APPENDIX 1

APPENDIX 1: ANTHONY WALKER AND PARTNERS PROJECT DESIGN

1 INTRODUCTION

1.1 This project design specification sets out the work that Anthony Walker and Partners consider is required to carry out a non-destructive archaeological and ecological survey of a prehistoric henge monument at Tanfield, North Yorkshire. The work involves an earthwork and ecological survey, augmented by a detailed descriptive, photographic and drawn record, with a view to providing specific recommendations for the improved preservation and management of the site.

1.2 This project design has been prepared by Anthony Walker and Partners at the request of English Heritage (HBMC). It utilises information contained in the North Yorkshire County Sites and Monument Record and the relevant archaeological literature, and incorporates the results of site visits carried out by the Royal Commission on the Historical Monuments of England (RCHME), English Heritage and Anthony Walker and Partners.

2 BACKGROUND

2.1 Site Location

2.1.1 Thornborough North Henge lies in flat open country on Thornborough Moor, 0.5km to the south-west of the village of Nosterfield in the parish of West Tanfield. The site, which is known as Camp Wood, is located on the east side of Green Lane to the north of Camp House (NGR SE281801).

2.1.2 The survey area is circular, measuring approximately 250m in diameter, and consists of substantial earthwork banks overlain by a high density mixture of young broadleaved trees of moderate diversity with associated ground flora.

2.2 Site Ownership and Access

2.2.1 The henge and woodland is privately owned by the Tanfield Lodge Estate. Anthony Walker and Partners will give appropriate notice and obtain the relevant permissions in advance of any survey work.

2.2.2 Entry into the site will be obtained from Green Lane through a fence located on the west side of the monument.

2.3 Site Designations

2.3.1 The area of the henge monument is scheduled as an Ancient Monument under the Ancient Monuments and Archaeological Areas Act 1979 (Monument Number NY 36). The site is also recorded on the National Archaeological Record (SE27NE4) and the North Yorkshire County Sites and Monuments Record. Camp Wood is listed

in the Hambleton District Phase 1 Habitat Survey (site 11) and there is some evidence of badger occupation; both badgers and their setts are protected under the 1992 Badger Act.

2.3.2 Given that the survey is non-destructive in nature, it is considered that scheduled monument consent will not be required. However, appropriate liaison will take place between Anthony Walker and Partners and the relevant authorities to ensure that no undue damage or disturbance will occur to the monument during the period of survey.

3 ARCHAEOLOGICAL BACKGROUND

3.1 Henge Monuments

3.1.1 A henge can be classified as a roughly circular or oval shaped earthwork enclosure, consisting of a ditch with an external bank and an internal diameter in excess of 20m. There are usually either one or two entrances (Darvill 1989, 3). Currently available radiocarbon dates from material associated with the construction and primary use of henges span the period 2500 to 1700 RCYBC, the majority falling within 2100 to 1800 RCYB which equates to about 2800 to 2000 BC (late Neolithic period).

3.1.2 The most distinctive components of a henge monument are its bank and ditch. A study of all known examples shows that the ditch can be between 2.5m and 8m wide, and between 1m and 7m deep with a range of profiles, while the bank can be up to 5.5m high. Most henges have either a single ditch or a pair of concentric ditches, in either case forming a roughly circular or oval enclosure. In some henges, the bank and ditch is separated by a level area called a berm which may be up to 4m wide.

3.1.3 The central portion of the henge, arguably the most important part of the monument, tends to be flat and fairly level, and either circular or oval in plan, their outline being determined by the surrounding ditch. Most sites have either a single entrance or two opposed entrances. The majority of henges contain some internal features, for examples stone circles, portal settings, standing stones, timber circles and/or burials although not all are associated with the primary use of the monument.

3.1.4 Henges are usually classified into four main types, according to the number of entrances and ditches.

I: Single entrance, single bank and, usually, a single ditch circuit.

IA: Single entrance, single bank and double circuit of ditches.

II: Two opposed entrances, single bank and a single ditch circuit.

IIA: Two opposed entrances, single bank and two or more circuits of ditches.

III: Four opposed entrances, single bank and single ditch circuit.

3.1.5 The original purpose and function of henge monuments is not fully understood. The arrangement of banks and ditches is taken to preclude a defensive role and, because of this and the kind of components found within the enclosure, they are generally regarded as being ceremonial or ritual monuments. The nature of such rituals cannot at present be determined. Insufficient evidence for burials exists to suggest a strong link with funerary rituals, and there is no firm evidence for the presence of astronomical alignments in either the design of the henge itself or any of the component structures.

3.1.6 Henges are distributed throughout England, with the notable exceptions of the south-eastern counties and the Welsh Marches, although this may be due to poor identification. Generally, they are located below 125m OD, often beside or near springs or water courses. Gravel terraces in wide flat valleys seem to be the preferred positions. Pairs or small clusters of up to three henges are common, with 0.5km of each other, and they are associated with a wide range of other contemporary monuments, mostly through stratigraphic and spatial relationships.

