust timber, metal or plastic tracking system. The purpose of these measures is to create a firm and safe base from which to undertake construction works (foundation construction / scaffold erection e.t.c) and to minimise compaction and contamination of the rpa soil zone. When clearing these ground protection measures at the completion of works, the goal will be to remove all waste arisings (mortar and other building residues) with the geotextile layer, and leave the underlying soil clean and uncontaminated.

1.10 **Root pruning**

Adjacent to building works where it is anticipated that minor incursions into the RPA of trees and hedges will be required for the construction of footings and service trenches, any roots that are uncovered will need to be carefully pruned. This will minimise the extent of damage and the potential for disease to affect the tree. Any exposed or damaged roots should be carefully trimmed so that the final wound is as small as possible and free from ragged torn ends e.t.c. When roots are exposed in trenching works – enter the trench and neatly cut the root off at the trench wall with a sharp, clean, saw, lopper or secateurs. Do not rip or strain the root, so damaging the root further into the rpa. Avoid loosening soil around the root which is likely to leave the root in an air pocket leading to desiccation and death of the root. Where trenches with roots are to remain open for more than an hour, any roots exposed by trenching should be protected from drying out, freezing or waterlogging during inclement weather. This is likely to require covering with a damp material (eg hessian or straw). Avoid contamination of roots or the soil around them with phytotoxic materials (eg cement or lime). Do not leave trenches open for more than 48 hours without a full root protection methodology agreed by the arboricultural consultant.

'No-Dig' Pavement Construction

1.11 The purpose of the 'no-dig' pavement construction is to protect the root zones of trees where pavements are proposed within the RPA of trees to be retained. The only areas where no-dig pavements may be required in this scheme is where an area of proposed parking is proposed on the western boundary. A provisional approach for construction is outlined below.

1.12 Surface strip: The top 50mm of existing vegetation/soil will be carefully removed from the area to be prepared – preferably with hand tools or a small machine. Any prominent surface roots with a diameter greater than 25mm shall be retained. Remove any arisings to the contractor's

off-site tip. The work shall be undertaken in suitable weather conditions (i.e. not when soils are frozen or saturated).

1.13 Geotextile membrane: A non-woven geotextile separating layer will be laid over the prepared ground (e.g. *Terram 1000* or similar approved). If required the ground shall be roughly levelled first by spreading coarse sand or fine soil.

1.14 Ground stabilising layer: A two dimensional ground stabiliser layer will then be laid e.g. a Tensar *TriAx* geogrid – www.tensar.co.uk) or a Tenax *LBO* geogrid - www.geosyn.co.uk) or similar approved, and this layer shall extend under proposed restraining edges and/or adjacent surfacing.

1.15 Retaining Edge: (Provisional). Retaining edges shall be a 50mm thick tanalised edging board with 50x50x300mm stakes. Adjoining soil levels within the root protection area must not be substantially raised to marry-up levels. (A maximum depth of 150mm of additional topsoil would be acceptable in localised areas).

1.16 Load bearing layer: To be specified by engineer in consultation with arboricultural consultant.

1.17 Pavement wearing course: To be specified by engineer in consultation with arboricultural consultant.

Miscellaneous works.

1.12 Service corridors had not been fixed at the time this report was prepared. Service corridors (above or below ground) must avoid the trees to be retained and their root protection areas. The arboricultural consultant must be immediately consulted should any plans for services, drainage works or alteration of soil levels be likely to affect the proposed construction exclusion zones around trees and hedges.

1.13 Proposed temporary locations for the site office, contractor parking, materials storage, and soil storage areas had not yet been fixed. Any layout that may impinge on the CEZ's must be agreed with the arboricultural consultant.

1.14 Cement and fuel storage, refuelling areas, concrete mixing areas, mixer washdown areas must be located away from CEZ's and the contractor must ensure that spillages and runoff is not allowed to contaminate retained topsoil or RPA's. No fires shall be permitted on site where flames might come within 10m of trees.

Landscape Works.

1.15 At completion of the main building phases and after the site has been cleared of all building waste and / or contaminated subsoil and in preparation for the landscape works, the tree protection barriers can be removed. Stored topsoil shall be moved and spread in suitable weather conditions (ie not when frozen or saturated) and utilised as per the landscape specification.

1.16 Landscape works carried out within the RPA areas must be undertaken with care, utilising hand tools where required and avoiding damage to tree roots. Tractor-mounted rotovators or large machines must not be allowed to cultivate or over-track the RPA's.

