BNTW - SCOTLAND

6 WESTBANK

AUCHTERMUCHTY

FIFE

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BS:5837 Tree Survey, at, **Land at Kirknewton GR: NT 10322 64907**

31/08/25

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Land at Kirknewton GR: NT 10322 64907

1 INTRODUCTION

BS:5837 Tree Survey, .

Instructions

1.1 We have been instructed by Sophia Cockell, SLR Consulting Limited3rd Floor, Summit House, 12 Red Lion Square, London, United Kingdom,WC1R 4HQ, to carry out an assessment of the tree cover within a specified area of land (approx 0.151 ha) and carry out a BS:5837 Arboriculture Survey.
Survey area was 30m either side of an intersecting access track, into the fields to the East.

Land at Kirknewton GR: NT 10322 64907

A Solar farm development, on the site is under consideration and our observations and advice on the condition of the trees are required to assist with the planning process.

Documents Supplied

1.2 We have been supplied with the following documents:-

- a partial digital plan for the area showing the extent of survey area and the woodland strip extent, adjacent to the development site.

Site Visits

1.3 We carried out a ground level, visual inspection of the trees on the 28th August 2025, when the weather was clear and dry, with occasional showers..

All arboricultural information contained in this report was gathered in the course of this visit.

2 GENERAL SITE DESCRIPTION

2.1 The specified survey area (0.151 ha), comprises of a woodland strip that runs NW - SE for approximately 600m. The Western elevation is bounded by "Leyden Road", a busy "C" class road with agricultural fields (both grazing & arable) to the North, East and South aspects, with an elevation of 180m approx. Soil types are predominately imperfectly drained gleys (skeletal in places), over reddish-brown till derived from shales, sandstones, cementstones and coals of the Carboniferous age. Soil depth appears to be shallow.

Historically, the woodland strip is classed as LEPO (Long established of Plantation Origin) approximating to 1850 and can be estimated as second or potentially a third rotation crop. Current conifer trees are approximately 45 - 55 years old.

3 THE TREES

Scope of Tree Survey

3.1 All trees shown on the supplied survey plan within the specified survey area were included in the tree survey.

Tree Assessment Methodology

3.2 The tree survey was carried out in accordance with the the requirements of section 4 of BS5837: 2012 "Trees in relation to design, demolition and construction - Recommendations". The trees were assessed to establish their general condition and their suitability for retention within any future development of the site. They were visually inspected and assessed from ground level as far as access and conditions allowed. No climbing or specialist investigations were undertaken.

3.3 Detail on the individual trees assessed is given in the survey schedule attached at Appendix 1. The schedule has been prepared to accord with sections 4.4, 4.5 and 4.6 of BS 5837: 2012 and gives the following information : -

- **Tree number** – The trees are numbered in accordance with the Tree Survey Plan attached at Appendix 2.
- **Species** – Given by the common name.
- **Height** – The estimated height, informed by clinometer readings where space and conditions allowed.
- **Crown radius** – Where the crowns are balanced, an average figure is given. Where crowns are asymmetrical, the radii to the four compass points are given.
- **Stem diameter** – Measured using calibrated tape at approximately 1.5 metres above ground level where space and conditions allowed, otherwise estimated. For multi-stemmed trees, the diameter of the component stems is given. Where the form of the tree made such measurements unrepresentative, the diameter at the base of the tree is given.
- **Height of crown development** – The height, above adjacent ground level, at which the crown develops (i.e. the height of the first major branches).
- **Age** - Trees are categorised as Y = Young, MA = Middle-Aged, EM = Early mature, M = Mature or OM = Over-mature (i.e. senescent and declining).
- **Physiological condition** – An assessment of the overall health and vitality of the tree, given as Good, Fair, Poor or Dead.
- **Comments** – A brief description of the tree's form, along with details of any clearly visible decay, fungal infection or physical defects.
- **Preliminary management recommendations** – Description of any necessary or desirable surgery works which should be carried out prior to development.
- **Estimated remaining contribution** – The estimated future safe life expectancy in years. These are given as <10, 10 – 20, 20 – 40, and 40+.
- **Category** - To indicate the relative value of individual trees, they are placed in categories suggested in British Standard 5837: 20012. These are: -
  A - Trees of high quality and value : Those in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
  B - Trees of moderate quality and value : Those in such a condition as to be able to make a significant contribution (a minimum of 20 years is suggested).
  C - Trees of low quality and value : in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested).
  U - Trees for removal. Trees which are unsuitable for retention within a development context as they are dead, dying, structurally compromised or otherwise have a future safe life expectancy of less than 10 years.
- **RPA and Radius**– The root protection area (RPA) as given in Annex D of BS5837:2012 calculated using the formulas given at 4.6.1 of BS 5837: 2012. This is the recommended area around the tree in m^2 within which no construction, excavation, soil stripping, levels changes or other potentially harmful activities should take place unless appropriate precautions or techniques are employed to avoid root damage. This area should be protected by fencing for the duration of any development works to avoid damage to the root system.