3.2 The Thornborough henges

3.2.1 Thornborough North Henge is the northern-most of a group of three classic type IIA henges, arranged on a common alignment which runs approximately north-west to south-east. They are spaced at intervals of *c.*750m (centre to centre). Three other henges lie in the general vicinity.

3.2.2 The three Thornborough henges are very similar in terms of size and morphology. Each has a large internal ditch and bank, separated by a wide berm, with a further external ditch. Each have approximately opposed entrances, in the north-west and south-west quadrants.

3.2.3 As is common with groups of henges, the Thornborough complex form the largest element in a concentration of Neolithic and Bronze Age ritual and funerary monuments. A cursus, an elongated ritual enclosure, is aligned at right angles to the axis of the henges and underlies the middle henge. Another possible cursus, aligned roughly parallel to the axis of the henges, lies to the east of the north henge. A double pit alignment (or pit avenue) lies between the middle and south henges, aligned almost north to south and there is a single pit alignment to the north-east, aligned towards the north henge. Numerous round barrows, of which few survive as earthworks, are scattered around the area. A number of other cropmark enclosures

and ditches lie in the vicinity although these could be of a much later date.

3.2.4 A small scale excavation of the central henge in 1952 established its relationship with the underlying cursus, and provided some evidence for the structural history of the bank and inner ditch (Thomas 1955). Some inconclusive evidence was obtained to suggest that the surface of the bank was originally coated with gypsum. Very little dating evidence was obtained. No internal features were identified, although this was due to the poor location of an excavation trench rather than a true absence of features.

4 SUMMARY OF PREVIOUS WORK AND PRESENT CONDITION OF THE SITE

4.1 The north henge is the best preserved of the three henge monuments at Thornborough. It is a classic type IIA henge, comprising a bank between two ditches with entrances in the north-west and south-east quadrants. Harding and Lee suggest that the internal diameter is *c.* 69-98m while the external is *c.* 244m (Harding & Lee 1987, 314). The external ditch is up to 1.3m deep and 8.5m wide nearest the road, although this gradually decreases into a shallow depression to the north and east. The bank is between 0.3 and 3.5m high and 18m wide and the internal ditch is on average 2m deep and 20m wide. The bank and ditch are separated by a berm *c.* 14m wide. The value of the site is such that it is scheduled as a monument of national importance.

4.2 The outer ditch is only immediately apparent in the south quadrants and this area is currently in arable cultivation. The projected line of the ditch to the west would take it to the west of Green Lane but this area has been quarried and no trace remains.

4.3 The majority of the monument, excluding the outer ditch, is contained within an approximately circular boundary. This area is covered with a high density of young broadleaved trees of modest diversity, including oak, ash, elm and beech. The ground flora includes plant species which have an affiliation with ancient woodland, for example, bluebell, dog's mercury and broad buckler-fern. The ecological value of the site is significant and the wood forms a prominent landscape feature.

4.4 Although no archaeological excavation has taken place on the monument, two small trial pits were dug in 1952 in the inner ditch to reveal almost 2 feet of yellow clay (Thomas 1955, 434).

4.5 The management and periodic felling of the woodland has caused some disturbance to the archaeological earthworks and the ground flora, particularly where vehicles have been manoeuvred on the sloping ground. This was particularly marked in February 1977 when the damage was reported to English Heritage by the North Yorkshire County Council's Archaeology Department (information in County SMR). English Heritage's field monument wardens have also reported on some areas of dumped material in the northern quadrant and on the east side of the outer bank.

Some evidence of moles, rabbits and badgers within the earthworks has also been noted.

5 REASONS FOR AND AIMS OF THE PROJECT

5.1 The recent unauthorised dumping and the clearance of fallen timber, in association with the long term effects of root action and tree falls, are resulting in the degeneration of the monument. This survey project aims to provide a sufficient level of information on the extent and condition of the monument to allow an appropriate and sympathetic coordinated management plan to be drawn up, marrying the archaeological and ecological significance of the site with its visual importance.

5.2 The aims of the project are:

i) to gather sufficient information to establish the extent, nature, character, condition and quality of the surviving archaeological features within the survey area;

ii) to gather sufficient information to establish the extent, nature, character, condition and quality of the various ecological components of the survey area;

iii) to provide a detailed and accurate record of the monument, both in terms of archaeological and ecological features;

iv) to provide a detailed management strategy for the preservation and enhancement of the archaeological deposits, where possible without detracting from the ecological or visual importance of the monument.

6 METHODOLOGY

6.1 The on-site survey work will involve a detailed site survey and an archaeological and ecological description which will be augmented by a photographic record where appropriate. The site survey would be achieved by using 5 second EDM total station optical equipment with data being processed by Civilcad, Autocad and Acad Software. This work will culminate in providing detailed land-use management recommendations leading to improving the archaeological conservation of the monument.

Site Survey

6.2 A detailed topographical site survey will be carried out of the whole of the survey area. The site boundaries will be accurately surveyed and sufficient information will be gathered to allow the survey area to be readily located through field boundaries and other distinguishing features.

6.3 The site survey will be integrated into the Ordnance Survey national grid. To assist with the survey, a Temporary Bench Mark will be established and left on site, in a position and using a ground marker approved by English

Heritage. Survey stations will also be positioned and left on site following appropriate approvals.

