



Alan Motion Tree Consulting Ltd  
Chartered Forester, Arboricultural Consultant



## Tree Survey and Arboricultural Constraints

### HATTON MAINS, DALMAHOY

For

### INVERDUNNING (HATTON MAINS) LTD

09 October 2018



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## **1. GENERAL INTRODUCTION**

- 1.1. Alan Motion Tree Consulting Ltd has been instructed to carry out a tree survey for Inverdunning (Hatton Mains) Ltd, as part of masterplanning for land at Hatton Mains, Dalmahoy. This report relates to 57 trees within the survey boundary shown on the plans appended to this document. The report describes the extent and condition of tree cover within and immediately adjacent to the site and highlights the above and below ground constraints presented by existing tree cover.
- 1.2. The survey has been carried out in accordance with BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations." Small trees of less than 10cm stem diameter, and areas of undergrowth are described in general terms but are not recorded in detail, except where their condition or presence merits particular attention. Within larger groups and woodlands, trees are described collectively except where dominant specimens merit individual recording.

## **2. STANDARD CONDITIONS RELATING TO TREE SURVEYS**

- 2.1. Tree surveys are undertaken from ground level using established visual assessment methodology. This is primarily a survey to assess the general health, condition, value and life expectancy of existing trees as part of the planning and design process. The report should not be read as a detailed tree safety or risk assessment.
- 2.2. Where obvious defects are noted and further investigation is required, either by climbing or the use of specialised decay detection equipment, this will be identified in the report.
- 2.3. The findings and recommendations contained within this report are valid for a period of twelve months. Trees are living organisms subject to change - it is strongly recommended that they are inspected at regular intervals for reasons of safety.

- 2.4. Whilst every effort has been made to detect defects within the trees inspected, no guarantee can be given as to the absolute safety or otherwise of any individual tree. Extreme climatic conditions can cause damage to apparently healthy trees.
- 2.5. The findings and recommendations contained within this report are based on the current site conditions. The construction of roads, buildings, service wayleaves, removal of shelter, and alterations to established soil moisture conditions can all have a detrimental effect on the health and stability of retained trees. Accordingly, a re-inspection of retained trees is recommended on completion of any development operations.
- 2.6. This report has been prepared for the sole use of Inverdunning (Hatton Mains) Ltd and their appointed agents. Any third party referring to this report or relying on information contained within it does so entirely at their own risk.

### **3. GENERAL DESCRIPTION**

- 3.1. The site is an area of agricultural land lying to the north of the A71 at Dalmahoy, near Ratho, extending to 58.5 hectares. Dalmahoy Road bisects the site north-south, and the Ratho Park hotel is located on the southern boundary east of Dalmahoy Road.
- 3.2. A woodland shelterbelt forms the eastern boundary, and a small watercourse runs along the north. Land to the north and west is in arable production.
- 3.3. Trees are confined to field boundaries. The eastern shelterbelt contains mature specimens of beech and ash, with occasional Scots pine and oak. There are two good specimens of oak on the western boundary within a hawthorn hedgerow. To the west of Dalmahoy Road along the northern boundary there are a few specimens of ash and elm of poorer quality within an unmaintained hedgerow along the line of the watercourse. Further poor stems of ash are present along the western Dalmahoy Road verge.

3.4. Field boundaries are marked by maintained hawthorn hedgerows. Some young tree planting is present within hedgerows along the western verge of Dalmahoy Road, and along the central east-west hedgerow in the west of the site.

3.5. Mature trees are present within the grounds of the Ratho Park Hotel and along the eastern edge of St Mary's Hall.

#### **4. STATUTORY PROTECTION**

4.1. The trees within the site are not subject to any statutory protection.

#### **5. TREE SURVEY AND ANALYSIS**

5.1. A visual assessment has been carried out from the ground level of 57 trees within and immediately adjacent to the site. The location of the trees is plotted on the attached Tree Survey Plan, and their condition and any recommended remedial works are recorded in detail in Table 2 attached at the end of this document. This records relevant details in accordance with the recommendations contained in BS 5837:2012, and includes:

- Tree number (Tree tag number where used, or plan reference number)
- Tree species (common name)
- Stem diameter at breast height (1.5m above ground level)
- Canopy spread in metres (average)
- Tree height (estimate in metres)
- Crown height (clearance to lowest branches in metres)
- Tree Condition Category
- General condition (good, fair, poor, dead)
- Age (Young, Early-mature, middle-aged, mature, over-mature, veteran)
- Whether single or multi-stemmed