Limitations of Survey

3.4 The descriptions of the trees given in the attached survey schedule reflects their condition on the date the survey was undertaken. However, trees are living organisms which can be subject to change in a relatively short period of time due to the effects of pests, diseases and storms.

It is therefore recommended that they are inspected on a regular basis for safety reasons, particularly after major storms.

Summary of Tree Survey

3.5 A total number of 78 trees and 2 groups were included in the survey within the development envelope and the ownership boundary.

The total number of each category recommended in Table 1 of BS5837:2012 is given below:-

Category A Trees	- Nil
Category B Trees	- Nil
Category C Trees	- 29 trees
Category U Trees	- 49 trees & 2 groups (7stems)

3.6 Trees within the development envelope are in general, middle aged and in poor to fair condition. There is a high level of dead and windblown trees within the woodland strip and it can be assumed that the stand is reaching terminal height in regard to wind exposure and tree root retention.

3.7 There are 85 trees, all of which are "U &C" class trees which are not an impediment to development, although under Silviculture criteria, the are should be partially cleared and replanted. There are a number of windblow areas surrounded by trees, it can be anticipated that the number of windblown trees will increase as the created gaps will exacerbate wind vortex.

3.8 Trees T8 & T48 are Common Beech ("U" category trees) both of which have serious defects (severe basal decay) resulting in their downgrade to the lowest category.

3.9 There are "No" trees of significance within the development envelope as it can be assumed that the stand has reached terminal height and the number of fallen/defective/dead trees.

4.0 Summary

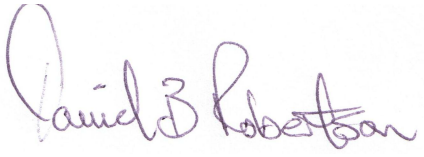
4.1 There are No trees of significance within the prescribed survey area/development boundary ie 30m either side of the track.

4.2 It can be concluded that the Woodland strip is reaching terminal height, due to thin soils , direct planting and high wind exposure on this thin strip.

4.3 There are 78 trees and 2 groups (7 stems) all of which are "U" and "C" category trees which are not an impediment to development. The tree impact assessment would give a good indication of Compensatory tree planting numbers required.

4.4 It would be recommended that the woodland strip is felled and replanted , whether or not the development proceeds or not.

4.5 The Woodland is classed as "LEPO" which is an established planted site which is completely separate from "Ancient Woodland" which is natural/remnants of native woodland and are identified on the "Roy" maps of 1740. Ref Appendix 4