1.17 Strengthening and enhancement of the existing 'hedge' on the road front is recommended. A suggested approach would utilise a mixed native selection of transplants (1+2 / 600-900mm bare root stock) to complement the existing hedging. Suggested species are: 40% Crataegus monogyna (Hawthorn); 15% Cornus sanguinea (Dogwood), 15% Acer campestre (Field maple);

30% Fagus sylvatica (Beech). Coppice existing hawthorn, box, holly etc and remove weedy species (sycamore, ash, elder) and replace the Pyracantha.

1.18 A copy of the Tree Protection Plan and Arboricultural Method Statement must be made available to the landscape contractor and retained on site.

Monitoring Site Works.

1.19 A suitably qualified arboricultural consultant shall be retained throughout the construction period (including any defects liability or maintenance period) in order to:

- liaise with the construction team regarding tree protection matters and any changes to the design or construction management plan that may arise.
- confirm that tree protection works have been implemented properly and are maintained throughout the works.
- assist with programming of the no-dig construction works and their implementation.
- act as the clients representative in arboricultural matters when liaising with the LPA or any other stakeholders.

It will be necessary for the LPA to stipulate this work as a condition of consent if the tree officer requires ongoing reporting.

Appendix C: Terminology of information provided in the survey schedule.

1.1 **Tree Identification:** A sequential reference number has been given to each individual tree.

1.2 **Species** – Latin and common names are given.

1.3 **Principal dimensions:** The dimensions taken are:

- **Height**, estimated and expressed in metres (to nearest 0.5m).
- **Stem diameter** (in millimetres), obtained at 1.5m above ground level (or estimated where measurement is impractical). On sloping ground, the height is taken on the up-slope side. For irregular shaped stems the narrowest point is normally measured. For multi-stemmed trees (indicated by the letter 'M') an average diameter is calculated using criteria and formulae provided in BS5837:2012, Annex C. (To nearest 10mm)
- The **crown spread** is expressed in terms of the crown radii estimated at the four cardinal points (N,E,S,W) and given in metres.
- **Height above ground level** is expressed by two measurements – the height of the canopy above ground level (N,E,S,W), and the height on the stem where the first significant branches are attached.

Note that any estimated figures are given a '#' suffix.

1.4 **Life Stage:** The following age definitions are used in RMA surveys:

NP Newly planted: Estimated to have been planted within last 3 yrs.

YM Young Mature: (sometimes called *Early Mature or EM*). A tree estimated to be the first third of its expected life. Established young tree, normally of good vigour and still increasing in height, but beginning to spread laterally. Beginning to make an impact upon the local landscape & environment.

M Mature: (sometimes called *Middle Aged or MA*). A tree estimated to be in the second third of its expected life. Well-established, still vigorous but unlikely to get much taller, tending instead to fill out and increase spread. Bark may be beginning to crack & fissure.

LM Late-Mature: A tree estimated to be in the final third of its expected life. Fully mature with vigour declining. Likely to possess features that could be regarded as potential faults such as dead or collapsing branches, old wounds, etc. with safety related issues, but also likely to be of high amenity, ecological and potentially cultural value. LM trees can also sometimes be classed as *Ancient* (especially old for the particular species) or *Veteran* (a tree that has acquired the characteristics of old trees (hollows, dead wood, epiphytes etc) but is not necessarily very old for its species).

1.5 **Physiological Condition:** Essentially a snapshot of the general health of the tree based upon its general appearance, its apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress, etc. (Fungal *disease* may be included here but *decay giving rise to structural weakness* is recorded under 'Structural Condition' – see below):

Good Healthy bark, leaves, flowers, fruits – no obvious dead or dying growth.
Fair Indications of slight stress or minor disease (e.g. the presence of minor dieback or of epicormic shoot growth, chlorotic leaves, deficient growth of leaves flowers, fruit).
Poor Significant stress or disease noted; widespread dieback or dysfunctional areas of bark etc.
Dead The tree has no apparent signs of live regenerating material.

1.6 **Structural Condition:** Defects affecting the structural stability of the tree, including decay, significant dead wood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members). Classified as:

Good No obvious structural defects noted.
Fair Minor, potential or initial stages of defects
Poor Some significant defects likely to lead to failure of major branches or the entire tree in future years.
Severe Defects liable to cause significant failure or collapse imminently.