- Estimated Remaining Contribution in years
- Comments and observations on the overall health and condition of the tree, highlighting any problems or defects
- Recommended remedial works, where necessary
- Impacts of any development proposals

5.2. Where appropriate, recommendations have been made on necessary remedial action such as tree surgery or felling. This is specified where there is likely to be significant risk to safety or tree health, or to abate a nuisance. The recommendations are general in nature and do not constitute a detailed work specification. Specifications, where required, can be provided to accord with the guidance and recommendations contained in BS3998:2010, "Tree work – Recommendations." Any recommendations are made on the basis that they are undertaken by a suitably qualified arboricultural contractor.

5.3. The trees within the site have been tagged with round 4-digit tags ranging from 0963-0985. Trees in adjoining land are not tagged, but those within the eastern shelterbelt are recorded by number 1-26 on the plan and schedule. Smaller hedgerow trees, and those within private gardens, are indicated on the accompanying plan but are not recorded in detail within the schedule. Closely-grouped trees of similar character may be referred to collectively as a group with a single tag number.

5.4. Trees have been categorised in accordance with the guidelines contained in BS 5837 as follows:

9 Category A

17 Category B,

21 Category C

7 Category U.

5.1. For details of the tree categorisation, refer to Table 1.

5.2. The purpose of the tree categorisation method is to identify the quality and value of the existing tree stock, allowing informed decisions to be made concerning which trees

should be removed or retained in the event of development occurring. The presence of trees and their quality is only one factor in the design and planning process, and the retention of good quality, healthy trees may be inappropriate in the context of wider planning and development considerations.

- 5.3. Young trees of <15cm stem diameter, and trees in Category C with limited safe life or poor health and/or structure, are not normally considered to be a significant constraint on development.

## 6. CONSTRAINTS POSED BY EXISTING TREES

- 6.1. In order to minimise the risk of long-term damage to trees from construction operations, particular care is required to protect them from physical damage. Significant damage can be caused to root systems by ground level changes; soil compaction; contamination from oils and cement; and changes in soil moisture content. For these reasons, BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' sets out a recommended Root Protection Area (RPA) in m<sup>2</sup> based on the stem diameter of the tree. The RPA represents the anticipated below-ground constraints presented by trees within the proposed development area.
- 6.2. Tree roots rarely follow expected patterns, and the RPA should be taken as a guide. It may be adjusted where restrictions to normal rooting patterns suggest that root growth will be minimal (*e.g.* adjacent to walls, sealed surfaces, watercourses, or existing utility trenches). In addition, soil type, tree species, age, vigour, canopy volume and micro-climate will all impact on root growth and the ability of individual trees to tolerate changes in rooting environment.
- 6.3. Above-ground constraints include ultimate tree height and canopy spread which will affect both physical presence and daylight availability to any proposed structures. Species characteristics, such as evergreen or dense foliage, potential for branch drop, fruit fall, *etc*, will all have an influence on the potential for development of the site.

Easements for underground and above-ground apparatus; road safety and visibility; or the proposed end use of space adjacent to retained trees also needs to be fully considered.

- 6.4. Where it is determined that trees should be retained because of their quality and amenity importance, the impact of proposed designs must be assessed against the requirements of the tree, taking into account the RPA and all other relevant factors. Whilst the RPA should generally be protected where possible, any proposed incursion into the RPA should comply with the recommendations of BS5837, Sections 6 and 7. Site-specific method statements may be required to accompany such proposals.

## **7. ARBORICULTURAL IMPACT ASSESSMENT**

- 7.1. No detailed development proposals have been considered as part of this report.
- 7.2. The Purpose of this report is to assess the condition and quality of trees within and adjacent to the site as part of the masterplanning process. The detailed recording of trees allows appropriate exclusion zones to be defined on the basis of tree quality, and the constraints as noted above.
- 7.3. The eastern shelterbelt would require a minimum buffer zone of 10m between the boundary and any development. Because the surrounding land has been cultivated for many years, root growth into the site is not expected to be significant. The shelterbelt is wind-firm, and the risk of trees collapsing into the site is minimal. A degree of shading can be expected during morning periods throughout the year, and a 10m buffer will be sufficient to minimise the impact of this.
- 7.4. Trees within the grounds of Ratho Park are growing within an area of car parking at a higher ground level than the site. A 10m buffer here will be sufficient to minimise shading protect trees from any potential damage.