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Appendix 1

Tree Survey Schedule

Tree Number	SPP	Species	Height	N	E	S	W	Stem Diameter (m)	Age Class	Physiological condition	SS F AT	SSB AT	Comments	Preliminary management recommendations	Estimated remaining contribution (years)	Category	RPA Radius	RPA (m2)
T1	**SS**	Sitka Spruce (Picea sitchensis)	18	2	2	2	2	300	MA	Fair			Stand of commercial conifers on gley soil, direct planting with surface rooting. Species mix comprises of mainly Sitka spruce with limited numbers of Scots pine and occasional beech trees. . Trees are currently subject to silviculture /thinning suppression and have a high degree of wind blow present, with some trees showing signs of root lift. Stand height is between 13 – 18.1m ,so it can be assumed that the stand is reaching terminal height and will blow over in the short to medium term. There is a high degree of Green Spruce Aphid present (Elatobium abietinum) which will be contributing to defoliation of crowns. Trees would appear to be surface planted on gley soils of varying depth on slope.	It would be prudent, in light of the amount of Wind blown trees present to consider a partial clearfell with replant.	10 -20	**C**	3.6	40.7
T2	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	490	MA	Fair			Large edge tree	monitor tree health and condition	10 -20	**C**	5.9	108.6
T3	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	210	MA	Fair			Suppressed tree /whip	Fell remove	5 -10	**U**		
T4	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	570	MA	Fair			tree with thin upper crown	monitor tree health and condition	10 -20	**C**	6.8	147.0
T5	**SP**	Scots Pine (Pinus sylvestris)	9	1	1	1	1	130	MA	Poor			Suppressed tree /whip	Fell remove	0 -5	**U**		
T6	**SP**	Scots Pine (Pinus sylvestris)	9	2	2	2	2	210	MA	Fair		8	into large crown, s bend /kink in higher stem.	monitor tree health and condition	10 -20	**C**	2.5	20.0
T7	**SP**	Scots Pine (Pinus sylvestris)	13	1	1	1	1	280	MA	Poor			Suppressed tree /whip	Fell remove		**U**		
T8	**Be**	Beech (Fagus sylvatica)	12	4	4	4	4	490	MA	Fair	7	2.5	possibly old hedge remnants , basal decay / cavity at 1.5 m	Fell remove	5 -10	**U**		
T9	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	180	MA	Poor			whip, with lean , poor form	Fell remove	5 -10	**U**		
T10	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	290	MA	Fair				monitor tree health and condition	10 -20	**C**	3.5	38.0
T11	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Fell remove	Fell remove	0 -5	**U**		
T12	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	WB			Windblown tree	Fell remove	0 -5	**U**		
T13	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Dead/ dying,	Fell remove	0 -5	**U**		
T14	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	320	MA	Fair			single stem with slight kink in stem, thin crown, has T12 WB leaning into crown. Anticipate root lift.	Fell remove	5 -10	**U**		
T15	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	WB			Fell remove	Fell remove	0 -5	**U**		
T16	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	WB			Fell remove	Fell remove	0 -5	**U**		
T17	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	WB			Fell remove	Fell remove	0 -5	**U**		
T18	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	380	MA	Fair			single stem adjacent to WB area, anticipate WB	Fell remove	5 -10	**U**		
T19		Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Poor			Dead/ dying, exposed roots ,root lift, v thin crown	Fell remove	0 -5	**U**		

