# Tree Heritage Arboricultural Contractors and Consultants

Established 1982



# ARBORICULTURAL METHOD STATEMENT

For

ALTON TOWERS
ROLLERCOASTER 2013









#### Contents

#### Introduction

- 1.0 Phasing and Monitoring
- 2.0 Root Protection Area (RPA)
- 3.0 Tree Surgery/Felling
- 4.0 Tree Protection Fencing
- 5.0 Restrictions within the Tree Protection Areas
- 6.0 Avoid Damage to Retained Trees
- 7.0 Installation of Underground Services
- 8.0 Special Measures for Construction within RPA

### **Appendices**

Appendix A – Tree Survey Schedule

Appendix B – Tree Protection Fencing

Appendix C - Tree Works Schedule

Appendix D – Tree Protection Plan – Nicholls Brown Webber /373/78/Drw 3 dated18/10/11

#### Introduction

The following method statement has been prepared by Tree Heritage Ltd for use in the proposed development of the New Roller Coaster at Alton Towers. This Arboricultural Method Statement has been produced to aid the safe and healthy survival of all trees to be retained on the development site. Implementation of the protection methods and special construction details within this report are integral to achieving this goal.

For details of trees to be retained, location and types of protection measures reference should be made to drawing NBW/373/78/Drw 3 dated18/10/11.

The information contained within this Arboricultural Method Statement is in line with BS 5837:2005 Trees in Relation to Construction – Recommendations.

#### 1.0 **Phasing and Monitoring**

- 1.1 The following phasing and monitoring procedures are designed to protect the trees that are to be retained on site, from pre-development stage throughout construction to ensure their survival post development.
- 1.2 The order in which the works should commence is as follows;
  - Pre- Commencement Site meeting This should include a detailed discussion of the exact position of the protective fences, the necessity to ensure adequate supervision at key stages and who is responsible on site for the welfare of the trees.
  - 2. Tree Surgery Including all felling and pruning works.
  - **3.** Tree Protection Fencing To be erected as shown on drawing NBW/373/78/Drw 3 dated18/10/11 prior to any development work commencing on site.
  - 4. Installation of underground services
  - 5. Installation of Special Measures within RPA

#### 2.0 Root Protection Area

- 2.1 Based on the tree survey data, Root Protection Areas (RPA's) have been calculated for every retained tree. The RPA's are designed to protect at least a functional minimum of tree root mass in order to ensure the trees survive the development process.
- 2.2 It is the responsibility of everyone engaged in the development process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

#### 3.0 Tree Surgery/Felling

- 3.1 It is recommended that all tree work including felling and pruning shall be carried out prior to the start of the construction process. Details of all tree works to be carried out are listed in the tree work schedule located in Appendix C. All tree works should be carried out in accordance with current industry best practice, BS3998:2010 Tree Work Recommendations.
- 3.2 All tree work should be carried out by fully qualified and competent contractors such as Arboricultural Association Approved Contractors.
- 3.3 All operations should be carefully carried out to avoid damage to the trees being worked on and adjacent trees. No trees to be retained shall be used for anchorage or winching purposes.

#### 4.0 Tree Protection Fencing

- 4.1 The Tree Protection Plan NBW/373/78/Drw 3 dated18/10/11 shows the location of the tree protection fencing and the construction exclusion zones.
- 4.2 The tree protection fencing shall be erected prior to any of the following taking place; Plant and Material delivery, Soil stripping, Construction works, Utility installation, and Landscaping.
- 4.3 The tree protection fencing should be suitable for purpose to protect the tree from vehicle and machinery damage throughout the entire construction process. An example of the type of tree protection fencing as recommended in BS5837:2005 is attached with this report as Appendix B.
- 4.4 The fencing should have a Sign attached warning that access into these areas is not permitted without written authority from the supervising Arboriculturalist.

#### 5.0 Restrictions within the Tree Protection Areas

- 5.1 Inside the Tree Protection Areas the following shall apply;
  - No mechanical excavation whatsoever.
  - No excavation by other means without a detailed method statement being agreed by Supervising Arboriculturalist.
  - No lowering of the levels for any purposes.
  - No storage of plant or materials.
  - No storage or handling of any chemicals
  - No vehicle access.