- 7.5. Trees along the northern boundary and watercourse are of low quality and should not be seen as a constraint on any future development. Protection of the watercourse from disturbance will be more relevant.
- 7.6. The two oak trees on the western boundary, and line of mature ash trees running west from Dalmahoy Road, could be retained. Appropriate exclusion zones are indicated.
- 7.7. Trees within the west verge of Dalmahoy Road are in poor condition and a few are unsafe. They should be removed, and are not a constraint.
- 7.8. Appropriate exclusion zones are indicated on the accompanying plan.




<b>TABLE 1 BS 5837:2012 TREE CATEGORISATION</b>				
<b>Category and definition</b>	<b>Criteria</b>			<b>Identification on plan</b>
<b>Category U</b> 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	<ul style="list-style-type: none"> <li> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U Category trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li> <li> Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li> Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li> </ul> NOTE : <i>Category U trees can have existing or potential conservation value which it might be desirable to preserve.</i>			<b>Red</b>
<b>TREES TO BE CONSIDERED FOR RETENTION</b>				
<b>Category and definition</b>	<b>Criteria – Subcategories</b>			<b>Identification on plan</b>
	<b>1 Mainly arboricultural values</b>	<b>2 Mainly landscape values</b>	<b>3 Mainly cultural values, including conservation</b>	
<b>Category A</b> <b>Trees of high quality</b> with an estimated remaining life expectancy of 40 years	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural features and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	<b>Green</b>
<b>Category B</b> <b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years	Trees that might be included in Category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention beyond 40 years; or trees lacking the special quality necessary to merit the Category A designation	Trees present in numbers, usually as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value	<b>Blue</b>
<b>Category C</b> <b>Trees of low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them a greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	<b>Grey</b>

TABLE 2 TREE SURVEY SCHEDULE

Tag No	Species	DBH	N	S	E	W	Ht	C.Ht	BS Cat	Condition	Age	Stems	ERC	Comments	Recommendations
1	Sycamore	0.70	2	5	6	4	15	3	A2	Good	M-A	1	>40	Edge of woodland in adjacent land. Wood consists of dominant edge trees with some e-m underplanting.	
2	Sycamore	0.55	2	3	2	4	16	3	A1	Good	M-A	1	>40		
3	Ash	0.50	3	3	4	5	19	4	B1	Good	M	2	>40		
4	Ash	0.40	3	2	4	4	8	2	U	Poor	M-A	1	<10	Significant cavity/decay in stem. Inonotus.	Fell if target introduced.
5	Beech	0.85	5	4	5	6	17	2	C1	Fair	M	1	10 to 20	Break-out wound at 6m. Lost main scaffold limb to E. Crown unbalanced W, weakened.	
6	Ash	0.60	2	5	3	5	18	3	B1	Good	M	1	20 to 40	Canopy 1-sided. Beech to N collapsed, canopy unbalanced.	
7	Beech	1.10	8	8	9	7	19	3	B1	Fair	M	1	20 to 40	Low vigour, poor shoot extension, thin foliage. Branch snags from past pruning/storm damage. Recent storm damage, low limb S snapped. Canopy thin.	
8	Ash	0.50	4	6	3	5	15	3	B1	Good	M-A	1	20 to 40		
9	Ash	0.60	3	5	4	4	16	2	B1	Good	M-A	1	20 to 40		
10	Ash	0.30	2	1	4	2	9	2	C1	Fair	M-A	1	10 to 20		
11	Ash	0.35	4	3	4	4	11	2	B1	Fair	M-A	1	20 to 40		
12	Downy birch	0.30	4	2	3	3	10	2	C1	Fair	M-A	3	20 to 40		
13	Downy birch	0.35	3	2	2	3	7	2	C1	Fair	M	2	20 to 40		
14	Ash	0.70	5	5	5	6	17	2	C1	Poor	M	1	10 to 20	Low vigour, poor shoot extension, thin foliage.	
15	Beech	0.70	3	5	5	6	13	2	C1	Poor	M	1	10 to 20	Low vigour, poor shoot extension, thin foliage.	
963	Oak	0.45	4	3	3	4	10	1	A1	Good	M-A	1	>40	On field edge.	
16	Scots pine	0.40	2	3	3	3	10	5	B1	Good	M-A	1	>40		
17	Beech	1.25	7	9	9	5	22	1	C1	Fair	M	1	20 to 40	Minor cavity/decay in stem.	Monitor decay at regular intervals.
18	Beech	1.05	6	4	6	6	21	1	B1	Good	M	1	20 to 40		
19	Oak	0.30	3	2	1	3	7	1	C1	Fair	E-M	1	>40		
20	Beech	0.80	6	6	8	7	17	3	U	Poor	M	1	<10	Significant cavity/decay in stem. Stem hollow. Cavities used as nest sites.	