T20		Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Fell remove	Fell remove	0 -5	**U**		
T21		Sitka Spruce (Picea sitchensis)		1	1	1	1	240	MA	Poor			v thin crown , sub dominant	Fell remove	5 -10	**U**		
T22	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	Poor			v thin crown , sub dominant	Fell remove	5 -10	**U**		
T23	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	Poor			v thin crown , sub dominant	Fell remove	5 -10	**U**		
T24	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	Poor			v thin crown , sub dominant	Fell remove	5 -10	**U**		
T25	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	Poor			v thin crown , sub dominant	Fell remove	0 -5	**U**		
T26	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	280	MA	Poor			co dominant , v thin crown adjacent to WB area	Fell remove	5 -10	**U**		
T28	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	400	MA	Fair			Dominant large tree , buttress roots , good form, may be subject to wind-blow issues	monitor tree health and condition	10 -20	**C**	4.8	72.4
T27	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	200	MA	Poor			v thin crown , sub dominant	Fell remove	5 -10	**U**		
T29	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	410	MA	Fair			co dominant , v thin crown adjacent to WB area	monitor tree health and condition	10 -20	**C**	4.9	76.0
T30	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	518	MA	Fair			co dominant , v thin crown adjacent to WB area	monitor tree health and condition	10 -20	**C**	6.2	121.4
T31	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	390	MA	Poor		0.5	edge tree with crown bias towards field/East, adjacent WB area	Fell remove	5 -10	**U**		
T32	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	630	MA	Good			large open grown edge tree, uniform crown , dominant, may be subject to future WB	monitor tree health and condition	10 -20	**C**	7.6	179.6
T33	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	320	MA	Poor			edge tree with crown bias towards field/East, adjacent WB area, thin crown.	monitor tree health and condition	10 -20	**C**	3.8	46.3
T34	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	280	MA	Fair			large tree, buttress roots, good form and vigour , may be subject to future wind-blow	monitor tree health and condition	10 -20	**C**	3.4	35.5
T35	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	Fair			substantive lean with u bend on upper stem ,maybe subject to future WB, sub dominant	Fell remove	5 -10	**U**		
T36	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	260	MA	Fair			single stem on edge of track , good form , tall thin tree	monitor tree health and condition	10 -20	**C**	3.1	30.6
T37	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	290	MA	Fair			single stem on edge of track , good form , tall thin tree	monitor tree health and condition	10 -20	**C**	3.5	38.0
T38	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Fell remove	Fell remove	0 -5	**U**		
T39	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Fell remove	Fell remove	0 -5	**U**		
T40	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Fell remove	Fell remove	0 -5	**U**		
T41	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	250	MA	Poor			v thin crown , sub dominant	Fell remove	5 -10	**U**		
T42	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Fell remove	Fell remove	0 -5	**U**		
T43	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	500	MA	Fair			large tree, buttress roots, good form and vigour , may be subject to future wind-blow	monitor tree health and condition	10 -20	**C**	6.0	113.1
T44	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	210	MA	Poor			v thin crown , sub dominant	monitor tree health and condition	5 -10	**U**		
T45	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	430	MA	Fair			large tree, buttress roots, good form and vigour , may be subject to future wind-blow	monitor tree health and condition	10 -20	**C**	5.2	83.6
T46	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	320	MA	Fair			single stem adjacent to track, anticipate WB	monitor tree health and condition	10 -20	**C**	3.8	46.3
T47	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Fell remove	Fell remove	0 -5	**U**		