#### 6.0 Avoiding Damage to Retained Trees

- 6.1 Care should be taken to ensure no damage occurs to the retained trees throughout the development, either through the construction process or through vehicle access and material delivery.
- 6.2 Any pruning work required to allow access for high vehicle access should be carried out at the tree surgery stage in accordance with BS3998:2010 and done by suitably qualified specialist staff.
- 6.3 Special care will be required when using cranes to avoid contact with the canopies of the trees. Provision may be required for special measure if outriggers need to be used close to or within the RPA. Advice should be sought from the Supervising Arboriculturalist.

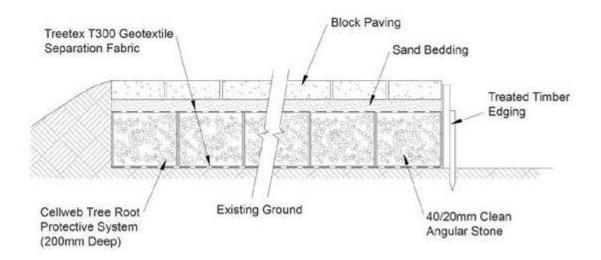
#### 7.0 Installation of Underground Services

- 7.1 All installation of underground services should be carried out outside the Root Protection Area where possible. Any installation within the RPA should be carried out by hand and in accordance with the National Joint Utilities Group Publication 10 (NJUG10).
- 7.2 A detailed method statement for any work within the RPA shall be produced by the contractor and agreed with the Supervising Arboriculturalist prior to the commencement of the work.

#### 8.0 Special Measures for Construction within RPA

- 8.1 The construction of the access road will be within the RPA of trees numbered 4, 8, 9, 11, and 19. Special measures should be taken to ensure no damage occurs. A "no dig method" of construction should be adopted in accordance with Arboricultural Practice Note 12 (APN12).
- 8.2 It is essential to protect the RPA of these trees from the start of operations and that the Tree Protection Fencing is erected before any construction work or site clearance begins at this point.
- 8.3 A "no dig method" means; Roots must not be severed, cut or broken. Ground levels must not be changed. Soil must not be compacted. Oxygen must be able to diffuse into the soil beneath the engineered surface.
- 8.4 The access roads should be designed to sit on top of the existing ground level without any excavating.
- 8.5 An example of a possible construction method is shown below in Figure 1 using a 3-dimensional load spreader.

Figure 1



#### Tree Heritage Ltd

Ben Williams

Ben Williams BSc (Hons) Arb. M.Arbor.A.

Dated: 15<sup>th</sup> December 2011

Tree Heritage Ltd, 100 North St, Leek, Staffs, ST13 8DQ T: 01538 384019 E: treeheritageltd@btconnect.com

Site: Alton Towers Black Hole 2013

Surveyed by: Ben Williams BSc (Hons) Arb. M.Arbor.A

Date: 14/12/11

# **APPENDIX A: TREE SURVEY SCHEDULE**

#### KEY:

Measurements	Age Class	Physiological Condition	Category Grading	Symbols
Height - Metres Stem Diameter - Millimetres at 1.5m above ground level Branch Spread - Metres (North, South, East and West) Crown Clearance - Metres RPA Radius - Metres Estimated Remaining Contribution - Years	Y - Young MA - Middle Aged M - Mature OM - Over-Mature V - Veteran	G - Good F - Fair P - Poor D - Dead	A - High (green) B - Moderate (blue) C - Low (grey) R - Poor/Trees for removal (red) Sub-Categories: 1 - Mainly Arboricultural value 2 - Mainly Landscape value 3 - Mainly Cultural value	< - Less than ~ - Approximately > - Greater than

RPA - Root protection area (equivalent to a circle with a radius 12x the stem diameter for single stem trees and 10x the basal diameter for trees with more than one stem arising below 1.5m above ground level)

Tree Heritage Ltd, 100 North St, Leek, Staffs, ST13 8DQ T: 01538 384019 E: treeheritageltd@btconnect.com