6.4 The site survey will record the position at ground level of all earthworks, stone and rubble scatters, eroded features and all other items considered to be of archaeological importance.

6.5 The site survey will record any differences in habitat types over the site at the time of the survey, as well as any major concentrations of trees and shrubs. Individual trees will be recorded as appropriate.

6.6 The site survey will record the heights of all appropriate earthworks and other surfaces as levels AOD and a computer-generated Digital Ground Model of the whole of the survey area will be provided. Using this information, a detailed contour plan with intervals of 0.25m will be made. A detailed hachured plan will also be provided.

Archaeological Survey

6.7 The archaeological survey will concentrate on providing an archaeological description to the site survey. This will include an account and preliminary interpretation of extant remains, and will incorporate the results of the photographic survey.

Ecological Survey

6.8 The ecological survey will concentrate on providing a detailed ecological description to the site survey. This will establish woodland quality and provide species lists and National Vegetation Classification of habitat surveys. A badger survey will also be carried out.

Photographic Survey

6.9 A maximum of 10 black and white 5" x 7" record photographs will be taken of items of archaeological and ecological interest. This will include general views. Each photograph will include a scale as appropriate.

Documentary Research

6.10 A limited programme of documentary research will be carried out using appropriate historic maps, plans, aerial photographs and other sources to determine past land use on site, to identify any previous archaeological activity on or adjacent to the site, and to analyse previous cartographic representations and historical descriptions of the site.

Management proposals

6.11 Using the data collected by the site survey, a series of coordinated management recommendations will be proposed with a view to balancing the archaeological, ecological and visual importance of the site. However, it is

recognised at this stage that the preservation and conservation of archaeological deposits must be the prime consideration. These recommendations will be in draft form and will be subject of further discussion with English Heritage, the landowner and other interested parties.

7 THE REPORT

7.1 The final report will take the form of an illustrative and typed standard A4 bound document which will assemble and summarise the recorded data.

7.2 Specifically, the report will include:

a) a contents list;

b) any acknowledgements;

c) an executive summary;

d) an account of the survey methodologies, procedures and equipment used;

e) the archaeological and ecological background to the site, including appropriate maps and plans to locate the survey area;

f) an account of the site's overall form and the evidence supporting any interpretation, in archaeological and ecological terms;

g) a general hachured site plan at 1:500 scale, depicting the topographical features of the site;

h) a general hachured site plan at 1:500 scale, superimposed with ecological data;

i) a contour plan of the site at 1:500 scale;

j) selected 5"x7" black and white prints together with a plan at 1:2500 scale showing the locations of the photographic points;

k) draft management recommendations;

l) the preliminary conclusions and recommendations for any further survey or investigative work;

m) an appendix containing the approved project design;

n) an appendix containing a list of the archive contents;

o) an appendix containing the locations, descriptions and values of the Bench marks and survey stations.

7.3 All drawn records will be produced to scale as an appendix to the main report, as wet ink plots on standard "A" size matt surface stable polyester film sheets (minimum thickness 75 microns) with appropriate grid marks, height values, compass points and information panel incorporating title, drawing numbers, keys, credits, dates etc. Line thicknesses and point sizes will be chosen to allow for ease of duplication and reduction. Reduced A4 or A3 size paper copies will be included within the body of the report.

7.4 A draft copy of the report will be made available to the English Heritage for discussion in advance of the production of the final report.

7.5 Three additional bound copies of the final report will be provided, each containing good quality photocopies or screened versions of the original black and white prints.

8 RESOURCES AND PROGRAMMING

8.1 Staffing and Equipment

8.1.1 The project director for this work will be Mr Ed Dennison, Director of Archaeology at Anthony Walker and Partners. Anthony Walker and Partners are on North Yorkshire County Council's standing list of approved archaeological contractors and Mr Dennison is a member of the Institute of Field Archaeologists. He has considerable experience of non-destructive archaeological survey. Mr Dennison will have overall supervision and responsibility for the project.

8.1.2 All site survey work will be carried out by Anthony Walker and Partners under the direction of Mr Geri Harding and supervision of Mr Dennison. Mr Harding has had considerable experience in archaeological survey work. All general and detailed survey work will be carried out using 5 second EDM total station optical equipment and processed on Civil Cad, Acad and Autocad software.

8.1.3 The black and white photographic work will be undertaken by Mr Dennison.

8.1.4 The ecological survey work will be carried out by Mrs Rona Charles and Mrs Elizabeth Mackenzie, ecologists with Anthony Walker and Partners. Mrs Charles has worked on ecological assessments of archaeological sites for Scottish Natural Heritage.

8.1.5 The report will be produced by Anthony Walker and Partners, using their in-house technicians and secretarial staff.

8.2 Project Timescale

8.2.1 The project could be started immediately upon commission.

8.2.2 It is envisaged that the on-site survey and recording work will take a maximum of two weeks.

8.2.3 It is envisaged that a further period of three weeks will be required before the submission of the report and the archive.

8.2.4 A project timescale will be drawn up and agreed with English Heritage at a preliminary project meeting. One further meeting will be held to discuss the draft report before final submission.