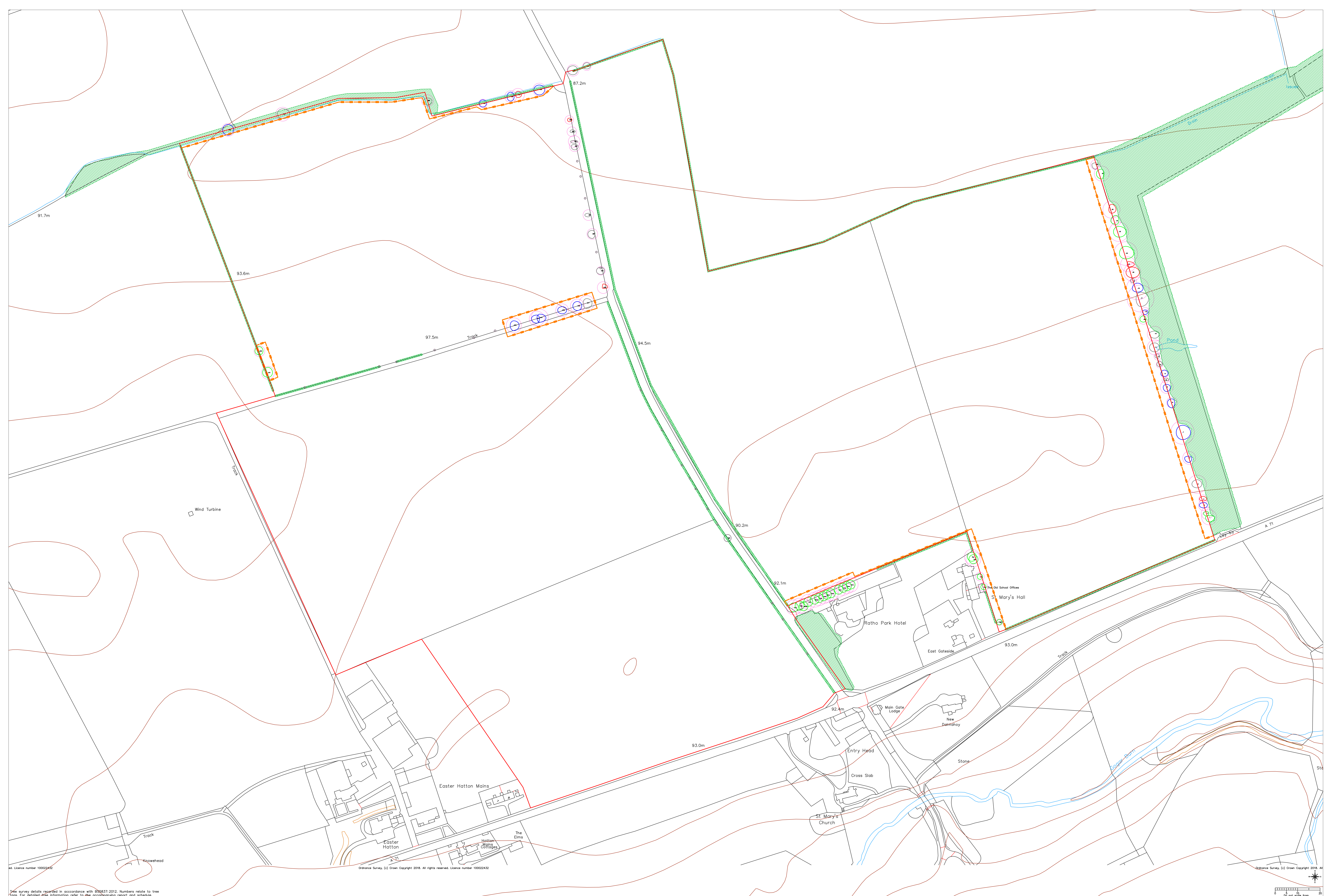
Tag No	Species	DBH	N	S	E	W	Ht	C.Ht	BS Cat	Condition	Age	Stems	ERC	Comments	Recommendations
21	Beech	0.70	3	3	7	1	20	10	U	Poor	O-M	1	<10	Significant decay in buttress. Significant cavity/decay in stem. Base completely hollow, high risk of collapse.	Fell if target introduced.
22	Beech	1.10	8	6	9	7	22	1	A1	Good	M	1	>40		
23	Beech	0.90	6	6	8	6	19	1	A1	Good	M	1	>40		
24	Beech	0.45	6	4	3	6	11	1	A1	Good	M-A	1	>40		
25	Beech	0.80	6	4	5	3	15	1	U	Poor	O-M	1	<10	Significant decay in buttress. Significant cavity/decay in stem. Kretzschmaria. Lost main top.	Fell if target introduced.
26	Sycamore	0.70	5	6	2	6	16	1	A1	Good	M	1	>40		
964	Ash	0.45	2	5	3	4	11	2	C1	Poor	M-A	1	10 to 20	Minor cavity/decay in stem. Minor crown dieback.	
964	Ash	0.40	4	3	4	4	7	1	C1	Fair	M-A	1	20 to 40	Restricted rooting due to ground conditions. Low vigour, poor shoot extension, thin foliage. Small hedgerow tree amongst hawthorn, on edge of ditch.	
965	Elm	0.55	5	5	5	6	10	1	C1	Fair	M-A	5	10 to 20	Restricted rooting due to ground conditions. Minor crown dieback. On edge of ditch	
966	Ash	0.60	5	6	6	6	13	1	B1	Fair	M	1	20 to 40	Restricted rooting due to ground conditions. Minor cavity/decay in stem.	
967	Ash	0.60	4	3	4	3	15	1	U	Poor	M	1	<10	Major dead wood (>50mm dia). Minor crown dieback. Cankers throughout.	
968	Ash	0.55	5	5	4	4	16	4	B1	Fair	M	1	20 to 40	Restricted rooting due to ground conditions.	
969	Ash	0.40	4	4	4	4	13	1	B1	Fair	M-A	1	20 to 40	Restricted rooting due to ground conditions.	
969	Ash	0.55	3	5	5	4	11	1	C1	Poor	M	1	10 to 20	Restricted rooting due to ground conditions. Low vigour, poor shoot extension, thin foliage. Minor crown dieback.	
969	Ash	0.65	6	5	8	6	15	2	C1	Poor	M	1	10 to 20	Restricted rooting due to ground conditions. Longitudinal crack in main stem. Minor crown dieback.	