Tree	Species	Height	Stem	В	ranch	Sprea	ad	Crown	Age	Phys.	Structural Condition	Recommendations	Estimated Remaining	Category	RPA
Ref.	Species	neight	Diameter	N	S	Е	w	Clearance	Class	Condition	Structural Condition	Recommendations	Contribution	Grading	Radius
T1	Beech (Fagus sylvatica)	15	600	4	4	6	3	1.5	MA	F	Weak fork. Major deadwood in crown.	No work required.	20-40	C1	7.2
T2	Lawson Cypress (Chamaecyparis lawsoniana)	14	230	1	3	2.5	2	3	MA	F	Weak fork.	No work required.	10-20	C1	2.3
T4	Lawson Cypress (Chamaecyparis lawsoniana)	15	510	3.5	3.5	3.5	3.5	4	М	G	Dead stem.	No work required.	20-40	C1	6.12
T5	Beech (Fagus sylvatica)	16	630	5.5	5.5	5.5	5.5	2.5	MA	F	Weak fork. Major deadwood in crown.	No work required.	20-40	C1	7.56
T6	Beech (Fagus sylvatica)	16	510	5.5	5.5	5.5	5.5	2.5	MA	F	Weak fork. Major deadwood in crown.	No work required.	20-40	C1	6.12
T7	Beech (Fagus sylvatica)	16	520	3	6	5.5	5.5	0	MA	F	Weak fork. Major deadwood in crown.	No work required.	20-40	C1	6.24
Т8	Beech (Fagus sylvatica)	16	590	3	6	3	4	0	MA	F	Weak fork. Major deadwood in crown.	No work required.	20-40	C1	7.08
Т9	Beech (Fagus sylvatica)	15	490	3	3	3	3	4	MA	F	Weak fork. Major deadwood in crown.	No work required.	20-40	C1	5.88
T11	Yew (Taxus baccata)	15	940	6	6	6	6	0	М	G	Good condition.	No work required.	>40	A1	11.28
T12	Sycamore (Acer pseudoplatanus)	16	300	3	3	3	3	4	MA	F		No work required.	10-20	C1	3.6
T13	Beech (Fagus sylvatica)	16	320	3	3	3	3	3.5	MA	F		No work required.	20-40	C1	3.84
T14	Goat Willow (Salix caprea)	14	240	2	5	3	2	3	MA	F		To be removed to allow for construction.	10-20	C1	2.88
T15	Goat Willow (Salix caprea)	14	240	2	5	3	2	3	MA	F		To be removed to allow for construction.	10-20	C1	2.88
T16	Beech (Fagus sylvatica)	15	510	0	6	4	4	0	MA	G	One sided crown.	To be removed to allow for construction.	20-40	C1	6.12
T17	Beech (Fagus sylvatica)	15	230	0	2	3	0	2	MA	F	Major deadwood in crown. One sided crown.	To be removed to allow for construction.	20-40	C1	2.76
T18	Beech (Fagus sylvatica)	15	410	3	3.5	3.5	3	2	MA	F	Major deadwood in crown.	No work required.	20-40	C1	4.92
T19	Beech (Fagus sylvatica)	16	600	5	5	5	5	2	М	F	Included bark present in main fork. Major deadwood in crown.	No work required.	20-40	C1	7.2
T20	Turkey Oak (Quercus cerris)	15	260	2.5	2.5	2.5	2.5	10	MA	F		No work required.	10-20	C1	3.12