9 BIBLIOGRAPHY

Darvill, T C 1989 "Henges". HBMC Monuments Projection Programme Single Monument Class Description

Harding, A F and Lee, G E 1987 *Henge documents and Related Sites of Great Britain*. British Archaeological Reports 175

Thomas, N 1955 "The Thornborough Circles, near Ripon, North Riding". *Yorkshire Archaeological Journal* vol 38, 425-445

APPENDIX 2

APPENDIX 2: SURVEY CONTROL DATA

Station	Easting	Northing	Relative Level
A1	428024.110	479960.984	48.465
A2	428058.519	479956.424	47.076
A3	428007.026	479990.252	45.588
A4	428030.072	479982.463	45.101
A5	427993.114	480023.249	45.637
A6	428040.068	480035.131	45.824
A7	427978.227	480051.789	46.988
A8	428018.300	480094.319	45.261
A9	428064.556	480126.391	48.391
A10	428096.504	480102.314	45.087
A11	428128.084	480070.297	45.235
A12	428123.085	480030.620	45.106
A13	428008.380	479931.786	45.819
A14	428090.358	480042.882	45.561
A15	428053.935	480051.957	45.817
B	427979.589	479996.470	46.085
C	427958.762	480030.480	45.972
D	427905.990	480058.975	45.962
E	427996.857	480120.048	45.066
F	428042.649	480156.590	44.712
G	428111.395	480120.807	44.637
H	428158.844	480074.733	44.493
J	428150.331	480023.401	44.979
K	428130.595	479980.779	44.961
L	428102.160	479955.515	45.190
M	428104.044	479988.390	45.152

APPENDIX 3

APPENDIX 3: VEGETATION SAMPLES AND OTHER RECORDS OF FLORA

The locations of the samples are shown on Figure 1. Tree numbers referred to are located on Figure 2.

Species are organised as follows: trees are listed on the left hand side , followed by shrubs. Ground flora is listed at the right hand side, with mosses, bare ground and leaf litter (where present) listed at the end. The figure after each species is its Domin value, a measure of cover/abundance:

Cover of	91-100%	is recorded as Domin value (DV)	10
	76 - 90%		9
	51 - 75%		8
	34 - 50%		7
	26 - 33%		6
	11 - 25%		5
	4 - 10%		4
	<4% with many individuals		3
	several		2
	few or one		1

Sample 1

Path through middle of sample. Most trees within 10 x 10m quadrat are small sycamore with some elder. Also larger ash (trees numbered 807 and 875) and some pole-stage sycamore (805 and 6). Additional species noted on slope above quadrat: *Orchis mascula, Primula veris, Viola riviniana, V. hirta, Rosa canina* and *Myosotis* sp.

Trees and Shrubs	DV	Ground Flora	DV
Fraxinus excelsior	5	*Mercurialis perennis*	8
Acer pseudoplatanus	6	*Hyacinthoides non-scripta*	4
Ulmus glabra	1	*Rubus fruticosus*	1
		Silene dioica	5
		Geum urbanum	4
		Ranunculus repens	3
A. pseudoplatanus	5	*Galium aparine*	5
		Arum maculatum	3
Sambucus nigra	5	*Geranium robertianum*	1
		Urtica dioica	3
		S. nigra	2
		Stellaria media	3
		Arctium minus	1
		Viola hirta	2
		Circaea lutetiana	1
		Claytonia perfoliata	1
		Epilobium montanum	2
		Poa trivialis	4
		Dryopteris filix-mas	2
		Alliaria petiolata	1

Sample 2
Disturbed ground.

Trees and Shrubs	DV	Ground Flora	DV
Acer pseudoplatanus	7	*Urtica dioica*	8
Quercus robur	2	*Galium aparine*	7
Fraxinus excelsior	2	*Silene dioica*	2
		Alliaria petiolata	2
		Poa sp	5
A. pseudoplatanus	4	*Dryopteris filix-mas*	1
		Geranium robertianum	4
		Stellaria media	2
		Conopodium majus	1
		Geum urbanum	4
		Stackys sylvatica	3
		Veronica chamaedrys	4
		Arum maculatum	1
		Mysostis sp	1
		Mosses	6
		Bare ground	6

Sample 3
Scattered mature oaks eg 1141. *Daphne laureola* near quadrat.

Trees and Shrubs	DV	Ground Flora	DV
Quercus robur	5	*Scrophularia nodosa*	3
Acer pseudoplatanus	5	*Urtica dioica*	4
		Circaea lutetiana	3
		Geranium robertianum	3
Sambucus nigra	4	*Galium aparine*	3
A. pseudoplatanus	2	*Ribes uva-crispa*	1
		Hyacinthoides non-scripta	4
		S. nigra	2
		Arum maculatum	1
		Taraxacum sp	1
		Hedera helix	1
		Rubus fruticosus	1
		Mercurialis perennis	4
		Ulmus glabra	1
		Geum urbanum	3
		Mosses	4
		Bare ground	4
		Leaf litter	8

Sample 4
10 x 10 quadrat from tree 424 (*Q. robur*).