T48	**Be**	Beech (Fagus sylvatica)	13	4	4	4	4	760	MA	Poor			single stem tree in field , has severe basal damage/dead wood with rams horn cavity to 3m , squat crown , possible tension fractures starting on sound wood.	Fell remove	5 -10	**U**		
T49	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Poor			single stem with old broken top at 6m , poor form	Fell remove	5 -10	**U**		
T50	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	Poor			v thin crown , sub dominant	Fell remove	5 -10	**U**		
T51	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	280	MA	Fair			co dominant , v thin crown adjacent to track	monitor tree health and condition	10 -20	**C**	3.4	35.5
T52	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	300	MA	Fair			as above	monitor tree health and condition	10 -20	**C**	3.6	40.7
T53	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	439	MA	Fair			as above	monitor tree health and condition	10 -20	**C**	5.3	87.2
T54	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	320	MA	poor			as above	monitor tree health and condition	10 -20	**C**	3.8	46.3
T55	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	410	MA	Fair			large tree adjacent track, good form	monitor tree health and condition	10 -20	**C**	4.9	76.0
T56	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Dead			Dead/ dying,	Fell remove	0 -5	**U**		
T57	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	360	MA	Fair			large tree adjacent track, good form	monitor tree health and condition	10 -20	**C**	4.3	58.6
T58	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	530	MA	Fair			large tree with buttress roots, slight lean into wind-blow area.	monitor tree health and condition	10 -20	**C**	6.4	127.1
T59	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	210	MA	poor			smaller tree adjacent track, thin crown	Fell remove	5 -10	**U**		
T60	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	350	MA	Fair			co dominant , v thin crown adjacent to road	monitor tree health and condition	10 -20	**C**	4.2	55.4
T61	**SS**	Sitka Spruce (Picea sitchensis)		4	4	4	4	690	MA	Fair			large tree, buttress rooting adjacent to main road, crown bias to West	monitor tree health and condition	10 -20	**C**	8.3	215.4
T62	**SP**	Scots Pine (Pinus sylvestris)	6	2	2	2	2	310	MA	poor			single stem with pronounced s bend along main stem , crown over hanging track, poor form	Fell remove	5 -10	**U**		
T63	**SP**	Scots Pine (Pinus sylvestris)	8	2	2	2	2	310	MA	poor			single stem with poor form and lean over track,	Fell remove	5 -10	**U**		
T64	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	dead			group of 3 dead WB trees and one inaccessible	Fell remove	0 -5	**U**		
T65	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	dead			Dead/ dying,	Fell remove	0 -5	**U**		
T66	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	785	MA	Fair			large tree adjacent to main road, large buttress roots , uniform crown	monitor tree health and condition	10 -20	**C**	9.4	278.8
T67	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	dead			Dead/ dying,	Fell remove	0 -5	**U**		
T68	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	439	MA	poor			sub dominant suppressed	Fell remove	5 -10	**U**		
T69	**SS**	Sitka Spruce (Picea sitchensis)		4	4	4	4	628	MA	Fair			large dominant tree buttress roots, uniform crown adjacent WB area	monitor tree health and condition	10 -20	**C**	7.5	178.4
T70	**SS**	Sitka Spruce (Picea sitchensis)		2	2	2	2	376	MA	Fair			sub dominant suppressed adjacent WB area	monitor tree health and condition	10 -20	**C**	4.5	64.0
T71	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	220	MA	poor			as above	fell remove	5 -10	**U**		
T72	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	Poor			Lean/ Windblown	Fell remove	0 -5	**U**		
T73	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	0	MA	poor			tree with multiple stem kinks , poor form suppressed	Fell remove	5 -10	**U**		
T74	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	549	MA	Fair			as for T69	monitor tree health and condition	10 -20	**C**	6.6	136.4

T75	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	dead			wind-blow group of 4x trees	Fell remove	0 -5	**U**		
T76	**SS**	Sitka Spruce (Picea sitchensis)		3	3	3	3	533	MA	Fair			large edge tree wit crown bias over field	monitor tree health and condition	10 -20	**C**	6.4	128.5
T77	**SS**	Sitka Spruce (Picea sitchensis)		5	5	5	5	847	MA	Fair			as for T76, storm damage on lower branches	monitor tree health and condition	10 -20	**C**	10.2	324.5
T78	**SS**	Sitka Spruce (Picea sitchensis)		1	1	1	1	220	MA	poor			sub dominant suppressed	Fell remove	5 -10	**U**		
T79	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	dead			Dead/ dying,	Fell remove	0 -5	**U**		
T80	**SS**	Sitka Spruce (Picea sitchensis)		0	0	0	0	0	MA	WB			Fell remove	Fell remove	0 -5	**U**		
							*WB – trees either leaning with root lift or blown over											

TREES FOR REMOVAL

Category and definition	Criteria	Colour on Plan
Category U -Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management Trees infected with	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 (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)	
	Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline	
	pathogens of significance to the health and/or safety of other trees nearby (e.g. Ash Dieback), or very low quality trees suppressing adjacent trees of better quality NOTE Habitat reinstatement may be appropriate (e.g. U category tree used as a bat roost: installation of bat box in nearby tree).	**DARK RED**