1.7 **Estimated remaining contribution:** An estimate of the time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued maintenance). We indicate by numbers 1-4 the BS5837 categories which are:

1. < 10 years; 2. 10 + years;
3. 20 + years; 4. > 40 years.

1.8 **Retention Category:** Trees are graded into categories **U, A, B** or **C**, based on criteria given in BS5837:2012 and summarised below. Categories A, B and C are further characterised by the use of sub-categories ~ where (i) refers to qualities of the tree of an arboricultural nature, (ii) indicates qualities concerned primarily with their situation within the landscape and (iii) refers to other values such as those of a cultural, historic or ecological nature.

Note: *This is NOT a health and safety classification or risk assessment. The classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.*

U UNSUITABLE TREES: Trees that cannot realistically be retained as living trees in the context of the current land-use for longer than 10 years. Dead, diseased, defective, irremediable specimens, that should be removed on grounds of sound arboricultural management; or trees that will be left unstable or unviable by other essential works; or poor quality specimens that are suppressing potentially better specimens.

A HIGH RETENTION VALUE: Important or valuable trees or groups of trees that are likely to make a substantial contribution to the locality for 40 years or more.

i. Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g. dominant trees or trees within an avenue, etc.)

ii. Trees, groups or woodlands of particular screening benefit in relation to views into and out of the site; those of notable visual importance (including avenues & other features that may be assessed collectively as groups)

iii. Trees, groups or woodlands with significant conservation, historical, commemorative or other value (e.g. veteran trees)

B MODERATE VALUE: Trees or groups of trees likely to make a significant contribution for in excess of 20 years.

i. Good specimens but showing some impairment (e.g. remediable defects, minor storm damage or poor past management) that stops them being 'A' class.

ii. Numbers of trees, groups or woodlands forming distinct landscape features that are of higher collective value than they would warrant as individuals (e.g. non category A trees within avenues). Also trees internal to the site that are of little visual impact within the wider locality.

iii. *Trees, groups or woodlands with clearly identifiable conservation or other cultural values and benefits.*

C MINOR VALUE: Trees or groups of rather low quality, but capable of remaining for at least 10 years, e.g. until new planting is established. *Also* young trees (below 150mm dia) whose loss would be easily mitigated by new planting, or that could be transplanted.

i. *Trees not qualifying in categories A or B.*

ii. *Secondary specimens within groups or woodlands whose loss would not greatly diminish their landscape value; trees providing only minor or short term screening benefit*

iii. *Trees with limited or no conservation or other cultural value.*

1.9 **Root Protection Area (RPA):** The RPA represents an area considered likely to contain sufficient root volume to ensure survival of the tree if works occur around it. The RPA is calculated as an area with a radius twelve times the effective stem diameter of the tree at 1.5m above ground level. For multistem trees BS5837:2012 has introduced new formulae based on the number of stems. For two to five stems take each stem diameter, square, add the sums together and square root. For trees with more than five stems take an average diameter, square, multiply by number of stems and square root. Therefore, for a multistem tree with 6 stems, average of 150mm diameter each:

150mm x 150mm x6 = 135,000 √ = 367 x 12/1000 = an RPA circle of 4.4m

Further guidance on measurement of tree stems and root protection areas is provided in BS5837:2012 as Annex C and Annex D.

1.10 The RPA of each tree on a site is used to determine the ***Construction Exclusion Zone (CEZ) –*** an area that should be entirely protected from construction works, storage, compaction or contamination throughout the construction period. The CEZ should be protected by sturdy temporary fencing as defined in BS5837:2012 and detailed in a Tree Protection Plan method statement.

1.11 **Notes / Preliminary Management Recommendations:** This column allows for any further field notes and preliminary recommendations for works that are considered necessary to ensure immediate site safety or where further detailed survey investigation is recommended. This might include wildlife surveys.

1.12 **Arboricultural Impact Assessment Scale:** A subjective assessment based on evaluation of the following thresholds: *Slight adverse* – likely to cause minor impacts to the health or other values of the tree (such as amenity and ecological) that the tree is likely to recover from naturally; *Moderate adverse* – notable impacts to the tree which could lead to a long term decline in health or other notably reduced values; *Major adverse* – impacts that are likely to lead to decline and death of the tree. *Slight beneficial* – could have some benefits for the tree or some of its values; *Moderate beneficial* – likely to enhance the health and values of the tree over time; *Major beneficial* – expected to greatly prolong the life of the tree and/or significantly enhance its other values.