Trees and Shrubs	DV	Ground Flora	DV
Quercus robur	3	*Geranium robertianum*	4
Fagus sylvatica	1	*Geum urbanum*	4
Acer pseudoplatanus	8	*Rubus fruticosus*	3
Ulmus glabra	1	*Hyacinthoides non-scripta*	4
Ilex aquifolium	1	*Galium aparine*	5
		Arum maculatum	4
I. aquifolium	1	*Lonicera periclymenum*	6
Daphne laureola	1	*Viola riviniana*	6
		Glechoma hederacea	7
		Mercurialis perennis	4
		Epilobium montanum	1
		Taraxacum sp	1
		Dryopteris filix-mas	1
		Rosa canina	1
		Eurynchium sp	8
		Plagiomnium sp	3

Sample 5
Adjacent to sample 4.

Trees and Shrubs	DV	Ground Flora	DV
Fagus sylvatica	3	*Sanicula europaea*	2
Acer pseudoplatanus	7	*Hyacinthoides non-scripta*	6
Quercus robur	2	*Geranium robertianum*	5
Crataegus monogyna	1	*Lonicera periclymenum*	7
Ulmus glabra	1	*Glechoma hederacea*	4
		Arum maculatum	2
Ilex aquifolium	1	*Hedera helix*	8
A. pseudoplatanus	5	*Mercurialis perennis*	5
Ulmus glabra	1	*Geum urbanum*	4
Rubus fruticosus	5	*Stachys sylvatica*	2
		Urtica dioica	1
		?Bromus sp	2
		Galium aparine	4
		Viola riviniana	3
		Daphne laureola	1
		Rubus fruticosus	3

Sample 6
Base of ditch near big beech with swing.

Trees and Shrubs	DV	Ground Flora	DV
Fagus sylvatica	4	*Hyacinthoides non-scripta*	9
Ilex aquifolium	1	*Mercurialis perennis*	7
Quercus robur	1	*Hedera helix*	8
Fraxinus excelsior	1	*Rubus fruticosus*	3
Acer pseudoplatanus	6	*Daphne laureola*	2
		Geum urbanum	4
		Arum maculatum	2
Ulmus glabra	1	*Geranium robertianum*	3
A. pseudoplatanus	3	*Sambucus nigra*	1
Ribes sp	1	*Conopodium majus*	1
		Urtica dioica	3
		Stachys sylvatica	3
		Glechoma hederacea	4
		Galium aparine	3
		Arctium minus	1
		Viola riviniana	2

Sample 7
In ditch by tree 910 (elm).

Trees and Shrubs	DV	Ground Flora	DV
Ulmus glabra	2	*Arum maculatum*	3
Acer pseudoplatanus	5	*Hyacinthoides non-scripta*	5
Quercus robur	2	*Mercurialis perennis*	8
		Galium aparine	3
Crataegus monogyna	2	*Dryopteris dilatata*	1
Sambucus nigra	5	*Circaea lutetiana*	2
Acer pseudoplatanus	4	*Urtica dioica*	1
Fraxinus excelsior	1	*Eurynchium* sp	9

Sample 8
Ditch bottom near tree 760. No large trees in ditch, only overgrown shrubs.

Trees and Shrubs	DV	Ground Flora	DV
Ulmus glabra	4	*Allium ursinum*	1
Acer pseudoplatanus	4	*Mercurialis perennis*	8
Quercus robur	1	*Hyacinthoides non-scripta*	4
Fraxinus excelsior	1	*Galium aparine*	4
		Urtica dioica	4
Sambucus nigra	5	*Asrum maculatum*	4
A. pseudoplatanus	3	*Geum urbanum*	3
F. excelsior	1	*Hedera helix*	2
		Stachys sylvatica	3
		Rubus fruticosus	1

Sample 9
Top and inner side of outer bank, near tree 695. Dog violets with both blue and white flowers.

Trees and Shrubs	DV	Ground Flora	DV
Acer pseudoplatanus	4	*Geranium robertianum*	3
Fraxinus excelsior	4	*Hedera helix*	8
Ilex aquifolium	3	*Geum urbanum*	4
Fagus sylvatica	2	*Galium aparine*	4
		Viola riviniana	5
Crataegus monogyna	3	*V. hirta*	5
Sambucus nigra	3	*Primula veris*	3
Ulmus glabra	1	*Mercurialis perennis*	5
I. aquifolium	1	*Arum maculatum*	3
		Orchis mascula	1
		Sambucus nigra	2
		Alliaria petiolata	3
		A. pseudoplatanus	1
		Poa sp	2
		Taraxacum sp	1
		Arctium minus	1
		Crataegus monogyna	1

Sample 10
Top and inner side of outer bank.

Trees and Shrubs	DV	Ground Flora	DV
Acer pseudoplatanus	4	*Veronica chamaedrys*	4
Fraxinus excelsior	5	*Mercurialis perennis*	10
		Geum urbanum	2
Sambucus nigra	6	*Primula veris*	2
Ulmus glabra	2	*Galium aparine*	4
		Urtica dioica	3
		Hyacinthoides non-scripta	3
		Arum maculatum	2
		A. pseudoplatanus	1
		F. excelsior	1
		Arctium minus	1
		Poa sp	2
		Orchis mascula	2
		Eurynchium sp	9

Sample 11
Top and inner side of outer bank near trees 234 and 230.