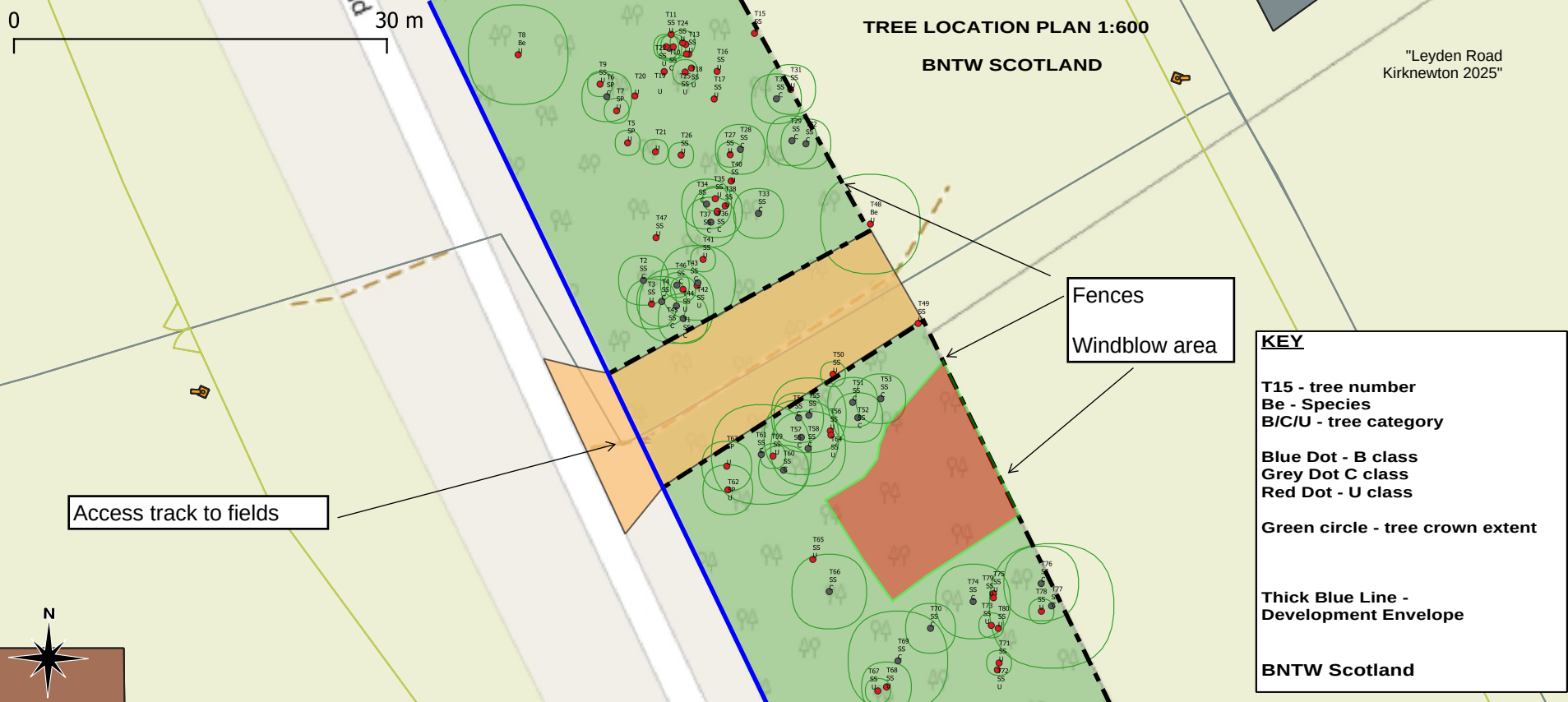
TREES TO BE CONSIDERED FOR RETENTION

Category and definition	Criteria — Subcategories			Colour on Plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
Category A - Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	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	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	**LIGHT GREEN**
Category B - Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	**MID BLUE**
Category C - Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	**GREY**
NOTE Whilst 'C' category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.				