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Tree	Species	Height	Stem	В	Branch	Sprea	ad	Crown	Age	Phys.	Structural Condition	Recommendations	Estimated Remaining	Category	RPA
Ref.	Species	neight	Diameter	N	s	Е	w	Clearance	Class	Condition	Structural Condition	Recommendations	Contribution	Grading	Radius
T21	Beech (Fagus sylvatica)	15	300	0	5	2	2	1	MA	G	One sided crown.	No work required.	20-40	C1	3.6
T22	Beech (Fagus sylvatica)	10	220	0	6	2	2	2	MA	F	Crown distorted due to group pressure. One sided crown.	No work required.	10-20	C1	2.64
T23	Beech (Fagus sylvatica)	10	260	0	6	2	2	2	MA	F	Crown distorted due to group pressure. One sided crown.	No work required.	10-20	C1	3.12
T24	Beech (Fagus sylvatica)	10	230	0	6	2	2	2	MA	F	Crown distorted due to group pressure. One sided crown.	No work required.	10-20	C1	2.76
T25	Beech (Fagus sylvatica)	16	580	5	5	5	5	1	MA	F		No work required.	20-40	C1	6.96
T26	Turkey Oak (Quercus cerris)	16	340	3	3	3	3	11	MA	F		No work required.	10-20	C1	4.08
T27	Turkey Oak (Quercus cerris)	16	550	5	4.5	4.5	4.5	11	MA	F	Major deadwood in crown.	No work required.	10-20	C1	6.6
T28	Sycamore (Acer pseudoplatanus)	16	690	6	6	6	6	0	М	G	Major deadwood in crown.	No work required.	20-40	B1	8.28
T29	Turkey Oak (Quercus cerris)	18	800	6	6	6	6	4	М	G	Major deadwood in crown.	No work required.	>40	A1	9.6
T30	Beech (Fagus sylvatica)	15	380	3	3	3	3	1.5	MA	F	Weak fork. Major deadwood in crown.	No work required.	20-40	C1	4.56
T31	Beech (Fagus sylvatica)	14	240	3	3	2	2	2	MA	G		No work required.	20-40	C1	2.88
T35	Ash (Fraxinus excelsior)	16	370	3	3	3	3	11	М	F		No work required.	20-40	C1	4.44
T36	Beech (Fagus sylvatica)	15	300	0	6	3	3	1	MA	F	Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure.	No work required.	20-40	C1	3.6
T37	Beech (Fagus sylvatica)	15	330	4	4	4	4	1	MA	F	Major deadwood in crown.	No work required.	20-40	C1	3.96
T38	Beech (Fagus sylvatica)	16	770	7	7	7	7	2	М	G		No work required.	>40	A1	9.24
T39	Beech (Fagus sylvatica)	16	610	4	7	7	7	2	М	G	Major deadwood in crown.	No work required.	>40	B1	7.32

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Tree	Species	Height	Stem	В	ranch	Sprea	ad	Crown	Age	Phys.	Structural Condition	Recommendations	Estimated Remaining	Category	RPA
Ref.	Species	Height	Diameter	N	S	Ε	w	Clearance	Class	Condition	Structural Condition	Recommendations	Contribution	Grading	Radius
T41	Beech (Fagus sylvatica)	15	420	0	6	4	4	0	MA	F	Unbalanced crown shape. Crown distorted due to group pressure.	No work required.	20-40	C1	5.04
T42	Sycamore (Acer pseudoplatanus)	16	740	7	7	7	7	2	М	G	Major deadwood in crown.	No work required.	20-40	B1	8.88
T43	Ash (Fraxinus excelsior)	17	670	4	6	5	5	3.5	М	F	Broken branches in crown. Major deadwood in crown.	No work required.	20-40	C1	8.04
T44	Beech (Fagus sylvatica)	14	460	0	8	4	4	1	MA	F	Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure.	No work required.	20-40	C1	5.52
T45	Scots Pine (Pinus sylvestris)	10	180	3	3	3	3	2.5	Υ	G		To be removed to allow for construction.	20-40	C1	2.16
T46	Scots Pine (Pinus sylvestris)	10	180	3	3	3	3	2.5	Υ	G		To be removed to allow for construction.	20-40	C1	2.16
T47	Horse Chestnut (Aesculus hippocastanum)	11	440	6	6	6	6	2	MA	F	Heavy branch weight.	No work required.	20-40	C1	5.28
T48	Wellingtonia (Sequoiadendron giganteum)	12	480	4	4	4	4	0	Y	G	Good condition.	No work required.	>40	A1	5.76
T49	Coast Redwood (Sequoia sempervirens)	10	370	4	4	4	4	0	Y	G	Good condition.	To be removed to allow for construction.	>40	A1	4.44
T50	Shore Pine (Pinus contorta)	8	270	4	4	4	4	2	MA	G		To be removed to allow for construction.	20-40	C1	3.24
T51	Shore Pine (Pinus contorta)	7	160	3	3	3	3	2	Υ	G		No work required.	20-40	C1	1.92
T52	Shore Pine (Pinus contorta)	9	230	4	4	4	4	2	MA	G		No work required.	20-40	C1	2.76
T53	Austrian Pine (Pinus nigra)	9	260	3.5	3.5	3.5	3.5	2	MA	F		No work required.	20-40	C1	3.12
T54	Shore Pine (Pinus contorta)	7	220	3	3	3	3	1.5	Υ	G		No work required.	20-40	C1	2.64
T55	Shore Pine (Pinus contorta)	7	240	3	3	3	3	1.5	Υ	G		No work required.	20-40	C1	2.88
T56	Shore Pine (Pinus contorta)	7	230	3	3	3	3	1.5	Υ	G		No work required.	20-40	C1	2.76