Tag No	Species	DBH	N	S	E	W	Ht	C.Ht	BS Cat	Condition	Age	Stems	ERC	Comments	Recommendations
969	Ash	0.60	6	6	6	6	15	1	B1	Good	M	1	20 to 40	Restricted rooting due to ground conditions.	
970	Oak	0.50	5	4	4	5	11	3	A1	Good	M-A	1	>40	Good open-grown tree.	
971	Oak	0.60	6	5	5	6	9	3	A1	Good	M-A	1	>40	Good open-grown tree.	
972	Ash	0.70	5	6	6	4	16	6	B1	Good	M	1	20 to 40		
973	Ash	0.70	4	5	3	6	15	4	B1	Good	M	1	20 to 40		
974	Ash	0.80	4	5	7	3	17	5	B1	Good	M	1	20 to 40		
975	Ash	0.60	4	4	5	5	14	4	B1	Good	M	1	20 to 40		
976	Ash	0.65	5	5	5	5	15	4	B1	Fair	M	1	20 to 40	Low vigour, poor shoot extension, thin foliage.	
977	Ash	0.70	5	6	6	4	14	4	C1	Poor	M	1	10 to 20	Minor cavity/decay in stem. Numerous cankers and small cavities on stem and limbs.	
978	Ash	0.55	4	1	5	1	11	6	U	Poor	M-A	1	<10	Significant dieback, stag-headed. Major dead wood (>50mm dia). Risk of branch drop onto road.	Fell for safety
979	Ash	0.40	4	4	4	5	10	3	C1	Poor	M-A	1	10 to 20	Minor crown dieback.	
980	Ash	0.50	4	5	3	5	13	3	C1	Poor	M-A	1	10 to 20	Minor crown dieback. Major dead wood (>50mm dia). Dead branches over road.	Complete dead-wooding.
981	Ash	0.50	2	2	2	4	11	4	C1	Poor	M-A	1	10 to 20		
982	Ash	0.50	2	4	4	4	12	4	C1	Fair	M-A	1	10 to 20	Minor cavity/decay in main scaffold limb.	
983	Ash	0.55	1	2	4	4	12	4	C1	Fair	M-A	1	10 to 20		
984	Ash	0.45	2	1	4	2	10	5	C1	Poor	M-A	1	10 to 20	Minor crown dieback. Poor crown structure.	
985	Ash	0.40	2	2	3	2	8	3	U	Poor	M-A	1	<10	Significant cavity/decay in stem.	Fell.
985	Ash	0.35	4	4	4	4	8	2	C1	Fair	E-M	1	20 to 40		