Appendix 2

Tree Location Plan


0 30 m
TREE LOCATION PLAN 1:5000
BNTW SCOTLAND
Leyden Road
Kirknewton 2025"
Tree location
Overview
Leyden Road
Leyden Road
014
N


0
30 m
TREE LOCATION PLAN 1:600
BNTW SCOTLAND
"Leyden Road
Kirknewton 2025"
Fences
Windblow area
Access track to fields
N
KEY
T15 - tree number
Be - Species
B/C/U - tree category
Blue Dot - B class
Grey Dot C class
Red Dot - U class
Green circle - tree crown extent
Thick Blue Line -
Development Envelope
BNTW Scotland

GLOSSARY OF ARBORICULTURAL TERMS

Abscission. The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a corky layer across its base; in some tree species twigs can be shed in this way

Abiotic. Pertaining to non-living agents; e.g. environmental factors

Absorptive roots. Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients

Adaptive growth. In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress

Adaptive roots. The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading

Adventitious shoots. Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'

Anchorage. The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree

Architecture. In a tree, a term describing the pattern of branching of the crown or root system

Axil. The place where a bud is borne between a leaf and its parent shoot

Bacteria. Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms

Bark. A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem

Basidiomycotina (Basidiomycetes). One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools. Most of the principal decay fungi in standing trees are basidiomycetes

Bolling. A term sometimes used to describe pollard heads

Bottle-butt. A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification

Bracing. The use of rods or cables to restrain the movement between parts of a tree

Branch:

- **Primary.** A first order branch arising from a stem
- **Lateral.** A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches
- **Sub-lateral.** A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs

Branch bark ridge. The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem

Branch collar. A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base

Brown-rot. A type of wood decay in which cellulose is degraded, while lignin is only modified

Buckling. An irreversible deformation of a structure subjected to a bending load

Buttress zone. The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions

Cambium. Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally

Canker. A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria

Canopy species. Tree species that mature to form a closed woodland canopy

Cleaning out. The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree

Compartmentalization. The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region

Compression strength. The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices

Compressive loading. Mechanical loading which exerts a positive pressure; the opposite to tensile loading

Condition. An indication of the physiological vitality of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree

Construction exclusion zone. Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and/or ground protection

Crown/Canopy. The main foliage bearing section of the tree

Crown lifting. The removal of limbs and small branches to a specified height above ground level

Crown thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure

Crown reduction/shaping. A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape

Crown reduction/thinning. Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

Deadwood. Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard

Decurrent. In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent). In fungi with toadstools as fruit bodies, the description of gills which run some distance down the stem, rather than terminating abruptly

Defect. In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment

Delamination. The separation of wood layers along their length, visible as longitudinal splitting

Dieback. The death of parts of a woody plant, starting at shoot-tips or root-tips

Disease. A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms

Distal. In the direction away from the main body of a tree or subject organism (cf. proximal)

Dominance. In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also the tendency of a tree to maintain a taller crown than its neighbours

Dormant bud. An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so

Dysfunction. In woody tissues, the loss of physiological function,

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

especially water conduction, in sapwood

DBH (Diameter at Breast Height). Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified

Endophytes. Micro-organisms which live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture

Epicormic shoot. A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot

Excrescence. Any abnormal outgrowth on the surface of tree or other organism

Excurrent. In trees, a system of branching in which there is a well defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)

Felling licence. In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber

Flush-cut. A pruning cut which removes part of the branch bark ridge and or branch-collar

Girdling root. A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue

Guying. A form of artificial support with cables for trees with a temporarily inadequate anchorage

Habit. The overall growth characteristics, shape of the tree and branch structure

Hazard beam. An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting

Heartwood/false-heartwood/ripewood. Sapwood that has become dysfunctional as part of the natural aging processes

Heave. A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also the lifting of pavements and other structures by root diameter expansion; also the lifting of one side of a wind-rocked root-plate

High canopy tree species. Tree species having potential to contribute to the closed canopy of a mature woodland or forest

Incipient failure. In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part

Included bark (ingrown bark). Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact

Increment borer. A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood

Infection. The establishment of a parasitic micro-organism in the tissues of a tree or other organism

Internode. The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches

Lever arm. A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch

Lignin. The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification

Lions tailing. A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end-loading

Loading. A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure

Longitudinal. Along the length (of a stem, root or branch)