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Tree	Species	Height	Stem	В	ranch	Sprea	ad	Crown	Age	Phys.	Structural Condition	Recommendations	Estimated Remaining	Category	RPA
Ref.	Species	Height	Diameter	N	S	E	w	Clearance	Class	Condition	Structural Condition	Recommendations	Contribution	Grading	Radius
T57	Common Oak (Quercus robur)	15	780	6.5	8	7	6.5	2	М	G		No work required.	>40	A1	9.36
T58	Yew (Taxus baccata)	15	800	7	7	7	7	1.5	М	G		No work required.	>40	A1	9.6
T59	Yew (Taxus baccata)	15	840	6	6	6	6	1.5	М	G		No work required.	>40	A1	10.08
T60	Cedar of Lebanon (Cedrus libani)	8	320	4	4	4	4	2.5	MA	G		No work required.	>40	B1	3.84
T61	Yew (Taxus baccata)	11	510	5.5	5.5	5.5	5.5	0	М	G		No work required.	>40	B1	6.12
T62	Sycamore (Acer pseudoplatanus)	14	550	5.5	6	5	5	3	М	F		No work required.	20-40	C1	6.6
T63	Lawson Cypress (Chamaecyparis lawsoniana)	13	320	3	3	3	3	2	М	F	Weak fork.	No work required.	10-20	C1	3.84
T64	Sycamore (Acer pseudoplatanus)	16	780	6	6	6	6	3	М	G	Squirrel damage in crown.	No work required.	20-40	B1	9.36
T65	Sycamore (Acer pseudoplatanus)	14	540	6	6	6	6	3	М	G	Squirrel damage in crown. Crown heavily reduced.	No work required.	20-40	C1	6.48
T66	Sycamore (Acer pseudoplatanus)	13	340	3	6	3	4	2	М	F	Crown distorted due to group pressure.	No work required.	20-40	C1	4.08
T69	Beech (Fagus sylvatica)	16	370	6	6	6	6	7	М	G		No work required.	20-40	B1	4.44
T70	Beech (Fagus sylvatica)	13	480	8	4	5	5	1	М	G	Crown distorted due to group pressure.	No work required.	20-40	C1	5.76
T71	Yew (Taxus baccata)	13	680	7	7	7	7	2	М	G		No work required.	>40	A1	6.8
T72	Beech (Fagus sylvatica)	15	540	6	6	6	6	5	М	G		No work required.	20-40	B1	6.48
T73	Yew (Taxus baccata)	14	900	7	7	7	7	0.5	М	G		No work required.	>40	A1	10.8
T75	Sycamore (Acer pseudoplatanus)	15	440	4.5	4.5	4.5	4.5	5	MA	F	Weak fork. Major deadwood in crown. Squirrel damage in crown.	No work required.	20-40	C1	5.28
T76	Sycamore (Acer pseudoplatanus)	11	220	3	3	3	3	3	MA	F	Major deadwood in crown. Squirrel damage in crown.	No work required.	<10	C1	2.2

Site: Alton Towers Black Hole 2013

Surveyed by: Ben Williams BSc (Hons) Arb. M.Arbor.A

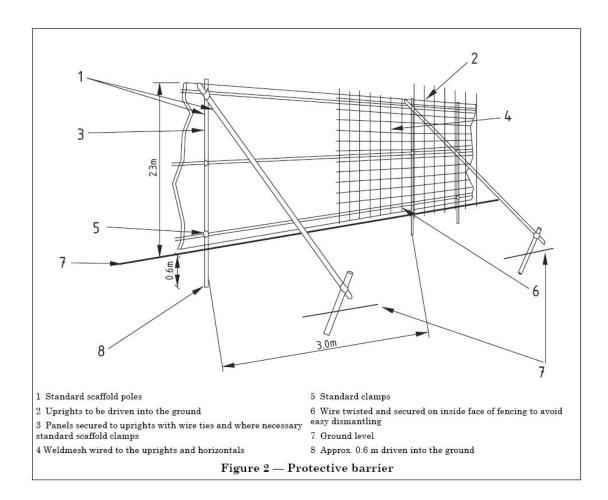
Date: 14/12/11

Tree Heritage Ltd, 100 North St, Leek, Staffs, ST13 8DQ T: 01538 384019 E: treeheritageltd@btconnect.com