Trees and Shrubs	DV	Ground Flora	DV
Acer pseudoplatanus	5	*Mercurialis perennis*	9
Crataegus monogyna	3	*Hedera helix*	9
Ilex aquifolium	3	*Galium aparine*	6
Fraxinus excelsior	4	*Hyacinthoides non-scripta*	4
Quercus robur	2	*Alliaria petiolata*	1
		Arum maculatum	3
Crataegus monogyna	2	*Urtica dioica*	3
Sambucus nigra	4	*S. nigra*	1
A. pseudoplatanus	4	*Geranium robertianum*	3
		Arctium minus	1
		Eurynchium praelongum	8

Sample 12
Ditch bottom near tree 538.

Trees and Shrubs	DV	Ground Flora	DV
Acer pseudoplatanus	5	*Mercuralis perennis*	8
Ulmus glabra	4	*Hedera helix*	9
Fraxinus excelsior	1	*Arum maculatum*	6
Crataegus monogyna	1	*Hyacinthoides non-scripta*	4
		Arctium minus	1
A. pseudoplatanus	4	*Dryopteris filix-mas*	1
Sambucus nigra	4	*Circaea lutetiana*	4
		Geum urbanum	3
		Geranium robertianum	3
		Urtica dioica	1
		Rubus fruticosus	1

Sample 13
Centre of henge, near tree 1164.

Trees and Shrubs	DV	Ground Flora	DV
Acer psuedoplatanus	5	*F. excelsior*	1
Fraxinus excelsior	4	*Urtica dioica*	4
		Geranium robertianum	4
Sambucus nigra	4	*Hyacinthoides non-scripta*	3
Ulmus glabra	1	*Circaea lutetiana*	4
A. pseudoplatanus	2	*Galium aparine*	4
F. excelsior	2	*Poa* sp	2
		Stellaria media	1
		Silene dioica	4
		Geum urbanum	1

Sample 14
Centre of henge, near tree 1225.

Trees and Shrubs	DV	Ground Flora	DV
Acer pseudoplatanus	2	*Galium aparine*	4
Fraxinus excelsior	4	*Urtica dioica*	4
Fagus sylvatica	5	*Geum urbanum*	4
		Hyacinthoides non-scripta	4
Sambucus nigra	6	*Geranium robertianum*	4
A. pseudoplatanus	2	*S. nigra*	3
Ulmus glabra	2	*Poa* sp	1
		Stellaria media	1
		Viola riviniana	2
		Claytonia perfoliata	1
		Dryopteris sp	1
		V. hirta	2
		Mercurialis perennis	4
		A. pseudoplatanus	2

Tree and shrub species in hedge-line

Rosa canina
Ulmus glabra
Crataegus monogyna
Acer pseudoplatanus
Fagus sylvatica
Ilex aquifolium
A. campestre
Prunus spinosa
(Hedera helix)

Species recorded by Anthony Walker and Partners in October 1993

Woodland ground flora:
Hyacinthoides non-scripta
Mercurialis perennis
Dryopteris dilatata
Viola riviniana
Arum maculatum
D. filix-mas
Brachypodium sylvaticum
Campanula latifolia
Knautia arvensis

Roadside hedge:
Fagus sylvatica
Fraxinus excelsior
Acer campestre
Ulmus glabra
Prunus spinosa
Rosa canina
A. pseudoplatanus

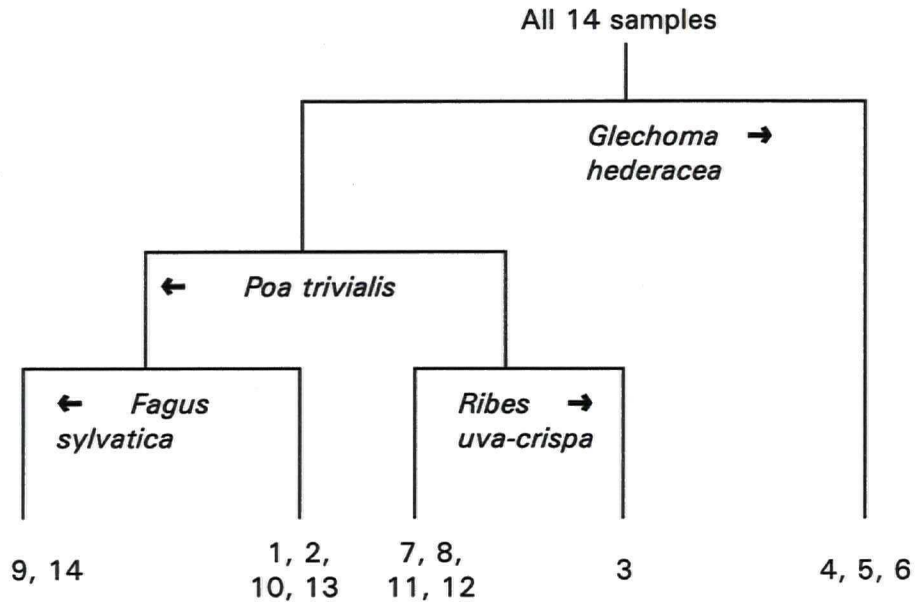
Species recorded for the Hambleton District Phase 1 Survey in October 1992