## KEY TO TREE SURVEY SCHEDULE

No	Number as shown on survey plan (refers to tree tags where used)								
Species	Common name								
DBH	Stem Diameter at Breast Height, measured at 1.5m above ground level. Diameter measured in 0.05m bands and <b>rounded up</b> to next 0.05m.								
Canopy N S E W	Canopy radius in metres to north, south, east & west (survey drawing shows actual canopy radius at 4 cardinal points).								
Ht	Approximate tree height in metres								
C Ht	Crown height, indicating clearance from ground level to lowest branches, estimated in metres								
BS Cat	British Standard 5837:2012 tree categorisation (See Table 1)								
Condition	General overall description of condition: <table> <tr> <td>Good:</td> <td>Healthy tree with no major defects Trees with significant safe life expectancy Trees of good shape and form for the species</td> </tr> <tr> <td>Fair:</td> <td>Healthy trees with minor defects Trees with moderate safe life expectancy Trees of average shape and form for the species</td> </tr> <tr> <td>Poor:</td> <td>Trees with significant defects Trees with a limited safe life expectancy Trees of low vigour, stressed, in decline Trees of poor shape and form, suppressed, structurally weak</td> </tr> <tr> <td>Dying/Dead:</td> <td>Dead, dying, unsafe or dangerous Trees with little or no safe life expectancy</td> </tr> </table>	Good:	Healthy tree with no major defects Trees with significant safe life expectancy Trees of good shape and form for the species	Fair:	Healthy trees with minor defects Trees with moderate safe life expectancy Trees of average shape and form for the species	Poor:	Trees with significant defects Trees with a limited safe life expectancy Trees of low vigour, stressed, in decline Trees of poor shape and form, suppressed, structurally weak	Dying/Dead:	Dead, dying, unsafe or dangerous Trees with little or no safe life expectancy
Good:	Healthy tree with no major defects Trees with significant safe life expectancy Trees of good shape and form for the species								
Fair:	Healthy trees with minor defects Trees with moderate safe life expectancy Trees of average shape and form for the species								
Poor:	Trees with significant defects Trees with a limited safe life expectancy Trees of low vigour, stressed, in decline Trees of poor shape and form, suppressed, structurally weak								
Dying/Dead:	Dead, dying, unsafe or dangerous Trees with little or no safe life expectancy								
Age	Age class (Young, Early-mature, Middle-Aged, Mature, Over-Mature, Veteran)								
Stems	Number of stems from below 1.5m, used to determine the appropriate Root Protection Area.								
ERC	Estimated Remaining Contribution in years, based on species, age, physiological condition and environmental factors.								
Comments	Specific comments on any observed defects within the root zone or affecting visible buttress root system; on the main stem up to and including the point of the first main fork; and affecting main scaffold branch system or secondary branch structure. Will be left blank where no defects are noted and growth characteristics are normal								
Recommendations/Impacts	Description of any recommended remedial tree work operations required to ensure safety or for cultural reasons. Or the impact of current designs or development proposals on the tree and required works to accommodate the proposals. General description of works, not a detailed tree work specification. Any recommended works should be carried out in accordance with BS3998:2010 <i>Tree work – Recommendations</i> .								





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CLIENT: Inverrunning (Hatton Mains) Ltd  
 PROJECT: Hatton Mains, Dalmeahoy  
 DRAWING TITLE: Tree Survey as existing  
 DRAWING NO: TS-01  
 DATE: 9-10-18 SCALE: 1:1250 at A0 REV:

- T995 TREES CATEGORY A
- T995 TREES CATEGORY B
- T995 TREES CATEGORY C
- T995 TREES CATEGORY U
- WOODLAND
- HEDGEROW
- ROOT PROTECTION AREA  
BS5837:2012 S4.6.
- CONSTRUCTION EXCLUSION  
ZONE PROTECTIVE FENCE