Tree	Species	Height	Stem	Branch Spread				Crown	Age	Phys.	Structural Condition	Recommendations	Estimated Remaining	Category	RPA
Ref.	5,50,00	Holgin	Diameter	Z	S	Е	V	Clearance	Class	Condition		recommendations	Contribution	Grading	Radius
1 1//	Goat Willow (Salix caprea)	14	600	5	5	5	5	3	MA	F	Weak fork.	No work required.	10-20	C1	6
1 1/8	Sycamore (Acer pseudoplatanus)	11	270	0	5	3	4	1	MA	F	Squirrel damage in crown.	No work required.	10-20	C1	3.24
(41	Corsican Pine (Pinus nigra 'Maritima')	8	170	3	3	3	3	2	Y	G		G1c & G1d to be removed to allow for construction. (See Plan)	20-40	C1	2.04
	Mixed Conifers. Lawson's Cypress, Juniper.	8	80	2	2	2	2	0	Υ	G		To be removed to allow for construction.	10-20	C1	0.96
S1	Horse Chestnut (Aesculus hippocastanum)														

NB. Trees T3,10,32,33,34,40,67,68,74 and 79 have been removed on the grounds of safety in line with Alton Towers tree management policy. This followed discussions with SMDC Tree and Woodlands officer Steve Massey.

# Appendix B – Tree Protective Barrier: Figure 2 BS 5837:2005



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Site: Alton Towers, Staffordshire

Surveyed by: Ben Williams BSc (Hons) Arb. M.Arbor.A

Date: 15/12/2011

# **APPENDIX C: TREE WORK SCHEDULE**

#### KEY:

Measurements	Age Class	Physiological Condition	Category Grading	Symbols
Height - Metres Stem Diameter - Millimetres at 1.5m above ground level Branch Spread - Metres (North, South, East and West) Crown Clearance - Metres RPA Radius - Metres Estimated Remaining Contribution - Years	Y - Young MA - Middle Aged M - Mature OM - Over-Mature V - Veteran	G - Good F - Fair P - Poor D - Dead	A - High (green) B - Moderate (blue) C - Low (grey) R - Poor/Trees for removal (red) Sub-Categories: 1 - Mainly Arboricultural value 2 - Mainly Landscape value 3 - Mainly Cultural value	< - Less than ~ - Approximately > - Greater than

RPA - Root protection area (equivalent to a circle with a radius 12x the stem diameter for single stem trees and 10x the basal diameter for trees with more than one stem arising below 1.5m above ground level)

Site: Alton Towers, Staffordshire Surveyed by: Ben Williams BSc (Hons) Arb. M.Arbor.A Tree Heritage Ltd, 100 North St, Leek, Staffs, ST13 8DQ T: 01538 384019 E: treeheritageltd@btconnect.com

Tree	Species	Height	Stem	В	ranch	Sprea	ad	Crown	Age	Phys.	Structural Condition	Work Beguired		
Ref.	Species	neight	Diameter	N	s	Е	w	Clearance	Class	Condition	Structural Condition	Work Required		
T14	Goat Willow (Salix caprea)	14	240	2	5	3	2	3	MA	F		Fell tree.		
T15	Goat Willow (Salix caprea)	14	240	2	5	3	2	3	MA	F		Fell tree.		
T16	Beech (Fagus sylvatica)	15	510	0	6	4	4	0	MA	G	One sided crown.	Fell tree.		
T17	Beech (Fagus sylvatica)	15	230	0	2	3	0	2	MA	F	Major deadwood in crown. One sided crown.	Fell tree.		
T45	Scots Pine (Pinus sylvestris)	10	180	3	3	3	3	2.5	Υ	G		Fell tree.		
T46	Scots Pine (Pinus sylvestris)	10	180	3	3	3	3	2.5	Υ	G		Fell tree.		
T49	Coast Redwood (Sequoia sempervirens)	10	370	4	4	4	4	0	Y	G	Good condition.	Fell tree.		
T50	Shore Pine (Pinus contorta)	8	270	4	4	4	4	2	MA	G		Fell tree.		
G1	Corsican Pine (Pinus nigra 'Maritima')	8	170	3	3	3	3	2	Y	G		Fell G1c & G1d. (See Plan)		
G2	Mixed Conifers. Lawson's Cypress, Juniper.	8	80	2	2	2	2	0	Υ	G		Fell tree.		