Acer pseudoplatanus (c)
Arctium minus
Centaurea nigra
Chamaenerion angustifolium now *Epilobium*
Crataegus monogyna (s)
Cruciata chersonensis now *C. laevipes*
Dryopteris dilatata
Dryopteris filix-mas
Fagus sylvatica (c)
Festuca gigantea
Fraxinus excelsior (c)
Geranium robertianum
Geum urbanum
Ilex aquifolium (s)
Lolium perenne
Mercurialis perennis
Potentilla sterilis
Prunella vulgaris
Prunus spinosa (s)
Quercus robur
Rubus fruticosus agg
Sambucus nigra (s)
Silene dioica
Stachys sylvatica
Urtica dioica
Veronica chamaedrys
Ulmus glabra (s)
Hedera helix (s)
Rosa seedling/sp

APPENDIX 4

APPENDIX 4: VEGETATION ANALYSES

Twinspan Analysis



Match Analysis

Matching of data with diagnoses for woodland and scrub. The matching procedures have produced the following results for combined data.

The NVC subcommunities most closely matching the test data are:

1	W8e	coefficient = 65.7
2	W8	coefficient = 62.7
3	W12a	coefficient = 58.7
4	W8d	coefficient = 57.2
5	W8b	coefficient = 56.5
6	W8f	coefficient = 55.4
7	W8a	coefficient = 54.0
8	W12	coefficient = 51.9
9	W8g	coefficient = 48.6
10	W21b	coefficient = 47.9

APPENDIX 5

APPENDIX 5: PHASE 1A AND 1B TREE FELLING

Tree	Species	Phase
12	Ash	1(b)
27	Hawthorn	1(b)
28	Ash	1(b)
37	Ash	1(b)
38	Ash	1(a)
40	Elm	1(b)
57	Ash	1(b)
63	Beech	1(b)
72	Ash	1(a)
84	Sycamore	1(a)
94	Ash	1(a)
95	Ash	1(a)
105	Elm	1(a)
106	Elm	1(a)
107	Elm	1(a)
120	Ash	1(a)
123	Oak	1(a)
125	Elm	1(b)
126	Oak	1(a)
128	Ash	1(a)
129	Ash	1(a)
145	Ash	1(a)
146	Ash	1(a)
147	Oak	1(a)
148	Ash	1(a)
149	Ash	1(a)
152	Sycamore	1(a)
157	Ash	1(a)
166	Ash	1(a)
169	Sycamore	1(b)
170	Sycamore	1(a)
182	Ash	1(b)
185	Sycamore	1(a)
200	Sycamore	1(b)
201	Ash	1(b)
203	Ash	1(b)
204	Hawthorn	1(a)
205	Hawthorn	1(b)
207	Ash	1(a)
208	Sycamore	1(a)
211	Ash	1(a)
213	Hawthorn	1(a)
214	Ash	1(a)
219	Ash	1(a)
221	Ash	1(a)
230	Sycamore	1(a)
232	Holly	1(a)
234	Ash	1(a)
240	Hawthorn	1(a)
255	Sycamore	1(a)
256	Elm	1(a)
257	Sycamore	1(a)
258	Ash	1(a)
259	Ash	1(a)
266	Elm	1(a)
275	Oak	1(a)
281	Ash	1(a)
282	Ash	1(a)
285	Elm	1(a)
286	Ash	1(a)
287	Ash	1(a)

291	Ash	1(a)
292	Elm	1(a)
293	Oak	1(a)
294	Elm	1(a)
295	Sycamore	1(a)
296	Sycamore	1(a)
297	Ash	1(b)
302	Ash	1(a)
305	Oak	1(a)
307	Ash	1(a)
308	Ash	1(a)
309	Ash	1(a)
311	Elm	1(b)
312	Ash	1(a)
315	Ash	1(a)
316	Ash	1(a)
317	Ash	1(a)
319	Ash	1(a)
320	Sycamore	1(b)
340	Sycamore	1(b)
342	Ash	1(b)
345	Ash	1(b)
349	Beech	1(b)
350	Beech	1(a)
355	Ash	1(b)
364	Sycamore	1(a)
365	Hawthorn	1(a)
366	Sycamore	1(a)
367	Beech	1(a)
368	Oak	1(a)
370	Sycamore	1(a)
371	Oak	1(a)
372	Sycamore	1(a)