Lopping. A termoften used to describe the removal of large branches from a tree, but also used to describe other forms of cutting

Mature Heights (approximate)**:**

- **Low maturing** –less than 8 metres high
- **Moderately high maturing** –8 –12 metres high
- **High maturing** –greater than 12 metres high

Microdrill. An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density

Minor deadwood. Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree

Mulch. Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material

Mycelium. The body of a fungus, consisting of branched filaments (hyphae)

Occluding tissues. A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. woundwood)

Occlusion. The process whereby a wound is progressively closed by the formation of new wood and bark around it

Pathogen. A micro-organism which causes disease in another organism

Photosynthesis. The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products

Phytotoxic. Toxic to plants

Pollarding. The removal of the tree canopy, back to the stem or primary branches. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species

Primary branch. A major branch, generally having a basal diameter greater than 0.25 x stem diameter

Primary root zone. The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference to BS5837 (2005) Trees in Relation to Construction Recommendations

Priority. Works may be prioritised, 1. = high, 5. = low

Probability. A statistical measure of the likelihood that a particular event might occur

Proximal. In the direction towards from the main body of a tree or other living organism (cf. distal)

Pruning. The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs

Radial. In the plane or direction of the radius of a circular object such as a tree stem

Rams-horn. In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section

Rays. Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood

Reactive Growth/Reaction Wood. Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)

Removal of dead wood. Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branchwood and broken snags

Removal of major dead wood. The removal of, dead, dying and diseased branchwood above a specified size

Respacing. Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees.

Residual wall. The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues

Root-collar. The transitional area between the stem/s and roots

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

Root-collar examination. Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and/or stem

Root protection area. An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival. Calculated with reference to BS5837 (2005)

Root zone. Area of soils containing absorptive roots of the tree/s described. The **Primary** root zone is that which we consider of primary importance to the physiological well-being of the tree

Sapwood. Living xylem tissues

Secondary branch. A branch, generally having a basal diameter of less than 0.25 x stem diameter

Selective delignification. A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

Shedding. In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales

Silvicultural thinning. Removal of selected trees to favour the development of retained specimens to achieve a management objective

Simultaneous white-rot. A kind of wood decay in which lignin and cellulose are degraded at about the same rate

Snag. In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point

Soft-rot. A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole

Spores. Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water

Shrub species. Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees

Sporophore. The spore bearing structure of fungi

Sprouts. Adventitious shoot growth erupting from beneath the bark

Stem/s. The main supporting structure/s, from ground level up to the first major division into branches

Stress. In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature

Stress. In mechanics, the application of a force to an object

Stringy white-rot. The kind of wood decay produced by selective delignification

Storm. A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes

Structural roots. Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree

Subsidence. In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots

Subsidence. In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight

Taper. In stems and branches, the degree of change in girth along a given length

Target canker. A kind of perennial canker, containing concentric rings of dead occluding tissues

Targets. In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it

Topping. In arboriculture, the removal of the crown of a tree, or of a major proportion of it

Torsional stress. Mechanical stress applied by a twisting force

Translocation. In plant physiology, the movement of water and dissolved materials through the body of the plant

Transpiration. The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells

Understorey. A layer of vegetation beneath the main canopy of woodland or forest or plants forming this

Understorey tree species. Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland

Vascular wilt. A type of plant disease in which water-conducting cells become dysfunctional

Vessels. Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally not present in coniferous trees

Veteran tree. A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned

White-rot. A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded

Wind exposure. The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity

Wind pressure. The force exerted by a wind on a particular object

Windthrow. The blowing over of a tree at its roots

Wound dressing. A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites

Woundwood. Wood with atypical anatomical features, formed in the vicinity of a wound

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

APPENDIX 3 - PHOTOGRAPHS

Picture showing rootlift/windblown trees.

Beech tree T8 showing cavity/basal decay

Beech tree T48 showing Rams horn Structure with severe basal decay.

Picture showing windblown trees within Survey area.

0 30 m

APPENDIX 4

WOODLAND STATUS MAP