373	Sycamore	1(a)
374	Elm	1(a)
375	Beech	1(a)
376	Oak	1(a)
381	Sycamore	1(b)
382	Ash	1(b)
383	Ash	1(a)
384	Ash	1(b)
385	Sycamore	1(b)
386	Beech	1(a)
424	Oak	1(a)
433	Ash	1(a)
440	Sycamore	1(a)
441	Ash	1(a)
442	Ash	1(a)
452	Sycamore	1(b)
453	Sycamore	1(b)
454	Oak	1(a)
515	Ash	1(b)
519	Sycamore	1(b)
522	Elm	1(a)
523		1(a)
524	Sycamore	1(a)
528	Sycamore	1(b)
530	Sycamore	1(a)
531	Beech	1(a)
532	Oak	1(a)
533	Ash	1(a)
534	Sycamore	1(a)
535	Sycamore	1(a)
536	Elm	1(a)
537	Elm	1(a)
538	Sycamore	1(a)

539	Elm	1(a)
540	Ash	1(b)
541	Sycamore	1(b)
542	Sycamore	1(a)
543	Elm	1(a)
545	Hawthorn	1(a)
547	Sycamore	1(a)
548	Sycamore	1(a)
549	Sycamore	1(a)
551	Elm	1(b)
557	Sycamore	1(b)
558	Elm	1(a)
566	Oak	1(a)
567	Sycamore	1(b)
626	Ash	1(a)
627	Elm	1(a)
646	Elm	1(a)
654	Ash	1(a)
663	Sycamore	1(b)
665	Elm	1(b)
666	Ash	1(a)
667	Sycamore	1(b)
672	Sycamore	1(a)
674	Sycamore	1(b)
676	Ash	1(a)
678	Sycamore	1(b)
679	Sycamore	1(b)
680	Sycamore	1(b)
685	Elder	1(a)
689	Elm	1(b)
690	Beech	1(a)
691	Beech	1(a)
692	Ash	1(a)

693	Elm	1(a)
694	Holly	1(a)
697	Sycamore	1(b)
698	Sycamore	1(b)
699	Ash	1(b)
700	Ash	1(b)
701	Ash	1(a)
704	Ash	1(a)
705	Ash	1(b)
706	Elm	1(a)
707	Ash	1(a)
710	Ash	1(b)
712	Ash	1(a)
713	Ash	1(a)
715	Ash	1(a)
717	Ash	1(b)
718	Ash	1(b)
721	Beech	1(a)
722	Holly	1(a)
723	Ash	1(a)
725	Holly	1(a)
738	Sycamore	1(b)
740	Sycamore	1(a)
741	Sycamore	1(a)
742	Elm	1(a)
743	Ash	1(a)
745	Sycamore	1(a)
746	Elm	1(a)
759	Sycamore	1(a)
760	Ash	1(a)
761	Ash	1(a)
773	Ash	1(a)
778	Sycamore	1(a)

779	Elder	1(a)
780	Sycamore	1(a)
783	Elm	1(a)
798	Ash	1(a)
799	Ash	1(a)
800	Sycamore	1(a)
803	Hawthorn	1(a)
807	Ash	1(b)
808	Ash	1(a)
812	Ash	1(a)
814	Ash	1(a)
815	Ash	1(a)
817	Ash	1(a)
818	Ash	1(a)
819	Ash	1(a)
822	Sycamore	1(b)
823	Sycamore	1(b)
824	Ash	1(a)
830	Ash	1(a)
831	Elm	1(a)
833	Ash	1(a)
834	Sycamore	1(b)
835	Sycamore	1(b)
836	Elm	1(a)
837	Sycamore	1(b)
841	Sycamore	1(b)
842	Sycamore	1(b)
845	Ash	1(a)
851	Ash	1(a)
857	Hawthorn	1(a)
858	Hawthorn	1(b)
860	Ash	1(a)
861	Sycamore	1(a)

866	Ash	1(a)
892	Elder	1(a)
893	Ash	1(a)
895	Elder	1(a)
902	Sycamore	1(a)
906	Hawthorn	1(a)
907	Hawthorn	1(a)
909	Ash	1(a)
910	Ash	1(a)
911	Elm	1(a)
912	Ash	1(a)
915	Ash	1(a)
918	Sycamore	1(a)
920	Ash	1(b)
922	Elder	1(a)
928	Ash	1(a)
930	Oak	1(b)
931	Ash	1(a)
933	Oak	1(a)
934	Sycamore	1(a)
935	Ash	1(a)
938	Oak	1(a)
939	Oak	1(a)
941	Oak	1(a)
943	Elder	1(a)
944	Elm	1(a)
945	Elm	1(a)
946	Beech	1(a)
949	Ash	1(a)
951	Ash	1(a)
952	Ash	1(a)
953	Ash	1(a)
955	Ash	1(b)

960	Ash	1(a)
962	Elm	1(a)
963	Ash	1(a)
964	Sycamore	1(a)
965	Ash	1(a)
966	Ash	1(a)
979	Elm	1(b)
980	Sycamore	1(a)
983	Ash	1(a)
985	Sycamore	1(b)
986	Ash	1(a)
987	Ash	1(a)
990	Ash	1(b)
992	Sycamore	1(a)
999	Ash	1(a)
1000	Sycamore	1(a)
1004	Ash	1(b)
1007	Sycamore	1(a)
1133	Sycamore	1(a)
1185	Elm	1(a)

Summary totals
Phase 1(a) 211 trees
Phase 1(b) 69 trees